



Review of the fixed narrowband services markets

Consultation on the proposed markets, market power
determinations and remedies

Consultation

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Section 1

Executive Summary

Introduction

- 1.1 Despite the growth of mobile and online services, millions of us still make and receive telephone calls from fixed lines, either at home or at work. As a result, promoting effective competition between the communications providers (CPs) who offer fixed line calls remains an important part of Ofcom's work. This document sets out our proposals for regulation to promote competition in fixed line telephone calls for the next three years (from October 2013 to September 2016), under the European Framework for Electronic Communications.
- 1.2 The services covered by our review are "fixed narrowband telephony services", including retail services, in particular voice telephone calls, and wholesale services such as call origination and call termination, offered between CPs.¹
- 1.3 This consultation document sets out the preliminary conclusions of our review of the retail and wholesale markets for narrowband telephony services in the United Kingdom. We assess the state of competition in these markets and, where competition is not effective, we propose rules to regulate the behaviour of any company we find to have significant market power (SMP). The regulation we propose to put in place seeks to address the competition concerns we have identified. This may include requirements to provide services and, in some cases, controls on the prices charged for such services. In each case, we explain the approach we have adopted, the analysis that has been undertaken and our proposals as a result of our findings.
- 1.4 We intend to finish our review in time for any new rules, including, if appropriate, any new network charge control (NCC) remedies, to take effect when the current NCC expires in September 2013.

Background: the 2009 review

- 1.5 Since 2009, retail narrowband markets in the United Kingdom have mostly been de-regulated, reflecting the growing role played by competition. Ofcom's last market review concluded with publications in September 2009, February 2010² and July 2011.³
- 1.6 The 2009 *Retail Review*⁴ concluded that most United Kingdom retail fixed narrowband markets, with the exception of those in the Hull Area, were effectively competitive (and, specifically, British Telecommunications plc (BT) no longer had

¹ For a full list of markets considered see Section 2.

² The 2009 reviews also included analogue exchange lines and digital services (ISDN2 and ISDN30). We have not included analogue exchange lines or digital services in this review, which are being considered under the Wholesale Local Access market review which commenced in late 2012 (<http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/>)

³ Ofcom, *Wholesale charges for Number Translation Services and Premium Rate Services Statement*, 20 July 2011 http://stakeholders.ofcom.org.uk/binaries/consultations/nts-retail-uplift/statement/NTSRU_statement.pdf

⁴ Ofcom, *Fixed Narrowband Retail Services Markets Statement*, 15 September 2009 http://stakeholders.ofcom.org.uk/binaries/consultations/retail_markets/statement/statement.pdf

SMP in the provision of retail fixed narrowband calls markets in either the residential or business sectors). In the Hull Area, we saw little evidence of effective competition in retail markets, and concluded that KCOM plc (KCOM) had SMP in all retail markets in the Hull Area.

- 1.7 The 2009 *Wholesale Review*⁵ covered both the wholesale markets for access and those for calls. This review will cover only the wholesale markets for calls⁶. In relation to the wholesale markets for calls, we concluded in the 2009 Wholesale Review, that BT had SMP in the United Kingdom excluding the Hull Area in the following markets:
- Wholesale call origination on a fixed narrowband network;
 - Wholesale fixed geographic call termination; and
 - Wholesale single transit.⁷
- 1.8 We found that KCOM had SMP in the Hull Area in wholesale call origination and wholesale fixed geographic call termination markets.
- 1.9 We also found that all providers of fixed geographic call termination had SMP for termination on their own networks.
- 1.10 As a result of the 2009 Wholesale Review, we imposed a range of regulatory obligations including:
- a requirement on BT and KCOM to provide wholesale call origination to other CPs on fair and reasonable terms;
 - requirements on BT and KCOM to provide carrier pre-selection (CPS) and indirect access (IA) to other CPs on request;⁸
 - a requirement on all CPs with SMP in wholesale fixed geographic call termination to provide such termination to other CPs on fair and reasonable terms;
 - requirements on BT and KCOM to provide interconnect circuits to other CPs on request;
 - a requirement on BT to provide single transit services on reasonable request; and

⁵ Ofcom – *Review of the fixed narrowband services wholesale markets Statement* – 15 September 2009 - http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf

⁶ The access market is subject to a separate market review process. See November 2012 Call for Inputs - <http://stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-broadband/summary/reviewL.pdf>

⁷ Feb 2010 further statement - http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/statement/statement.pdf

⁸ Carrier Pre-Selection is the facility offered to customers which allows them to opt for certain defined classes of call to be carried by an operator selected in advance without having to dial a routing prefix or follow any other different procedure to invoke such routing.

- a network charge control (NCC) on BT for charges for the provision of wholesale call origination, wholesale fixed geographic call termination and interconnect services which expires on 30 September 2013.

This review

- 1.11 This review considers whether and to what extent regulation is needed in retail or wholesale fixed narrowband call markets within the United Kingdom, for the period for three years from October 2013 to September 2016.
- 1.12 On 17 May 2012, we published a ‘*call for inputs*’ (May 2012 CFI) seeking views on the proposed scope of our review and the approach we should adopt when assessing whether one or more CP has SMP in a market.⁹ We received 12 responses from industry stakeholders, including BT and other fixed and mobile operators.
- 1.13 On 28 September 2012, we published a consultation entitled “Narrowband Market Review – Consultation on possible approaches to cost modelling for the Network Charge Control for the period 2013-2016” (September 2012 consultation). In that document, we sought views on how we might implement cost modelling for the purposes of setting charge controls for certain key markets in this review, should a charge control remedy be necessary.¹⁰ We received 13 responses from industry stakeholders, including BT and other fixed and mobile operators.
- 1.14 Our review has been based on the information we routinely collect on these markets while carrying out our duties, stakeholder responses to our consultations, a programme of bespoke market research for this review, discussions with industry stakeholders and data supplied by multiple CPs in response to 6 information requests (using our statutory information gathering powers), covering network and financial data along with relevant publicly available information (including material from investor presentations and analysts’ reports).

Proposed conclusions

- 1.15 In this market review we propose that:
 - The relevant markets are broadly as defined in the 2009 Review;¹¹
 - Retail markets in the United Kingdom excluding the Hull Area, remain effectively competitive and that no company holds a position of SMP in the market;
 - In the Hull Area, although KCOM’s market share remains high both in retail residential and in retail business fixed calls, we believe competition law would be sufficient to address any competition concerns and are therefore proposing to remove any remaining regulation in the retail market;
 - BT has SMP in the provision of wholesale call origination in the United Kingdom excluding Hull, and:

⁹ Ofcom, *Fixed Narrowband Market Review, Call For Inputs, 17 May 2012* -

<http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/>

¹⁰ Ofcom, *Narrowband Market Review, Consultation on possible approaches to cost modelling for the network charge control for the period 2013-2016, 28 September 2012* -

<http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review/>

¹¹ With the exception of wholesale call termination which has been adjusted slightly.

- a charge control is an appropriate price remedy;
 - we propose to relax BT's obligation to offer wholesale services so that CPS is available only to providers who offer both calls and a line, not a "calls only" service;¹²
 - for calls to non-geographic numbers, we propose to require the provision of wholesale call origination, until our separate review of these markets is completed and to cap BT's charges for retailing these services at their current levels (in real terms);^{13 14}
 - We propose access and non-discrimination remedies.
- In the Hull Area, KCOM has SMP in the provision of wholesale call origination and a requirement to provide network access on fair and reasonable terms is necessary, and in our view, sufficient. We do not believe that a charge control would also be required;
 - Each CP who connects calls to their own customers has SMP in respect of the market for the supply of wholesale call termination to those numbers. For BT we propose a set of general remedies and a charge control based on the long-run incremental costs (LRIC) of call termination. For all other CPs, including KCOM, we propose a requirement to provide access on fair and reasonable terms and conditions, including charges. We propose that rates symmetrical with the charge control on BT should be considered fair and reasonable;
 - For single transit (a service supplied by a third-party CP passing calls from one provider to another), we believe that regulation is no longer appropriate on the basis that competition law would be sufficient to address any competition concerns that might arise and it is therefore not necessary to impose additional regulation in this market;
 - For interconnect circuits, BT should be required to provide these (on reasonable request) and that charges for those interconnect circuits should be charge controlled; and
 - For interconnect circuits, KCOM should be required to provide these (on reasonable request) but we do not propose to set a charge control.
- 1.16 In our September 2012 consultation we proposed that, in setting a new NCC, we would estimate the forward-looking cost of providing wholesale services based on a Next Generation Network (NGN) model reflecting the use of the internet protocol (IP).
- 1.17 Whilst seemingly a matter of technical detail, that choice reflected our suggestion in the September 2012 consultation that NGN technology might be considered the

¹² If adopted, we anticipate a period of transition to allow communications providers to adapt to this change.

¹³ Since the Non-Geographic reform proposes an unbundled tariff remedy to be implemented by late-2014 we believe that we do not require the NTS call origination condition after late-2014. (See <http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geographic-no/>)

¹⁴ BT is currently required to provide call origination which allows its retail customers to call the non-geographic numbers of other providers. BT is allowed to retain the costs of call origination at the charge controlled rate, plus an additional retention for the costs of providing the retail service (called the Retail Uplift). A further allowance for bad debt arising on calls to premium rate numbers is also allowed.

modern equivalent asset (MEA) to the current generation of network technology based on time division multiplexing (TDM).

- 1.18 Following stakeholder responses to the September 2012 consultation we do not propose to identify NGN as the MEA. In particular, it is difficult to compare the full replacement cost of a TDM network with that of an NGN (which is necessary to correctly identify the MEA) and there are certain of today's services, which may not be fully supported on NGNs. While we now propose that NGNs are not clearly the MEA, we have concerns with perpetuating a hypothetical ongoing TDM cost model, and consider that an NGN model provides an appropriate basis for setting efficient prices for wholesale call origination and wholesale call termination.
- 1.19 Therefore, using this cost model, we propose to cap fixed termination rates (FTRs) at LRIC. In this consultation, we set out proposals for the period over which the changes will take place and the method by which common costs not recovered from FTRs at LRIC will be recovered in the future.
- 1.20 In our base case, this approach will lead to FTRs falling from 0.213ppm in 2012/13 (0.204ppm in 2011/12 prices) to 0.040ppm by 1 October 2013 (in 2011/12 prices).
- 1.21 This reduction in the maximum permitted FTR will be achieved via:
- A charge control to limit FTRs for BT; and
 - other designated CPs to offer fixed call termination at a fair and reasonable rate (which would be presumed to be met when the rate is symmetric with the control on BT's FTR).
- 1.22 We propose that wholesale call origination is the most appropriate service from which to recover the common costs unrecovered from setting FTRs at LRIC.
- 1.23 In our base case, this approach will lead to wholesale call origination rates moving from around 0.263ppm in 2012/13 (0.252ppm in 2011/12 prices) to 0.297ppm by 1 October 2013 (in 2011/12 prices) and falling to 0.244ppm (in 2011/12 prices) in the final year of the charge control.¹⁵
- 1.24 A summary of the proposed controls and ranges for each basket of charges is provided in *Table 1.1.* and a summary of our proposals is provided in *Table 1.2.*

Table 1.1 - Glide-paths and X-values (PPM real values are in 2011/12 prices)

| | 2012/13 Actual Real | 2013/14 Forecast Real | 2014/15 Forecast Real | 2015/16 Forecast Real |
|----------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|
| Termination | | | | |
| Low | | | | |
| Glide-path | 0.204 | 0.002 | 0.002 | 0.002 |
| Medium (base) | | | | |
| Glide-path | 0.204 | 0.040 | 0.037 | 0.034 |
| X-Value | NA | -82.7% | -8.7% | -9.0% |

¹⁵ It should be noted that the new charge control on wholesale call origination will also include the contribution to costs previously recovered through BT's separate Product Management, Policy and Planning (PPP) charge.

| | | | | | |
|--------------------|--------------------------|-------|---------|---------|---------|
| Origination | High | | | | |
| | Glide-path | 0.204 | 0.077 | 0.071 | 0.065 |
| | Low | | | | |
| | Glide-path | 0.252 | 0.240 | 0.215 | 0.193 |
| | Medium (base) | | | | |
| | Glide-path | 0.252 | 0.297 | 0.269 | 0.244 |
| | X-Value | NA | 18.4% | -9.6% | -9.6% |
| | High | | | | |
| | Glide-path | 0.252 | 0.490 | 0.453 | 0.419 |
| | ISB | | | | |
| | Low/Medium (base) | | | | |
| | X-Value | | RPI-RPI | RPI-RPI | RPI-RPI |
| | High | | | | |
| | X-Value | | RPI-0 | RPI-0 | RPI-0 |
| | NTS retail uplift | | | | |
| | X-value | | RPI-0 | RPI-0* | RPI-0* |

Table 1.2 - Summary of remedies

| Market | Obligations ¹⁶ |
|------------------|--|
| Call origination | <p>BT:</p> <ul style="list-style-type: none"> • Network access on reasonable request • Requests for new forms of network access • No undue discrimination • Reference offer • Notification of Charges • Notification of technical information • Transparency as to quality of service • Cost accounting • Accounting separation • Specific form of network access (Carrier Pre-Selection on non-BT Retail lines only)¹⁷ • NTS call origination condition¹⁸ • Charge control (call origination and NTS call origination) <p>KCOM:</p> <ul style="list-style-type: none"> • Network access on reasonable request • No undue discrimination • Reference offer • Notification of Charges • Notification of technical information • Accounting Separation |
| Call termination | <p>BT:</p> <ul style="list-style-type: none"> • Network access on reasonable request • No undue discrimination • Reference offer • Notification of charges • Notification of technical information • Cost accounting • Accounting separation • Charge control <p>All other CPs that provide call termination: requirement to provide network</p> |

¹⁶ We propose to remove the obligation on BT and KCOM to provide Indirect Access. However, we also propose to include a sunset clause of 12 months for this obligation.

¹⁷ We propose to include a sunset clause for the current CPS obligations on BT and KCOM of 12 months. This is discussed further in paragraph 5.269.

¹⁸ This covers the interim period between the conclusion of this review and current charge control and the commencement of the new regime for non-geographic calls which is anticipated to be late-2014.

| | |
|-----------------------|--|
| | access on reasonable request and a requirement to notify charges |
| Interconnect circuits | <p>BT:</p> <ul style="list-style-type: none"> • Network access on reasonable request • New network access • No undue discrimination • Reference offer • Notification of charges • Notification of technical information • Cost accounting • Accounting separation • Transparency as to quality of service • Charge Control <p>KCOM:</p> <ul style="list-style-type: none"> • Network access on reasonable request • No undue discrimination • Reference offer • Notification of charges • Notification of technical information |

Next steps

- 1.25 This consultation closes on **2 April 2013**. We are seeking the views of stakeholders on the proposals contained in this document and Annex 1 provides further details of how to respond.

Section 2

Background

Introduction

- 2.1 In this section we set out the scope of the consultation, the regulation currently in place and summarise the changes that have occurred in the market since the last review. We also describe the process we have adopted in defining the markets in this review and the legal framework pertaining to the market review process.¹⁹

Scope of this consultation

- 2.2 This consultation considers the extent to which any ex ante regulation may be required in the markets for the provision of fixed narrowband voice services in the United Kingdom for the period October 2013 to September 2016. We assess the state of competition in these markets. Where we propose that SMP exists in these markets, we have considered the appropriate regulation which should be applied to address any concerns identified.
- 2.3 We intend any new rules, including, if appropriate, any new NCC remedies, to take effect when the current NCC expires on 30 September 2013.
- 2.4 In this review we have considered the markets and services listed in Table 2.1.

Table 2.1: The markets/services considered in this review.

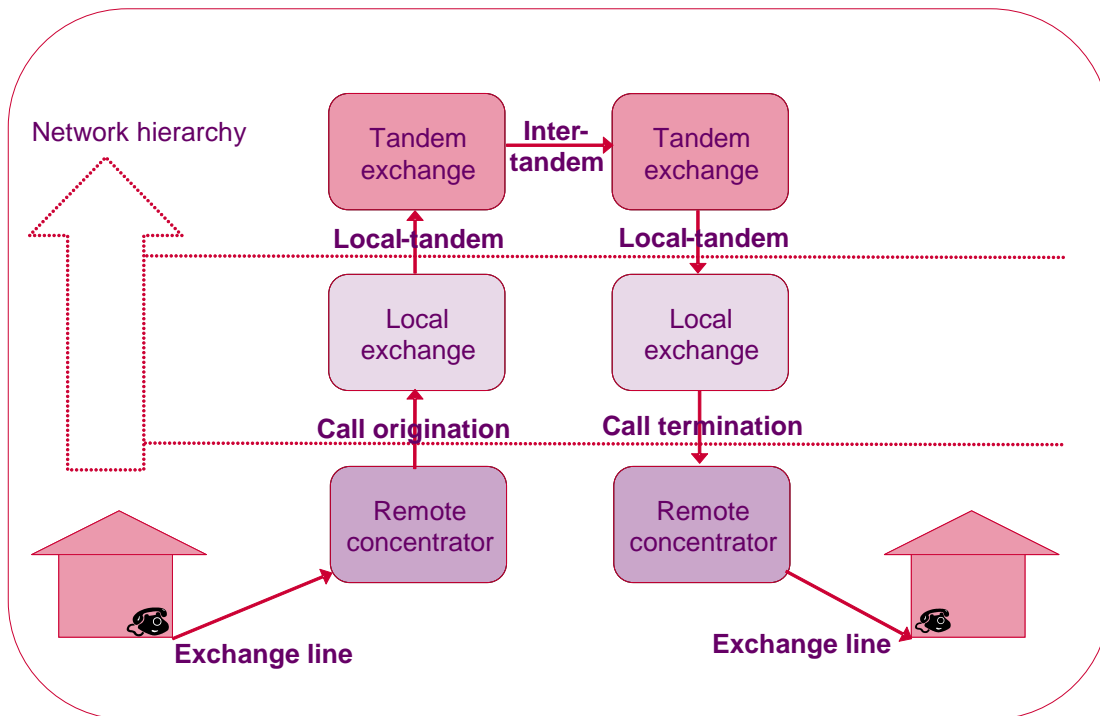
| | Market |
|--|--|
| Retail Market | Residential Fixed Narrowband Calls |
| | Business Fixed Narrowband Calls |
| Wholesale Market | Wholesale call origination on a fixed narrowband network |
| | Wholesale fixed geographic call termination |
| | Local-tandem conveyance and transit |
| | Wholesale transit services – ITC/ITT |
| | Wholesale transit services – ST |
| Service Related to the Wholesale Markets | Interconnection circuits |
| | PPP |

Services considered in this review

- 2.5 As shown in Figure 2.1, the wholesale components that are required to provide retail calls products are call origination, call termination and various conveyance and transit services that provide connectivity across narrowband networks. Figure 2.1 shows such services within the context of BT's current Time Division Multiplex (TDM) network. Other CPs may structure their TDM networks differently. In particular, in other networks, the Remote Concentrator Unit (RCU) is less likely to be physically remote from the Digital Local Exchange (DLE). Additionally, there is less likely to be separate local and tandem network layers.

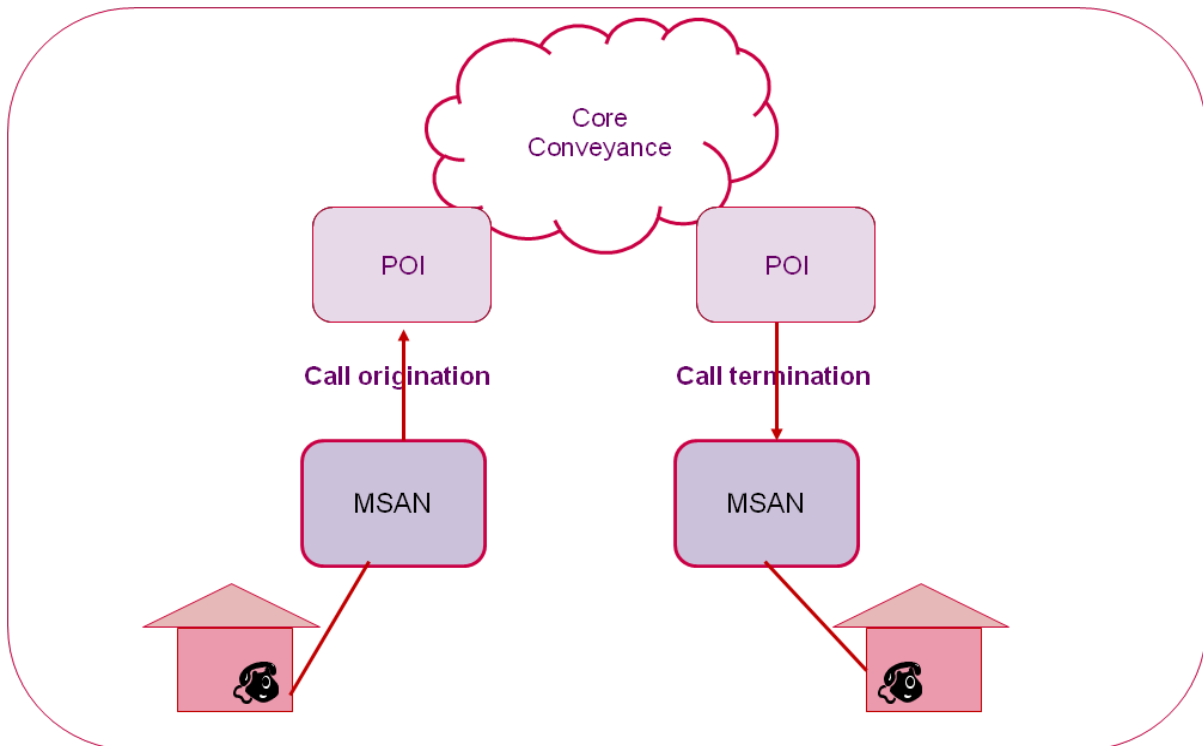
¹⁹ Further detail on the legal framework is set out in Annex 16 – Regulatory Framework.

Figure 2.1: Network services considered in the wholesale fixed narrowband services markets review as applied to the existing BT network.



2.6 Figure 2.2 shows wholesale call origination and wholesale call termination services in the context of a typical Next Generation Network (NGN), which has a different structure to TDM networks.

Figure 2.2: Network services considered in the wholesale fixed narrowband services markets review as applied to a typical NGN.



NGNs and postponement of NGN deployment by BT

- 2.7 The current Public Switched Telephone Network (PSTN) is based on technology developed and rolled out over the past 25 to 30 years. Initially, CPs deployed TDM networks but, in the United Kingdom, a number of CPs have undertaken investments in NGNs. NGNs are generally based on Internet Protocol (IP) packet technology. NGNs convey multiple services (broadband and media services in addition to telephony) over the same all-IP transport platform. From the CP's perspective, NGNs can offer a number of potential benefits including cost savings due to the economies of scale and scope inherent in a single converged network, increased efficiency of network operations and the potential for innovative services.
- 2.8 BT set out proposals for its NGN – which it called 21CN - early in 2004. At the time, BT envisaged that a substantial volume of PSTN traffic would have migrated onto 21CN by 2009. However, in 2009 BT reviewed its plans for deployment of the project in relation to voice services. BT's migration of voice services has not occurred and, to our knowledge, no confirmed timelines for any such migration are currently in place.
- 2.9 Whilst BT has not moved to an NGN for voice services, a number of CPs competing with BT are using NGNs and we consider the impact of the deployment of NGNs over the period of this review.

Previous market reviews

- 2.10 We last reviewed narrowband services markets in 2009, issuing a statement for fixed narrowband retail services²⁰, and two statements for fixed narrowband wholesale services.²¹ For this review we are publishing a single consultation covering both retail and wholesale markets.
- 2.11 In addition, we have conducted market reviews which have considered the competition problems associated with call termination in the mobile market on several previous occasions. In the most recent statements we have concluded that a charge control was necessary to address the competition concerns identified.²²
- 2.12 In the 2009 retail review we found that the retail markets for narrowband services were competitive in the United Kingdom excluding the Hull Area, but that KCOM had SMP in the supply of these services in the Hull Area.
- 2.13 In the 2009 wholesale review we assessed the markets for wholesale call origination and wholesale call termination. In these markets, BT and KCOM had SMP in

²⁰ Ofcom, *Fixed Narrowband Retail Services Markets- Identification of Markets and Determination of Market Power, Statement*, 15 September 2009;

http://stakeholders.ofcom.org.uk/consultations/retail_markets/statement/

²¹ Ofcom, *Review of the Fixed Narrowband Services Wholesale Markets- statement on the markets, market power determinations and remedies including further consultation*, 15 September 2009; http://stakeholders.ofcom.org.uk/consultations/wnmr_statement_consultation/summary, and Ofcom, *Review of the fixed narrowband services wholesale markets - Further statement on wholesale transit markets and remedies in the wholesale call termination market*, 5 Feb 2010;

http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/statement/statement.pdf

²² See Mobile Call Termination Statement March 2011 -

<http://stakeholders.ofcom.org.uk/consultations/mtr/statement> and Mobile Call Termination Statement March 2007 -

http://stakeholders.ofcom.org.uk/consultations/mobile_call_term/statement/

wholesale call origination on a fixed narrowband network and each individual CP had SMP in the market for fixed geographic call termination on its own network.

- 2.14 The 2009 reviews also included analogue and digital (ISDN2 and ISDN30) exchange lines services. Whilst we have included calls made to/from analogue, ISDN2 and ISDN30 lines in this market review, we have not included the access elements of these services in this review, as we consider that it is more appropriate to review such access services under the Fixed Access market review which commenced in late 2012.²³
- 2.15 In our 2009 reviews we also identified and assessed interconnect circuits, and BT's product management, policy and planning (PPP) activities²⁴ related to regulated products. Although these areas were not considered markets in themselves, they are related to the provision of regulated products in the markets covered by the review. We therefore imposed regulatory obligations to ensure the effectiveness of the obligations placed on regulated products.
- 2.16 In relation to transit and conveyance services, in our 2009 reviews we found SMP in the market for single transit (ST), and imposed remedies, whilst we deregulated the market for local-tandem conveyance (LTC) and transit (LTT) services.
- 2.17 A summary of the outcome of the 2009 review is at Table 2.2.

²³ Ofcom, *Fixed Access markets review wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30 Call For Inputs*, 9 November 2012;

<http://stakeholders.ofcom.org.uk/consultations/fixed-access-markets/>

²⁴ PPP includes administration overheads, marketing activities directly related to the regulated service, customer service management for these services and billing and finance activities.

Table 2.2: Summary of SMP findings and remedies imposed in 2009

| Retail Market | Is there SMP? | Remedies / Obligations Imposed |
|--|---|---|
| Residential Fixed Narrowband Calls | Y (KCOM only) | KCOM: No undue discrimination. Publication of charges. |
| Business Fixed Narrowband Calls | Y (KCOM only) | KCOM: No undue discrimination. Publication of charges. |
| Wholesale Market | | |
| Wholesale call origination on a fixed narrowband network | Y (BT and KCOM) | BT: General remedies, requests for new network access, obligation to provide carrier pre-selection (CPS), obligation to provide indirect access (IA), number translation services (NTS) call origination, retail uplift charge control and control on BT's bad debt surcharge, charge control. KCOM: General remedies, obligation to provide CPS, obligation to provide IA. |
| Wholesale fixed geographic call termination | Y (All CPs providing call termination including BT and KCOM) | BT: General remedies, cost accounting and accounting separation, charge control. KCOM: General remedies (excl. requirement to notify technical information, cost accounting and accounting separation). All other communication providers (CPs) that provide call termination: requirement to provide call termination on fair and reasonable terms, requirement to notify charges, terms and conditions ²⁵ . |
| Local-tandem conveyance and transit | N | BT: General remedies (excl. cost accounting) continued for twelve months after review before being lifted. |
| Wholesale transit services – ITC/ITT | N | n/a |
| Wholesale transit services – ST | Y (BT only) | BT: General remedies (excl. basis of charges, and cost accounting). |
| Services Related to the Wholesale Markets | | |
| Interconnection circuits | | BT: General remedies, requests for new network access, transparency as to quality of service, charge control. KCOM: General remedies. |
| PPP | | BT: Charge control. KCOM: n/a |

Developments since the last market review

- 2.18 Since the previous market reviews, there have been a number of developments relevant to the narrowband markets considered in this review. We discuss these in detail in the relevant sections but provide a brief summary below.

²⁵ The requirement to notify charges was added following further review published as Ofcom, *Review of the Fixed Narrowband Services Wholesale Markets-further statement on the wholesale transit markets and remedies in the wholesale call termination market*, 5th February 2010, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/statement/statement.pdf

- 2.19 Since the 2009 review, the coverage of Local Loop Unbundling (LLU)²⁶ has increased and the shift from shared to full LLU has been significant. Both forms of LLU²⁷ allow a CP to locate their own equipment in BT's local exchanges to connect to BT's local copper access network. However, shared LLU only allows the CP to provide Asymmetric Digital Subscriber Line (ADSL) broadband services, with narrowband voice services still being provided over BT's narrowband network. By contrast, full LLU enables full control of services supplied over the copper access network to the CP, including narrowband voice call services, so that they are able to provide narrowband and broadband services without relying on BT's narrowband network. This has led to more intense retail competition as discussed in Section 3.
- 2.20 We are in the process of reviewing the rules governing non-geographic calls services delivered to consumers using telephone numbers beginning with 03, 070, 08, 09 and 118.²⁸ Using these telephone numbers, a wide range of services are offered to callers (consumers) and to public and private organisations. Delivering these services involves a diverse set of participants, joined in complex commercial relationships that have been shaped by, amongst other things, regulation. The links between our narrowband market review and the review of non-geographic numbers are discussed in sections 5 and 6.
- 2.21 We discuss some of the key features of NGNs and the differences between current narrowband networks and NGNs. In Annex 11, we assess some of the issues associated with migration from current networks to NGNs and the issues associated with interconnecting networks using different technologies.

This market review

- 2.22 On 17 May 2012, we published a 'call for inputs' (May 2012 CFI) seeking views on the proposed scope of our review and the approach we should adopt to assessing whether one or more CPs has SMP in a relevant market.²⁹ We received 12 responses from industry stakeholders, including BT and other fixed and mobile CPs.³⁰
- 2.23 On 28 September 2012, we published a consultation entitled "Narrowband Market Review – Consultation on possible approaches to cost modelling for the Network Charge Control for the period 2013-2016" ("the September 2012 consultation"), seeking views on cost modelling based on NGN technology.³¹ We received 13 responses from industry stakeholders, including BT and other fixed and mobile CPs.³²
- 2.24 Our analysis to date has been based on the information we routinely collect on these markets while carrying out our duties, stakeholder responses to the May 2012 CFI

²⁶ LLU allows other CPs to physically take over (or share) BT's existing copper lines between the local telephone exchange and the customer premises.

²⁷ Metallic Path Facility (MPF) and Shared Metallic Path Facility (SMPF).

²⁸ Ofcom, *Simplifying non-geographic numbers – Detailed proposals on the unbundled tariff and Freephone* - <http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geographic-no/summary>

²⁹ Ofcom, *Fixed Narrowband Market Review, Call For Inputs, 17 May 2012* -

<http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/>

³⁰ A full list of CFI respondents can be found in Annex 5 - Sources of Evidence.

³¹ Ofcom, *Narrowband Market Review, Consultation on possible approaches to cost modelling for the network charge control for the period 2013-2016, 28 September 2012* -

<http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review/>

³² A full list of respondents to the September 2012 consultation can be found in Annex 5 – Sources of Evidence.

and the September 2012 consultation, a programme of bespoke market research for this review, discussions with industry stakeholders, data supplied by multiple CPs in response to six formal information requests, covering network and financial data, along with relevant publicly available information (including material from investor presentations and analysts' reports).³³

Call for Inputs (CFI) consultation summary

- 2.25 In the CFI we sought stakeholders' views about the range of products and services that we should cover and the analytical approach we should adopt in this review, including our approach to considering appropriate remedies. In particular we sought stakeholders' views on:
- i) what issues we needed to consider;
 - ii) some hypotheses concerning how we might define the relevant markets and assess SMP, particularly where the facts may not have changed significantly since the last market review;
 - iii) with respect to the existing remedies, experience with regulated fixed narrowband services, market entry and competition in these markets in the United Kingdom; and
 - iv) whether and how these markets have changed since the last market reviews were completed.
- 2.26 We received 12 responses to the CFI in which there was general agreement on the key issues identified, and a broad level of support for the outlined scope of the project. The CFI was sub-divided into four areas: retail markets; wholesale markets definition and SMP; non-pricing remedies; and pricing remedies.
- 2.27 We sought views on the current state of competition in various geographic areas in retail narrowband services. We found that respondents generally agreed that competition had not declined since the last review, noting that BT had lost market share since the last review, and LLU operators had expanded. There was also some degree of agreement that VoIP and mobile have aided retail competition, although to what level was less certain.
- 2.28 In matters regarding wholesale markets, we questioned the effect of wholesale charges at the retail level, the constraint from mobile and/or VoIP, whether number ranges are a relevant factor in defining fixed call termination, NGN deployment and the ST and LTC/LTT markets.
- 2.29 All respondents except BT indicated that BT continues to hold SMP in the wholesale call origination market, despite the increase in self-supplied call origination over LLU. The response on wholesale call termination was mixed, with some favouring and others rejecting our proposal to adopt number ranges as a driver for market definition. All respondents agreed that each CP holds SMP in the supply of wholesale call termination. There was agreement that there had been little change in the LTC/LTT market since we deregulated it in 2009, but contention over ST. BT argued the market was competitive whilst all other respondents argued it was not.

³³ For a more detailed list of the sources of evidence we have used in developing these proposals, see Annex 5.

- 2.30 We sought views on non-pricing remedy issues such as: notice periods for changes in pricing, whether operators with TDM networks should be required to provide IP interconnection and, if so, at how many Points of Interconnection (PoI) should this be provided, and what obligations should apply for this service.
- 2.31 Most respondents coalesced around a 56 day notice period for charges, primarily by reference to a desire to have symmetric notice periods between themselves and BT. The need to allow sufficient time for changes to work through the supply-chain was also noted. There was no consensus on the requirement of TDM networks to provide an IP interconnection service. CPs that currently operate TDM networks such as BT and Virgin Media argued against any such requirement, whilst CPs with NGNs argued strongly in favour. CPs in favour had a diversity of views as to how many points of interconnection should be provided.
- 2.32 In relation to pricing remedies, the May 2012 CFI sought views on issues such as: appropriate pricing remedies for wholesale call origination, the EC Recommendation on setting Fixed Termination Rates (FTRs) at Long Run Incremental Costs (LRIC) and the length of glide path to achieve this, using an NGN cost model, recovery of common costs, and the importance of ‘time of day’ rates (2009 EC Recommendation).³⁴
- 2.33 We received a mixed response on the adoption of LRIC for setting FTRs, however, many respondents agreed with our preliminary view that FTRs need to be set at LRIC for consistency with MTRs (and as recommended in the 2009 EC Recommendation). All but one respondent agreed to the regulation of FTRs at a symmetric level among fixed CPs. There was no consensus on the appropriate glide path to reaching LRIC FTRs; some argued to comply with the 2009 EC Recommendation and achieve this as soon as possible. Others argued for a three year glide path consistent with Ofcom’s previous practice. The choice of modelling approach was flagged as an issue to take due care over, but most agreed in principle to an NGN based model.
- 2.34 In relation to the requirement for the setting of charges based on “time of day”, responses were mixed with some considering that existing arrangements should be maintained and others that it was no longer necessary to use a network tariff gradient.³⁵
- 2.35 In this document, we have sought to reflect the responses to the CFI and to respond to the points raised in presenting out proposals.

The September 2012 consultation summary

- 2.36 In our September 2012 consultation, we sought stakeholders’ views in relation to the modelling and analysis we were conducting concerning any NCC that may be appropriate to set. In particular, we asked stakeholders views on:
- the choice of technology and the intention to model costs of a NGN rather than a network that uses TDM technology;

³⁴ Commission Recommendation on the regulatory treatment of fixed and mobile termination rates in the EU (2009/396/EC) – 7th May 2009 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF>

³⁵ BT Wholesale – *BTs Network Tariff Gradient*
<https://www.btwholesale.com/shared/document/CPL/RHS/timeofday.doc>

- the economic features of our cost model – e.g. model calibration, cost recovery over time, etc; and
 - the implementation of the proposed cost model design, in particular, NGN configuration.
- 2.37 In relation to the choice of technology the responses received to our proposal that an NGN should be considered the MEA for the purposes of cost modelling were mixed. CPs currently operating NGNs agreed with our proposal as did some CPs operating existing TDM networks. However, some stakeholders highlighted the need to be mindful of how industry moves to IP interconnect.
- 2.38 Stakeholders expressed a variety of views around any potential policy choice that mandates (explicitly or implicitly) IP interconnection from 2013 and the associated issue of which CP (the TDM network or the NGN) should bear the costs of conversion for TDM to IP traffic (or vice versa). These issues are discussed in Annex 11.
- 2.39 In relation to the model itself stakeholders provided a range of useful comments which we have taken into account and are set out in section 9 and Annex 12 of this consultation.

Regulatory framework

- 2.40 The regulatory framework has its basis in five EU Communications Directives, each of which have been implemented into national legislation.³⁶ It imposes a number of obligations on the relevant national regulatory authorities, such as Ofcom. One of these obligations is to carry out a market review. We set out the market review process, and the regulatory framework, in more detail in Annex 16. In this chapter we have set out, in summary, what the market review process involves.

The market review process

- 2.41 The review is carried out in three stages:
- i) we identify and define the relevant markets;
 - ii) we assess whether the markets are effectively competitive, which involves assessing whether any operator has significant market power (SMP) in any of the relevant markets; and
 - iii) we assess the appropriate remedies which should be imposed, where there has been a finding of SMP, based on the nature of the competition problem identified in the relevant markets.
- 2.42 In carrying out the review, we are obliged to define relevant markets “appropriate to national circumstances in accordance with the principles of competition law”.³⁷ In so doing, we are also obliged to take “utmost account”³⁸ of the European Commission’s

³⁶ Recent amendments to the five EU Communications Directives were transposed into national legislation and came into effect from 26 May 2011.

³⁷ See Article 15(3) of the Framework Directive (Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, as amended).

³⁸ Ibid.

Recommendation on relevant product and service markets³⁹ ('the 2007 EC Recommendation') and SMP Guidelines.⁴⁰

The 2007 EC Recommendation and its application to this review

2.43 The 2007 EC Recommendation sets out product and service markets which, at a European level, the Commission has identified as being susceptible to ex ante regulation. These markets are identified on the basis of the cumulative application of three criteria:

- the presence of high and non-transitory barriers to entry;
- a market structure which does not tend towards effective competition within the relevant time horizon; and
- the insufficiency of competition law alone to adequately address the market failure(s) concerned.

2.44 The requirement to define relevant markets appropriate to national circumstances means we are free to identify relevant markets in the United Kingdom as susceptible to regulation other than those in the 2007 EC Recommendation. However, where we do so, the 2007 EC Recommendation requires that for each relevant market we must show that the cumulative criteria are satisfied in order for regulation to be appropriate.

The SMP Guidelines and their application to this review

2.45 The SMP Guidelines include guidance on market definition, assessment of SMP and SMP designation. Oftel has produced additional guidelines on the criteria to assess effective competition based on the SMP Guidelines (Oftel Guidelines).⁴¹ In the relevant chapters below in this consultation document we set out how we have taken both the SMP and Oftel Guidelines into account in reaching our proposals.

Forward look

2.46 Rather than just looking at the current position, market reviews look ahead to how competitive conditions may change in future. For this review we have taken a forward look of three years, reflecting the characteristics of the retail and wholesale markets and the factors likely to influence their competitive development. The forward look period also reflects the requirement in the Directives that ordinarily market reviews should be conducted within three years of the previous review.

2.47 This does not preclude us reviewing any of the markets earlier, but absent unforeseen developments we anticipate that we would time the next market review to conclude three years after completion of the current review. We therefore propose that the charge controls that we propose in this consultation will apply for a period of three years.

³⁹ Commission Recommendation of 17 December 2007 on relevant product and services markets (2007/879/EC) - http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_344/l_34420071228en00650069.pdf

⁴⁰ Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services (2002/C 165/03).

⁴¹ See www.ofcom.org.uk/static/archive/oftel/publications/about_oftel/2002/smpg0802.htm.

Impact assessment and EIA framework

Impact assessment

- 2.48 The analysis presented in this document constitutes an impact assessment as defined in section 7 of the Communications Act 2003 (“the Act”).
- 2.49 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which means that generally we have to carry out impact assessments where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, “Better policy-making: Ofcom's approach to impact assessment”, which are on our website.⁴²

Equality Impact Assessment

- 2.50 Annex 10 sets out our Equality Impact Assessment (EIA) for this market review. Ofcom is separately required by statute to assess the potential impact of all our functions, policies, projects and practices on race, disability and gender equality. EIAs also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers regardless of their background or identity.
- 2.51 Unless we otherwise state in this document, it is not apparent to us that the outcome of our review is likely to have any particular impact on race, disability and gender equality. Specifically, we do not envisage the impact of any outcome to be to the detriment of any group of society. Nor are we envisaging any need to carry out separate EIAs in relation to race or gender equality or equality schemes under the Northern Ireland and Disability Equality Schemes. This is because we anticipate that our regulatory intervention will affect all industry stakeholders equally and will not have a differential impact in relation to people of different gender or ethnicity, on consumers in Northern Ireland or on disabled consumers compared to consumers in general. Similarly, we do not consider that our proposals will have a particular impact on consumers in different parts of the United Kingdom or on consumers with low incomes.

Document structure

- 2.52 This document sets out the scope of the review, our approach to the analysis, our findings and our proposals. The rest of this document is set out in the following:
- Sections 3 and 4 cover retail markets and services;
 - Sections 5 to 7 cover wholesale markets and market definition, assessment of SMP and remedies;
 - Sections 8 and 9 deals with issues relating to the choice of cost standard, cost recovery and cost modelling in relation to the charge controls we propose to implement;

⁴² http://stakeholders.ofcom.org.uk/binaries/consultations/ia_guidelines/summary/condoc.pdf

- Section 10 covers interconnection and the group of products that facilitate the connection of the networks of different CPs; and
- Finally, section 11 covers the specific remedy of a charge control and addresses matters relating to basket design.

Section 3

Market developments in retail services in the United Kingdom

Introduction

- 3.1 This section considers the state of competition in the markets for telephone calls from fixed lines, either at home or at work, in the United Kingdom excluding the Hull Area ('the United Kingdom area').
- 3.2 Telephone calls from fixed lines – or 'narrowband' services - are typically provided over analogue telephone lines for residential customers, while business fixed line calls services can be provided over digital technologies (ISDN2, ISDN30 and leased lines) in addition to via analogue lines.

Background

- 3.3 In the 2009 retail review⁴³, we defined separate markets for business and consumer telephone calls in the United Kingdom area, and we found that these markets were effectively competitive. In particular, we found that BT no longer had SMP in respect of the market for retail fixed narrowband calls in either the residential or business sectors.
- 3.4 In reaching this conclusion, we found that the regulated wholesale access and calls services CPS, Wholesale Line Rental (WLR) and LLU had allowed other CPs to compete with BT in offering telephone calls to consumers and business customers across the United Kingdom such that BT was no longer able to exercise SMP in the provision of retail services to consumers.
- 3.5 Consistent with the finding that BT no longer held SMP in business and residential narrowband calls, we revoked all existing SMP conditions in the relevant markets in accordance with section 84(4) of the Act.⁴⁴

The purpose of this review

- 3.6 We are mindful that this is the first review of narrowband services since all regulations were revoked in retail fixed narrowband calls markets in the United Kingdom in 2009. Therefore, we have considered how de-regulation has affected competition and the interests of consumers.⁴⁵

⁴³ Ofcom, Fixed Narrowband Retail Services Market— Identification of Markets and Determination of Market Power, Statement, 15 September 2009, http://stakeholders.ofcom.org.uk/binaries/consultations/retail_markets/statement/statement.pdf

⁴⁴ This meant the removal of the following remedies: the requirement to publish charges and terms and conditions and to notify any amendments to these within 24 hours and no undue discrimination. No retail price control had been in place since 2006 when Ofcom allowed this to expire.

⁴⁵ Where we have previously found markets to be competitive, as is the case in these markets, we are not required to conduct a review of the type contemplated by section 79 of the Act, and indeed this review of retail services does not constitute a review as set out in section 79 of the Act.

- 3.7 In addition, we are now considering the state of competition for the delivery of wholesale services, including wholesale call origination⁴⁶ and wholesale call termination.⁴⁷ Because demand for wholesale services is derived from demand for retail products, it is important to understand the competitive conditions in the supply of retail telephone calls to inform our assessment of the wholesale markets.

Our proposed approach

- 3.8 In relation to the retail market, we have considered trends in:

- retail market shares of suppliers offering narrowband calls (in the residential and business markets);
- the price of narrowband calls in real terms (to the extent that this can be derived from the price of the retail bundles currently offered in the marketplace);
- developments in the supply of bundled offers;
- the wholesale services which are purchased by retailers to enable them to offer narrowband calls (and lines), namely CPS, WLR, wholesale calls and LLU; and
- trends in the supply of mobile services.

Market developments

BT's market share has fallen for both residential and business narrowband services

Residential services

- 3.9 BT's retail market share (by volume) for residential calls has continued to decline since the 2009 review, from 45% in Q1 2009 to 38% in Q1 2012 (see Table 3.1).

Table 3.1 Residential voice call volume market share⁴⁸

| | BT | Virgin Media | TalkTalk | Sky | Others |
|---------|-----|--------------|----------|----------|----------|
| Q1 2009 | 45% | 17% | [10-20]% | [5-10]% | [10-20]% |
| Q1 2010 | 40% | 15% | [10-20]% | [5-10]% | [10-20]% |
| Q1 2011 | 38% | 14% | [20-30]% | [5-10]% | [10-20]% |
| Q1 2012 | 38% | 14% | [10-20]% | [10-20]% | [10-20]% |

Source: Ofcom/operators. Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls and data for KCOM

⁴⁶ Refer to section 5 for a full discussion of wholesale call origination.

⁴⁷ Refer to section 6 for a full discussion of wholesale call termination.

⁴⁸ Consistent with the practice of DG Competition

(http://ec.europa.eu/competition/mergers/legislation/market_share_ranges.pdf) and the United Kingdom Competition Commission (which are currently being consulted on (see paragraph 9.16), http://www.competition-commission.org.uk/assets/competitioncommission/docs/2012/consultations/disclosure_guidance_draft_for_consultation.pdf), we use ranges for market shares which were calculated based on data provided on a confidential basis.

- 3.10 The observed changes in market shares since the last review – and in particular the decreased market share of the largest provider, BT – is evidence that consumers continue to have access to a range of competing services from different providers.
- 3.11 Evidence on consumer switching and satisfaction with fixed line services is consistent with this view. In the 2012 Consumer Experience Report⁴⁹, we found that switching levels had remained broadly unchanged for narrowband services at around 10%, the same level as in 2009.
- 3.12 Customer satisfaction levels have also remained high for fixed lines. The 2012 CMR shows that 89% of consumers with a fixed line at home were either ‘very satisfied’ or ‘fairly satisfied’ with their service⁵⁰, only 2 percentage points lower than in 2009 and therefore relatively unchanged since the last review.

Business services

- 3.13 BT’s market share of business calls has decreased slightly since the last review. Table 3.2 shows that BT’s market share by volume of calls has fallen by 2 percentage points since Q1 2009. However this change in market shares occurred between Q1 2009 and Q1 2010 and market shares have remained stable since then.

Table 3.2 Business voice call volume market share

| | BT | CWW | Virgin Media | Others |
|---------|-----|----------|--------------|----------|
| Q1 2009 | 35% | [10-20]% | 6% | [40-50]% |
| Q1 2010 | 33% | [5-10]% | 6% | [50-60]% |
| Q1 2011 | 33% | [10-20]% | 6% | [50-60]% |
| Q1 2012 | 33% | [5-10]% | 7% | [50-60]% |

Source: Ofcom/operators. Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls and data KCOM

- 3.14 Although BT continues to retain a strong position in the market relative to other individual competitors (as it did in 2009), it has nevertheless continued to lose market share. There is a long tail of providers of fixed line business access and calls which, collectively, have increased their market share since Q1 2009.

Retail prices

- 3.15 Figure 3.1⁵¹ shows that average prices paid by consumers have continued to decline in real terms since the 2009 retail review, with the cost of a basket of residential fixed voice services falling by 2.3% between 2009 and 2011.

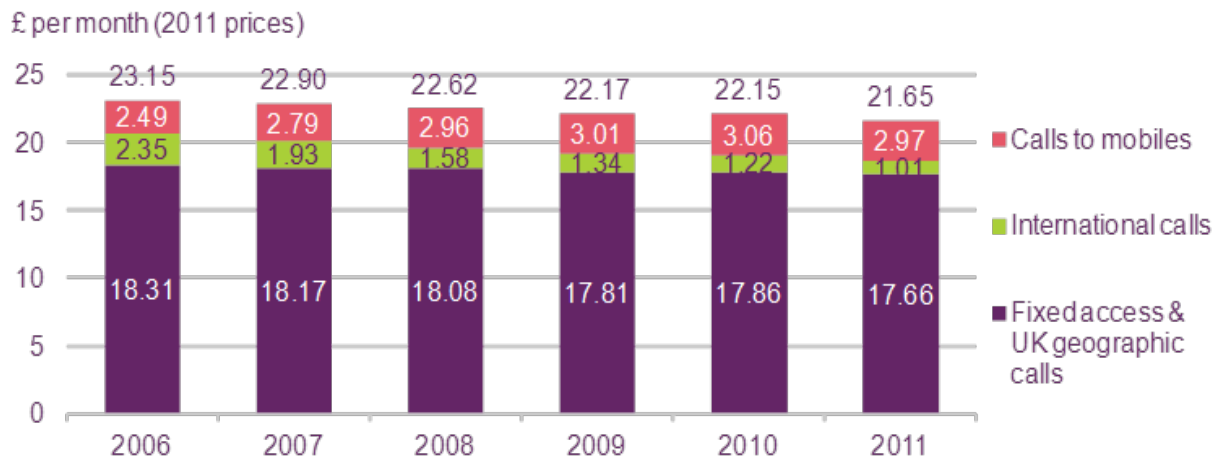
⁴⁹ Consumer Experience Report 2012, January 2013, http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-12/Consumer_Experience_Research1.pdf.

⁵⁰ Figure 1.11, Ofcom, *Communications Market Report*, July 2012, page 32, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

⁵¹ Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls; adjusted for inflation (RPI); includes VAT. The basket consists of the price of 16 minutes of international calls, 16 minutes of calls to mobiles, 204 minutes of United Kingdom geographic calls and the fixed line rental.

- 3.16 Between 2009 and 2011 the real monthly cost of a basket of fixed line rental and United Kingdom geographic calls fell by 15 pence per month (1%), with calls to mobiles falling by four pence per month (1%) and international calls falling by 33 pence per month (25%).⁵²
- 3.17 These trends in prices for residential services suggest that competition in the retail residential market has continued to maintain pressure on retail prices. We believe that this supports the view that the level of competition for residential retail narrowband services has not decreased since the 2009 review.

Figure 3.1 Cost of a basket of residential fixed voice services

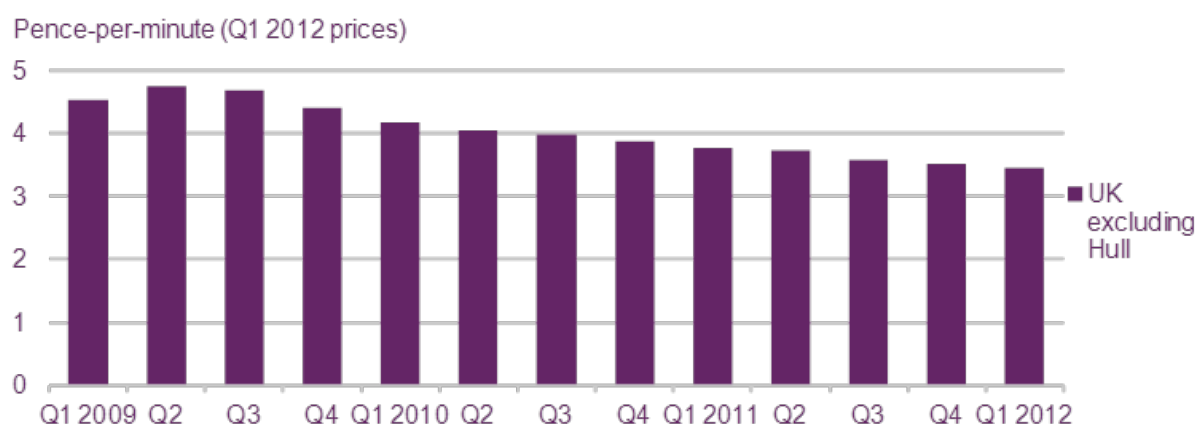


Source: Ofcom/operators Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic calls; adjusted for RPI; includes VAT

- 3.18 We do not have direct evidence in relation to the retail prices of narrowband business services, due to the complex and often bespoke nature of the offerings in the business sector. However, we can look at the reported revenue per minute ('RPM') figures as a proxy for prices in these markets.⁵³

⁵² These findings are broadly consistent with the 2012 Consumer Experience Report, which states that average residential fixed line calls have remained stable in 2011 and that, in real terms, the average call charge in 2011 was equal to the average call charge in 2009 for residential customers. Consumer Experience Report 2012, January 2013, page 86, http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-12/Consumer_Experience_Research1.pdf.

⁵³ Revenue per minute figures are calculated by dividing CPs' (excluding KCOM) total business call revenues (local, national, United Kingdom geographic, international and mobile) by total business call minutes. The data is sourced from quarterly Ofcom data.

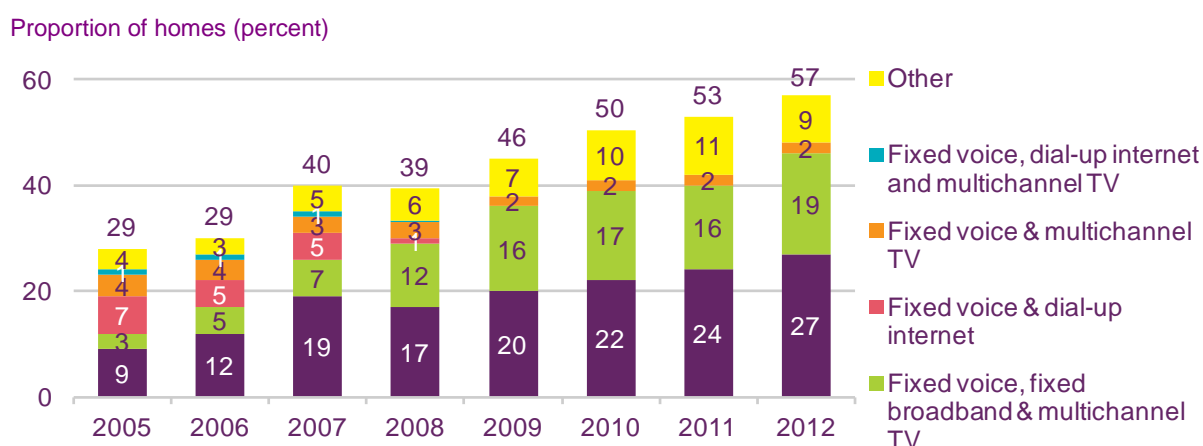
Figure 3.2 Real average retail revenue per minute for business voice calls

Source: Ofcom/operators Notes: includes estimates where Ofcom does not receive data from operators; excludes non-geographic calls; adjusted for RPI

- 3.19 Figure 3.2 shows that the average revenue per minute of business voice calls fell by 1.1p per minute in real terms (i.e. adjusted for inflation) between Q1 2009 and Q1 2012. It is likely that this fall in RPM is due to lower prices in the market, suggesting continued downward pressure on the prices of business calls.

Retail bundling continues to increase

- 3.20 We have seen a continuing trend towards narrowband services being sold as one component of a bundle of communications services (see Figure 3.3). This can benefit the consumer both in terms of convenience and price.
- 3.21 Since the last market review, take-up of bundled services has increased from 46% in Q1 2009 to 57% in Q1 2012. There has been a rise in 'dual-play' bundles that comprise fixed voice and broadband services (up seven percentage points since Q1 2009 to 27% in Q1 2012). The proportion of consumers bundling their multichannel TV, broadband and fixed line has also increased up by three percentage points between Q1 2009 (16%) and Q1 2011 (19%).

Figure 3.3 Take-up of bundled services over time

Source: Ofcom technology tracker Note: Data as at Q1 at each year

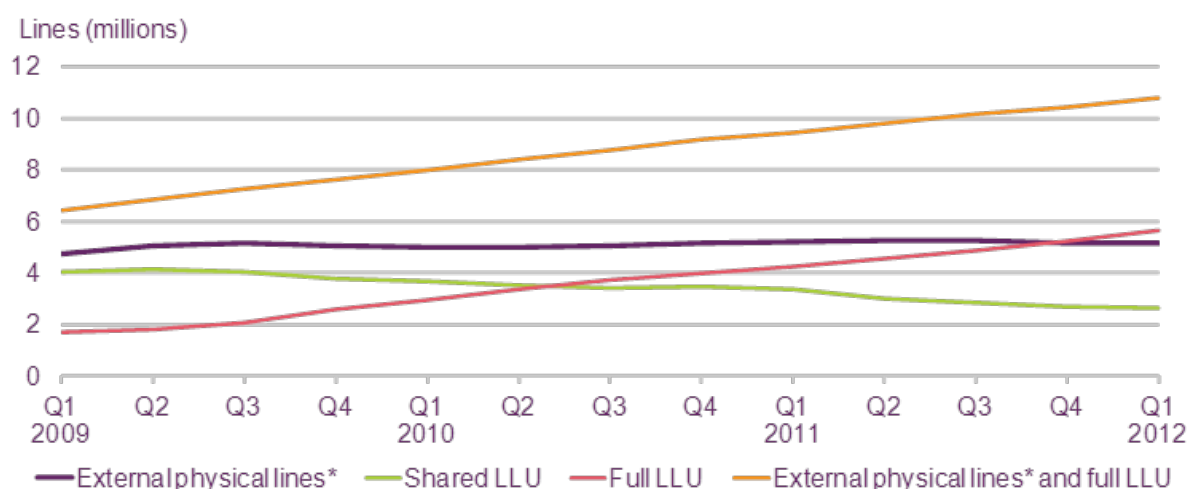
- 3.22 Despite the increasing popularity of bundled offerings, voice services can still be bought individually and 39%⁵⁴ of those with landlines buy voice on a standalone basis in Q1 2012.

Wholesale regulation continues to support competition in retail narrowband services

- 3.23 In the 2009 retail review, we noted that retail competition for narrowband services is supported by remedies in place at the wholesale level. CPs use BT's wholesale calls services in conjunction with WLR to provide retail packages that include both calls and access. Alternatively, they can also choose to deliver retail calls and access using full LLU. We also noted that providers were able to enter the market using BT's 'wholesale calls' service, which provides an alternative to using CPS.
- 3.24 In this review, we consider that the wholesale remedies (in particular WLR and LLU remedies), as well as BT's wholesale calls services (such as CPS) continue to support retail competition in narrowband markets. Without access to these services, retail competitors who have entered the market and won significant market share would find it challenging to serve their existing customers effectively.
- 3.25 Since 2009, the total number of wholesale lines used by non-BT CPs has continued to increase strongly in a mature retail call market (see Figure 3.4). This suggests that an increasing number of retail consumers are purchasing both calls and lines from CPs other than BT, as shown by BT's market share in the retail market.
- 3.26 This overall increase in non-BT wholesale lines has been driven by a growth in the use of full LLU. The shift from shared LLU to full LLU has been significant.⁵⁵ Since 2009, the number of lines that are fully unbundled has grown (see Figure 3.4). This growth in full LLU has offset the decrease in partial LLU and the flat trend in the use of WLR.
- 3.27 By using full LLU, CPs are able to differentiate their retail offer to a greater extent than if they purchase other wholesale products from BT, as CPs can more freely control the costs and features of their services. Therefore, the growth in full LLU contributes to effective retail competition in narrowband services markets.

⁵⁴ This figure was determined by Ofcom, using data collected for the nations and regions technology tracker, Q1 2012.

⁵⁵ As discussed in Section 2, para 2.18.

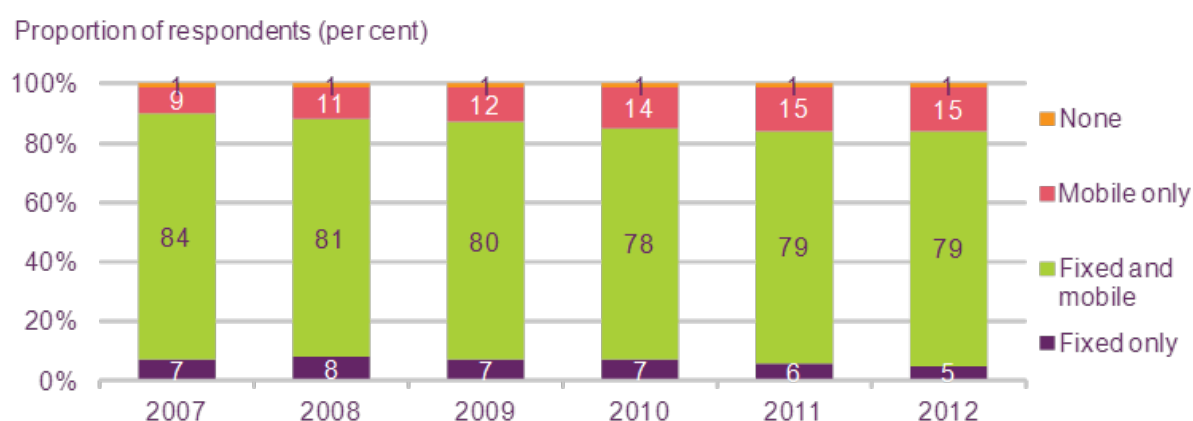
Figure 3.4 Lines provided on a wholesale basis by BT

Source: BT quarterly KPIs Note: *External physical lines consists of lines provided by Openreach to CPs, which includes analogue and ISDN lines provided over copper (WLR) but excludes ISDN 30

- 3.28 The increased uptake of wholesale services suggests that the level of competition has not declined since the 2009 retail review.

Most households use both mobile and fixed line services

- 3.29 In 2011, for the first time, mobile calls accounted for more than half of all voice call minutes with 52% of calls being mobile originated. However, the trend towards mobile-only households has stabilised in the past three years, increasing only slightly from 12% in Q1 2009 to 15% in Q1 2012, as shown in Figure 3.5.
- 3.30 Households with both mobiles and fixed lines continue to be most common, accounting for nearly 80% of United Kingdom homes in 2012. This suggests that consumers continue to value access to both fixed and mobile calling services.

Figure 3.5 Household penetration of fixed and mobile telephony

Source: The Communications Market Report 2012 Note: data as at Q1 of each year

- 3.31 The trend towards increasing volumes of calls being made over mobile services indicates that mobile services are an important part of the communication options available for consumers. However, as said above, consumers appear to value both

mobile and fixed services and, at this stage of development, view them as compliments.

CFI responses

- 3.32 In our May 2012 CFI⁵⁶ we asked respondents two questions regarding the retail markets in the United Kingdom, excluding Hull. In the first question we asked:

‘What are your views on the current state of competition in the market for retail narrowband services in the United Kingdom (excluding the Hull area)? How do you consider this might change over the next 3 to 4 years?’

- 3.33 Respondents generally agreed that retail fixed voice markets have remained competitive since the last review. Some respondents further argued that competition will increase over the review period. BT and Virgin Media noted that since 2009 BT has lost retail market share and LLU operators have expanded their footprints, with BT arguing that retail competition is ‘vibrant’ and further bolstered by VoIP, mobile and non-voice services, such as SMS and email.
- 3.34 EE and CWW commented that retail competition was still strongly reliant on wholesale remedies. CWW also noted that BT’s voluntarily-supplied wholesale end-to-end calls service was boosting competition at the retail level and called this an ‘artificial’ phenomenon, due to what it considered were very low prices that BT currently charges for this service. CWW also referred to our ongoing margin squeeze investigation into BT’s supply of wholesale calls that started in 2008.⁵⁷
- 3.35 Virgin Media argued that VoIP had not made a significantly larger impact than that noted in the 2009 review, citing Tesco’s withdrawal of its VoIP/Wi-Fi product as an indication that many consumers continue to rely on traditional fixed voice services. Virgin Media also argued that Skype had not ‘gained ground’ as a substitute for mobile or fixed calls. It added that, although fixed line calls were in decline, fixed line revenues were less strongly correlated to the use of fixed lines (the minutes of use), due to more consumers opting to buy a bundle of services.
- 3.36 In our second question we asked:
- ‘What are your views on the state of retail competition in the market for retail narrowband services in Northern Ireland?’
- 3.37 In relation to this question Virgin Media noted that there was no reason to define a separate market for Northern Ireland even though the development of retail competition has to some extent lagged behind the rest of the United Kingdom. No other respondents raised concerns regarding the state of retail competition in Northern Ireland.

⁵⁶ For the full responses to our CFI: <http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/?showResponses=true&pageNum=1#responses>.

⁵⁷ Ofcom, *Complaint from Thus Plc and Gamma Telecoms Limited against BT about alleged margin squeeze in wholesale call pricing*, August 2008, http://stakeholders.ofcom.org.uk/enforcement/competition-bulletins/open-cases/all-open-cases/cw_988/

Our response

- 3.38 The market indicators we have considered in this review - and shown in our ongoing monitoring of these markets, including in our Communications Market Report (CMR) and consumer experience reports - indicate that competition in the retail narrowband market has not decreased since 2009. This view is broadly endorsed by the responses we received to our May 2012 CFI, including the view expressed by BT, Virgin Media and others that retail fixed voice markets have remained competitive since the last review.
- 3.39 Virgin Media's view that VoIP has not made a significantly larger impact than noted in the 2009 retail review is consistent with our consumer research which suggests that VoIP continues to be a niche service, most significantly used for international calls. Although residential VoIP use has increased, only 2% of calls are currently taking place through VoIP. We also note Virgin Media's view in relation to fixed line revenues being less strongly correlated to fixed line call volumes.

Northern Ireland

- 3.40 In the 2009 review we concluded that Northern Ireland should not be considered a separate geographic market. This was on the basis that, although competition had developed at a slower rate, this was most likely due to geographical factors, in particular that a greater proportion of the population live in rural areas. The responses to our May 2012 CFI support the view that Northern Ireland should not be defined as a separate market. It is our provisional conclusion that there have been no significant developments in the market since 2009 that would call into question this approach.

Conclusion

- 3.41 Our provisional view is that both the business and residential retail fixed narrowband calls markets in the United Kingdom have remained competitive since 2009.

Question 3.1: *Do you agree with our assessment that both the business and residential retail fixed narrowband calls markets in the United Kingdom have remained competitive since 2009 and that we expect the same competitive conditions to continue during the period of this review as long as appropriate wholesale regulations remain in place? If not, please explain why.*

Section 4

Market developments in retail services in the Hull Area

Summary

- 4.1 This section provides our analysis of the retail narrowband call markets in the Hull Area. We reviewed these markets in 2009 and concluded that it was appropriate, at that time, to impose regulation on KCOM.
- 4.2 We now propose that these markets are not ones in which the imposition of *ex ante* regulation remains appropriate. As a result we propose to revoke the remedies currently applied to the retail narrowband calls markets in the Hull Area.

Regulatory background

- 4.3 We last reviewed these markets in the 2009 retail review and concluded that there were two separate markets for retail narrowband call services in the Hull Area:
- residential fixed narrowband calls; and
 - business fixed narrowband calls.
- 4.4 We concluded that no further sub-division of the relevant markets by call type was required and found that KCOM had SMP in the business and residential retail fixed calls markets. We maintained two remedies on KCOM's retail operations: no undue discrimination and price publication.
- 4.5 In the 2010 consultation on the bundling of retail services in Hull⁵⁸, we noted that as a consequence of the non-discrimination obligation to which KCOM was subject, there may have been a restriction on the bundling of retail services in the Hull Area reducing the choices available to Hull consumers. We considered that this may therefore have a negative impact on consumers.
- 4.6 We sought to address this issue in our 2010 Statement 'Retail Bundling in Hull'⁵⁹, where we allowed KCOM to bundle broadband, landline and other services for customers in the Hull Area in a similar way to packages offered by the other CPs throughout the United Kingdom. This was conditional on the following:
- the bundles are made available to all residents and businesses in the Hull Area;
 - the prices of the bundles are published on KCOM's website; and
 - prices are set in a way that would not discourage other CPs from offering services to consumers in Hull, should they wish to do so in the future.

⁵⁸ Ofcom, *Retail Bundling in Hull*, 5 August 2010, <http://stakeholders.ofcom.org.uk/binaries/consultations/retail-bundling-in-hull/summary/main.pdf>.

⁵⁹ <http://stakeholders.ofcom.org.uk/consultations/retail-bundling-in-hull/statement>

Regulatory Framework

- 4.7 Under the European Framework, and in particular article 15 of the Framework Directive, in considering whether or not it is appropriate to impose regulation in electronic communications markets, Ofcom must begin by defining markets whose characteristics may be such as to justify the imposition of regulatory obligations. In doing so, Ofcom must apply competition law principles to the definition of the relevant market and take utmost account of the 2007 EC Recommendation.
- 4.8 The 2007 EC Recommendation identifies a set of product and service markets within the electronic communications sector in which *ex ante* regulation may be warranted. The market for retail calls is not listed in the 2007 EC Recommendation as a market in which regulatory obligations may be appropriate; however, NRAs may impose regulation in markets different from those identified in the 2007 EC Recommendation where this is justified by national circumstances.
- 4.9 The previous 2003 EC Recommendation on relevant markets⁶⁰ included the market for retail calls. This market was removed from the scope of the Recommendation in 2007. There is therefore no longer a presumption in the 2007 EC Recommendation that regulatory obligations would be appropriate in the retail market for calls.
- 4.10 The 2009 market review nevertheless identified and analysed the markets for retail call services in the Hull Area for the purposes of making a market power determination. We have now considered the extent to which the conditions of competition within those markets remain such as to warrant the imposition of regulatory remedies. In doing so, we have had regard to the test set out in the 2007 EC Recommendation for the identification of markets in which regulatory obligations may be appropriate. In particular, we have considered the extent to which *ex post* competition law may be sufficient to deal with any competition concerns or whether regulatory obligations ought to be imposed in order to ensure intervention where those concerns become manifest.

Retail narrowband calls

Introduction

- 4.11 The 2007 EC Recommendation seeks to “*identify those product and service markets within the electronic communications sector the characteristics of which may be such as to justify the imposition of regulatory obligations set out in the Specific Directives, without prejudice to markets that may be defined in specific cases under competition law.*”⁶¹ It therefore lists a number of markets in which the European Commission considers that regulatory obligations are appropriate, taking into account the particular features of those markets.
- 4.12 The 2007 EC Recommendation also recognises that there may be other markets, aside from those identified, in which it is appropriate to impose regulatory obligations. However, where national regulatory authorities seek to identify such markets, the 2007 EC Recommendation sets out the following three criteria which must be cumulatively met:
1. the presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature;

⁶⁰ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:114:0045:0045:EN:PDF>

⁶¹ Article 15(1) Framework Directive.

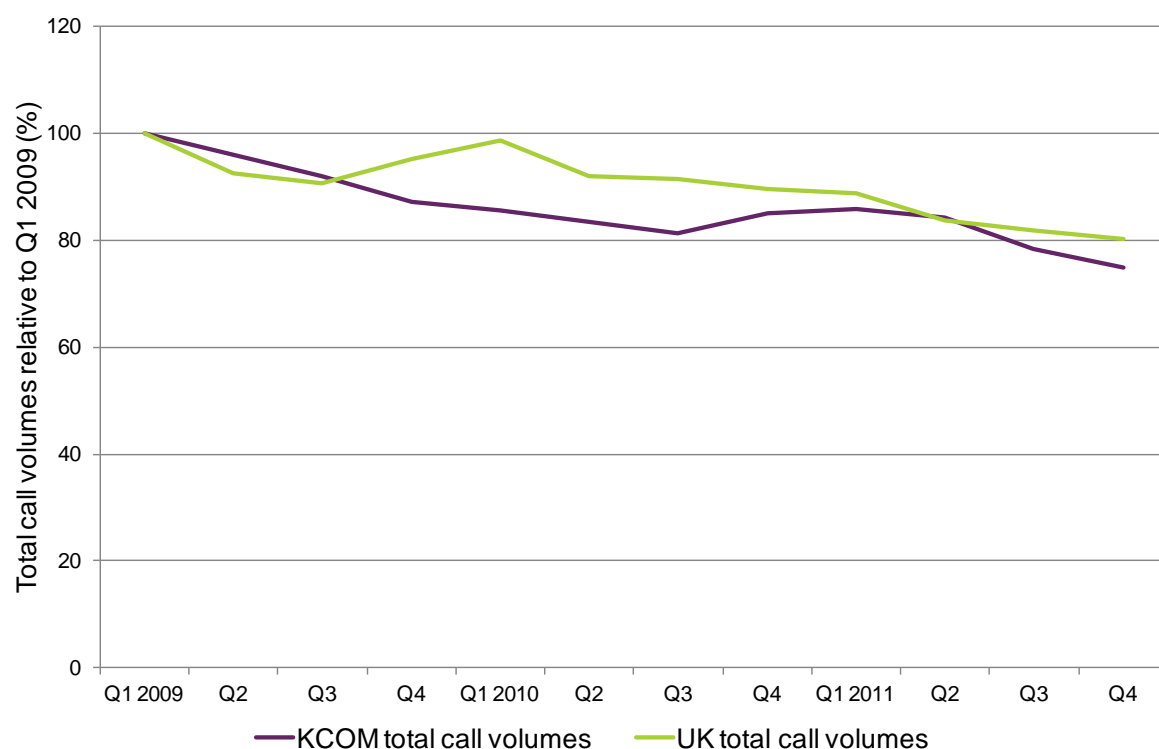
2. a market structure which does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry; and
 3. the insufficiency of competition law alone to adequately address the market failure(s) concerned.⁶²
- 4.13 The market for retail narrowband calls is not one identified by the European Commission in the 2007 EC Recommendation. We have therefore considered whether the criteria in the 2007 EC Recommendation are met in relation to the provision of retail narrowband calls in the Hull area.

Retail narrowband calls services

Product market

- 4.14 Residential and business users have a number of different ways in which they can purchase, and receive, telephone calls. Understanding their preferences is an important part of considering whether our conclusions regarding product market definitions in Hull remain relevant in this review. As in the 2009 review, our research in this review on residential and business attitudes has focused on United Kingdom wide trends, although the consumer research does include consumers from the Hull area. In the 2009 review, we concluded that the product market definitions were the same in Hull as for the rest of the United Kingdom.
- 4.15 In this review, we continue to believe that the findings from our United Kingdom wide research on consumer preferences are broadly applicable in Hull. This is because we expect that the value that consumers – both residential and business - place on the same services is unlikely to vary significantly on a regional basis across the United Kingdom, due to the common cultural and economic factors across these areas, and the similar needs and concerns of businesses.
- 4.16 This view is supported by the similar trends in fixed volumes in Hull and the United Kingdom. If attitudes in Hull were significantly different from the rest of the United Kingdom, we would expect to see markedly different patterns in the overall consumption of fixed line services. As shown in Table 4.1 below, the percentage changes of call volumes in Hull, relative to Q1 2009, have closely tracked the percentage changes in the United Kingdom wide figures. In particular, call volumes in Hull are broadly declining at the same rate as in the rest of the United Kingdom. This supports the view that broad trends in consumer preferences and substitution between different service types are likely to be similar between Hull and the rest of the United Kingdom, and therefore that our United Kingdom-wide data is relevant to understanding market developments in Hull.

⁶² Paragraph 2 of the 2007 EC Recommendation.

Table 4.1 Total call volumes – KCOM versus the rest of the United Kingdom

Source: KCOM

- 4.17 We also note that although we have not undertaken a detailed price survey in Hull, advertised residential retail packages including narrowband services appear broadly comparable between KCOM and other United Kingdom providers. Table 4.2 provides a comparison of two basic packages offered by KCOM, BT and Sky.

Table 4.2 Retail packages including narrowband services in Hull and the UK⁶³

| | KCom | BT | Sky |
|---|--|---|--|
| Fixed access plus 24/7 calls package | £12.99/month including line rental Free local calls 24/7 30 free landline to UK mobile minutes to use after 7pm at the weekend per month | £0 + Line Rental £15.45/month Free weekend UK landline calls. Does not include 'Line Rental Saver' price. | £0 + Line Rental £14.50/month Inclusive weekend calls to UK landlines and calls to 0870 numbers |
| Fixed access plus, fixed calls and broadband (+33Gb/month) | £29.99 Free local calls 24/7 Free calls to 01, 02 & 03 numbers on evenings & weekends High-speed broadband with 33GB monthly usage 120 free weekend minutes to UK mobiles per month ⁵ | £18 + line rental £15.45/month 40Gb broadband usage Evening and weekend calls included | £10 + Sky Line Rental £14.50/month Unlimited broadband, no monthly usage cap. Inclusive weekend UK landline calls |

- 4.18 In the 2009 review, we did not consider that alternative networks (including mobile, VoIP or text-based services) exercised a direct constraint at the retail level such that they should be included in the definition of the relevant market.
- 4.19 In Section 5, we consider market definition for wholesale call origination. As part of that analysis, we consider whether an increase in the retail price of fixed calls for business and consumers would cause significant switching to alternative networks such that the price increase of wholesale calls would not be profitable. Specifically, we considered whether an increase in the price of retail calls or bundle of products including retail calls (caused by a SSNIP in the price of wholesale call origination) would be likely to trigger switching to retailers relying on alternative networks, such that the SSNIP would be unprofitable.
- 4.20 In this review, the analysis and evidence presented in Section 5 indicate that the competitive constraint exercised on fixed narrowband calls at the retail level from calls originated on a mobile network, via VoIP or text-based services does not appear to be sufficiently significant to widen the retail market. This conclusion takes into account the most recent retail market developments.⁶⁴ We therefore do not consider there to be any material change in that respect compared to the 2009 review.
- 4.21 We therefore continue to consider that there are likely to be separate markets for residential and business calls at the retail level in Hull, in particular due to the different competitive dynamics between these two segments. We have not seen any evidence that would cause us to reconsider the conclusions of the 2009 review.

⁶³ Based on publically available information on 29 January 2013. Terms and conditions described are indicative only, and are not intended as a complete description of the price or package options. Prices do not include discounts or special offers.

⁶⁴ That also includes developments in relation to VoIP for business customers, which [X] discusses in its submission to the September 2012 Consultation [X]

Geographic market

- 4.22 In the 2009 review, we concluded that the relevant geographic market for business and residential calls was the Hull area. We have not identified any changes to the relevant market which would call into question those conclusions either at the present time or during the period of the review.

Market Developments since 2009

Market shares

- 4.23 There are no significant alternatives to KCOM in the residential fixed calls market in the Hull area. The external sales for analogue exchange line services in KCOM's RFS show external sales of 3,000 lines in 2011/12, which represents just under 2% of total lines. This figure is attributable to resellers who are active in the business market. KCOM's market share of residential services is therefore close to 100%.
- 4.24 Regarding KCOM's share of business fixed line calls, KCOM has argued that an increasing proportion of businesses are purchasing fixed narrowband calls provided over leased lines. Using its own model,⁶⁵ KCOM provided market share estimates which take into account calls provided both over leased lines and by resellers of KCOM's wholesale call services (see Table 4.3 below). The data indicates that KCOM's market share has declined from [X]% to [X]% since 2009. The data also indicates that retail competition from resellers of KCOM wholesale calls have contributed to a modest extent to this decline in its market share.

Table 4.3 Market shares of business retail call volumes

| | KCOM | Resellers | Leased Lines |
|---------|------|-----------|--------------|
| Q1 2009 | [X]% | - | [X]% |
| Q1 2010 | [X]% | - | [X]% |
| Q1 2011 | [X]% | [X]% | [X]% |
| Q1 2012 | [X]% | [X]% | [X]% |

Source: KCOM⁶⁶

Even on the basis of the above data, KCOM continues to hold a high market share of [X]%. We also observe that KCOM's estimate of the rate of market share decline decreases in 2011/12. CFI responses

- 4.25 In the CFI⁶⁷ we asked respondents one question regarding the narrowband retail market in Hull. We asked:

'What are your views on the state of retail competition in the Hull area?'

- 4.26 CWW observed that there appeared to be unwillingness on the part of many alternative retail suppliers to enter the Hull market. They cited entrenched customer

⁶⁵ [X]

⁶⁶ [X]

⁶⁷ For full responses to our CFI: <http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/?showResponses=true&pageNum=1#responses>

loyalties to the incumbent, the limited size of the market and the reluctance of CPs to fragment their wholesale ordering arrangements as potential reasons.

4.27 KCOM on the other hand explained that in its view:

- the provision of services by alternative providers has increased markedly in Hull, particularly for business customers using leased lines; and
- mobile substitution is likely to be more pronounced in Hull due to the lack of alternative fixed line providers.

Our response

4.28 We agree with CWW's observation that competitive entry into the Hull retail narrowband calls market is difficult due to significant entry barriers. We discuss below the network deployment by MS3 Communications. Until there is greater certainty about how MS3's network deployment will impact the retail narrowband call markets in Hull, we consider that this situation will continue over the period of this review.

4.29 We note KCOM's submission that there has been an increase in the provision of services by alternative providers for business customers using leased lines since the last review. However, by its own estimate, KCOM continues to hold [3%] of call volumes in the retail business market in Hull. The growth rate of the market share of providers using leased lines has also considerably declined since Q1 2010 and remained stable afterwards, which makes it less clear that the trend towards businesses purchasing narrowband call services over leased lines will become materially more pronounced over the period of this review. Based on the information we have thus far, there is no clear indication that this will be impacted by MS3's alleged network deployment.

4.30 In relation to KCOM's suggestion that there is a higher level of mobile substitution in Hull, as described in paragraph 4.14 above, we consider that the underlying preferences of consumers and businesses for alternative networks are likely to be broadly similar to the rest of the United Kingdom and that the analysis (in Section 5) which led to the conclusion that indirect retail constraints from mobile do not appear to be sufficiently strong also applies to the Hull area.

Appropriateness of regulation

4.31 We have not identified any significant changes in the market for retail narrowband calls in Hull which would have an effect on the competitive conditions within that market. However, in order to impose regulatory obligations on operators within the market, the 2007 EC Recommendation sets out that national regulatory authorities should ensure that the following three criteria are cumulatively met in relation to the market:

1. the presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature;
2. a market structure which does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry; and

3. the insufficiency of competition law alone to adequately address the market failure(s) concerned.
- 4.32 We have therefore considered each of these criteria in order to determine whether the ST market is one in which regulatory obligations may be appropriate or whether the market is one whose characteristics do not justify the imposition of regulatory obligations.

Barriers to entry

- 4.33 There have been a range of wholesale and retail remedies in place since the 2009 retail review and, whilst there have been clear regulatory mechanisms in place to allow competing CPs to enter the Hull retail narrowband calls market, there has been limited uptake of wholesale products to provide retail call services.
- 4.34 As identified in 2009, there are economic barriers in place that limit the extent to which competition can develop in the Hull Area. The Hull area has a relatively small population and, particularly in competition with an incumbent, another CP would find it challenging to gain market share rapidly. When set against the systems integration and the large outlay in infrastructure costs that would be required to enter the market, there is a large structural barrier to entry in this market.
- 4.35 Although we have noted that there has been some market entry in the business sector, KCOM's high market share in the sector, and the lack of market entry in the residential market, suggest that there have not been significant changes to the economic barriers to entry in the Hull area. We note, however, that in response to the CFI, KCOM indicated that a CP is currently deploying some competing infrastructure in the Hull Area. In response to the Call for Inputs in the separate fixed access market review,⁶⁸ KCOM provided more details on this development; in its submission to Ofcom, it stated:

“MS3 Communications is currently deploying a network in Hull with an initial investment of £4.5m. We understand that their plan is to build a 116 km network over the next few months and in July MS3 announced that it had completed half of its initial phase 1 network build.⁶⁹ This will provide direct infrastructure based competition to KCOM and is likely to do so in a relatively short timeframe given the limited geographic area to be covered. MS3 are positioning themselves as a wholesale provider who will work with resellers in order to provide services to end customers.”

- 4.36 MS3⁷⁰ is a privately owned company which has announced its intention to concentrate on supplying services for the business sector, although indicates the potential to partner with other companies in the delivery of domestic services.⁷¹ MS3's network deployment may be an indicator that barriers to entry are falling in relation to the retail and wholesale markets in the Hull area. MS3 recently

⁶⁸ Fixed access market reviews: wholesale local access, wholesale, fixed analogue exchange lines, ISDN2 and ISDN30; Call for Inputs; Response by KCOM; 20 December 2012, http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-markets/responses/KCOM_Group_PLC.pdf.

⁶⁹ <http://www.ms3communications.com/web/PressReleases/MS3NetworkBuildHalfwayPoint06-07-12.docx>

⁷⁰ <http://www.ms3communications.com/web/aboutus.html>

⁷¹ <http://www.ms3communications.com/web/PressReleases/MS3ExpandWithGarnessJones11-01-13.docx>

announced that it had "... installed about 27 kilometres of fibre in the local area and phase two will increase that to about 50 kilometres". However, it is unclear the extent to which any entry by MS3 might act as a competitive constraint on the actions of KCOM in the retail markets. More specifically, based on the information that we currently have, market entry by MS3 appears unlikely to happen in sufficient time, and at sufficient market scale, to significantly affect the competitive conditions in the retail market for narrowband calls in Hull over the period covered by this review.

- 4.37 In consequence, we continue to consider that there are high and non-transitory barriers to entry in the market for retail narrowband calls in the Hull area.

Dynamic aspects

- 4.38 As noted above, there has not been any significant entry into the retail markets in the Hull area by competitors to KCOM to date. Consequently, we do not consider that there is likely to be a tendency towards effective competition during the period under review.
- 4.39 Whilst the entry of MS3 might increase the limited competitive constraints faced by KCOM in the retail market, MS3's operations are at an early stage of development and it is unclear (i) which markets MS3 will operate in and (ii) the extent to which MS3 will exercise an effective constraint on KCOM in the retail narrowband call markets in the Hull area. We do not therefore consider that, during the period of the current market review, the entry of MS3 is likely to provide a sufficient constraint such that the retail markets in the Hull area would tend towards effective competition.
- 4.40 We further consider that, in any event, if MS3 were to be able to grow its customer base such that any significant market power held by KCOM in the retail markets was reduced by the end of this market review period, the ultimate consequence of this would be that Ofcom would be required to remove all SMP regulation in the relevant markets. As set out below, Ofcom considers that it is not appropriate to impose any SMP regulation in the retail markets due to the sufficiency of competition law to address any concerns which may arise and therefore - if such a scenario were to arise - the outcome in terms of (the absence of) ex-ante retail regulation would be no different than that proposed by Ofcom in this document.
- 4.41 In light of the above, we continue to consider that the market for retail narrowband calls in the Hull area exhibits a market structure which does not tend towards effective competition over the period of this review.

Sufficiency of competition law

- 4.42 In the 2009 review we considered whether any pricing remedies were appropriate. We concluded that it was not appropriate, on the basis that KCOM's retail prices were not noticeably out of line with national prices, and that it was likely that retail prices were constrained by other factors, including the potential for regulatory intervention if retail prices were excessive.
- 4.43 We also found that competition law would not be sufficient to address our competition concerns in relation to this market. However, our provisional view is that this is no longer the case. In particular, we have now observed KCOM's pricing behaviour in the retail market for calls over a relatively long period during which KCOM was not subject to price regulation and compared it with pricing behaviour in the rest of the United Kingdom, including in the period since 2009 in which there was no retail regulation for narrowband calls.

- 4.44 Despite the absence of price regulation, it appears KCOM's retail prices have continued to remain aligned with national prices (see Table 4.2 above). Since the conclusion of the last review in which regulation was relaxed in relation to KCOM's ability to offer bundles including fixed calls, we have not received any complaint or dispute submission meeting our guidelines requirements sufficient to trigger an enquiry (the process of deciding whether to conduct an investigation), in relation to KCOM's commercial practices at the retail level.
- 4.45 If, however, KCOM did engage in conduct amounting to an abuse of a dominant position, competition law provides a means of addressing this behaviour if and when it arises. Depending on the particular circumstances of the case, this could include ordering KCOM to supply services at mandated prices, or to supply on non-discriminatory terms (in case of unlawful discrimination between customers).
- 4.46 We further consider that competition concerns are likely to become manifest despite any absence of regulation. Regarding pricing concerns, prices in the rest of the United Kingdom provide a (first order) relevant benchmark for competitive retail rates that would assist in identifying excessive pricing in the Hull Area in an investigation under competition law. This means that any excessive increase in price could be identified by Ofcom or brought to our attention by affected consumers. In addition, retail competitors will be able to indicate the existence of targeted KCOM discounts which will assist in identifying conduct that might constitute exclusionary behaviour.
- 4.47 As a consequence, for the reasons set out above, our provisional view is that, based on these market conditions, competition law remedies would now be sufficient to address any concerns identified during the period covered by this review.

Conclusion

- 4.48 In the light of developments in the market and, in particular the lack of evidence of anti-competitive conduct despite the lack of price regulation and the removal of restrictions on bundling services, we no longer consider it appropriate to maintain ex ante regulation in these markets.
- 4.49 For the avoidance of doubt, this proposal means that the existing remedies imposed on KCOM in the retail markets for calls in the Hull area will be removed, namely:
- no undue discrimination; and
 - price publication.

Question 4.1: *Do you agree with our assessment that no material changes have occurred in the retail markets in the Hull area since the last review in 2009? If not, please explain why.*

Question 4.2: *Do you agree with our assessment that ex post competition law remedies would now be sufficient to address any competition concerns identified during the period covered by this review and that it would no longer be appropriate to maintain regulation for retail narrowband call services in the Hull Area? If not, please explain why.*

Section 5

Wholesale call origination

Summary

- 5.1 This section covers our proposals for market definition, market power analysis and remedies in relation to wholesale call origination services.
- 5.2 Wholesale call origination relates to the conveyance of all signals (including relevant control signals) originating on a customer's exchange line to the first point in the network where those signals can be accessed by another CP.
- 5.3 With regard to market definition, we propose that the relevant product market is:
- “Wholesale call origination on a fixed narrowband network”
- 5.4 We also propose two geographic markets:
- the United Kingdom excluding the Hull Area; and
 - the Hull Area.
- 5.5 With regard to market power assessments, we propose that:
- BT has SMP in the market for wholesale call origination on a fixed narrowband network in the United Kingdom excluding the Hull Area; and
 - KCOM has SMP in the market for wholesale call origination on a fixed narrowband network in the Hull Area.
- 5.6 We propose the following remedies as shown in Table 5.1:

Table 5.1: Summary of proposed remedies for wholesale call origination

| BT obligations | KCOM obligations |
|---|--|
| <ul style="list-style-type: none"> Requirement to provide network access on reasonable request Requests for new forms of network access Requirement not to unduly discriminate Requirement to publish a reference offer Requirement to notify charges Requirement to notify technical information Transparency as to quality of service Cost accounting Accounting separation Specific form of network access (Carrier Pre-Selection on non-BT Retail lines only)⁷³ Requirement to provide NTS wholesale call origination until unbundled remedy introduced Charge Control | <ul style="list-style-type: none"> Requirement to provide network access on reasonable request Requirement not to unduly discriminate Requirement to publish a reference offer Requirement to notify charges Requirement to notify technical information Accounting Separation |

Background

5.7 The EC has identified call origination on the public telephone network provided at a fixed location at the wholesale level as a service market in which *ex ante* regulation may be warranted in its 2007 EC Recommendation.

5.8 In the last market review, we stated that call origination relates to:

“The conveyance of all signals (including relevant control signals) originating on a customer’s exchange line to the first point in the network where those signals can be accessed by another communications provider.”⁷⁴

5.9 Specifically, we defined the product market as wholesale call origination on a fixed narrowband network.⁷⁵

5.10 We also found separate geographic markets for the United Kingdom excluding the Hull Area and the Hull Area and identified BT as holding a position of SMP in the former and KCOM in the latter. As a result, we imposed a number of remedies on BT and KCOM to address the competition concerns identified.

⁷² We propose to remove the obligation on BT and KCOM to provide Indirect Access. However, we also propose to include a sunset clause of 12 months on this obligation.

⁷³ We propose to include a sunset clause for the current CPS obligations on BT and KCOM of 12 months. This is discussed further in paragraph 5.272.

⁷⁴ Paragraph 6.41, 2009 NMR Statement.

http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf

⁷⁵ Ibid.

- 5.11 We are now considering the extent to which the conclusions of the last market review remain valid in light of market developments since that time.

Market definition

- 5.12 Market definition requires a definition of the relevant product and geographic markets. We begin by defining the relevant product market(s) in order to establish those products which are regarded as interchangeable or substitutable by reason of the product's characteristics, prices and intended use. We then go on to consider the relevant geographic market(s) to determine those areas in which the conditions of competition are sufficiently homogenous, and any that can be distinguished from neighbouring areas because the conditions of competition are appreciably different.
- 5.13 Market definition (and the assessment of market power) should be conducted in the absence of any other wholesale SMP regulation in the call origination market. This approach, referred to as the modified Greenfield approach⁷⁶, requires us to conduct those assessments in the absence of the remedies that were imposed following the finding of SMP in the call origination market. To do otherwise would mean that the subsequent wholesale market power assessment would be informed by a market definition that itself relied on a wholesale regulatory remedy arising from the finding of wholesale market power. This would be a circular and incorrect approach to market definition. However, we take into account any ex-ante wholesale regulation upstream that exists independently of a finding of SMP in the call origination market (e.g. LLU).

Product market

- 5.14 To define the relevant product market, we have taken as our starting point the market identified in the 2007 EC Recommendation, namely wholesale call origination on a fixed narrowband network. This candidate market includes all the wholesale services that can be used by CPs to originate narrowband calls. These wholesale services include:
- self-supply using an upstream service (such as access to unbundled copper loops (LLU) or leased lines) or by building their own network out to the customer (direct access);
 - purchase of wholesale call origination alone – this requires the CP to build some network capability to accept the wholesale call origination traffic; or
 - purchase of wholesale call origination as part of end-to-end wholesale calls (i.e. bundled with conveyance and/or transit services and termination). In this case the provider of the end-to-end wholesale calls is the buyer of wholesale call origination (although these can be the same CP).
- 5.15 Our candidate market therefore includes self-supplied wholesale call origination by direct access operators (including BT, KCOM, and Virgin Media) and operators using LLU or leased lines to directly connect customers and any provision of these wholesale services by a third party.⁷⁷

⁷⁶ See section 2.5 of the Explanatory Note to the 2007 EC Recommendation.

⁷⁷ We recognise this differs from the approach we took in our previous review, when self-supply over LLU accounted for a far smaller proportion of total wholesale call origination minutes. Given the significant proportion of all fixed voice wholesale call origination minutes now self-supplied over LLU

SSNIP test

- 5.16 In defining the relevant product market, we are required to consider demand side and supply side substitutes. The “hypothetical monopolist test” is a useful tool to identify close demand side and supply side substitutes. A product is considered substitutable if a hypothetical monopoly supplier could not impose a small but significant, non-transitory price increase (“SSNIP”) above the competitive level without losing sales to such a degree as to make this unprofitable. If such a price rise would be unprofitable, because consumers would switch to other products, or because suppliers of other products would begin to compete with the monopolist, then the market definition should be expanded to include the substitute products.
- 5.17 EC guidelines provide that, in undertaking a SSNIP analysis, a 5-10% notional price increase is typically considered “small” and “significant”. It is significant enough to be perceptible to customers, but small enough that a significant element of any switching response involves purchasing alternative services rather than ceasing to buy services altogether.
- 5.18 This is not an inflexible rule. EC guidelines state that the “significance of a price increase will depend on each individual case”, and that “the importance of the SSNIP test lies primarily in its use as a conceptual tool for assessing evidence of competition between different products or services”.⁷⁸
- 5.19 The SSNIP approach is of particular use in identifying the direct constraints faced by a hypothetical monopolist. However it is also a useful tool in identifying whether there are any indirect constraints which might limit the ability of a hypothetical monopolist to raise prices profitably. Indeed, in defining markets at the wholesale level, indirect competitive constraints (e.g. constraints at the retail level) can sometimes be more important than direct competitive constraints. For example, even if there are limited direct substitution possibilities, it may not be profitable for a monopoly provider to raise the price of wholesale call origination if, in doing so, this led to a large loss of retail end users who would switch to purchasing calls from other networks.

Direct constraints

- 5.20 A direct constraint is a factor that limits wholesale price-setting by competition (that is, there is potential for direct substitution at the wholesale level), e.g. CPs switching between wholesale call origination on a fixed narrowband network and potential alternatives.
- 5.21 We consider whether CPs using wholesale call origination on a fixed narrowband network could switch to potential alternatives in response to a material price increase by using:

(17%), and given the technical substitutability of a call originated over LLU for a call originated over BT’s network, we consider it would now be inappropriate to exclude self-supply over LLU from the candidate market. Nonetheless, we recognise there may be some continued limitations to the degree of substitutability of wholesale call origination over LLU for wholesale call origination over BT’s network for certain customer groups. We consider these limitations affect the degree of competition within the market rather than the boundaries of the product market itself, and therefore consider it appropriate to consider these in relation to our market power assessment rather than in the context of market definition.

⁷⁸ Footnote 26, Paragraph 40, Commission guidelines on market analysis and the assessment of significant market power (2002/C165/03) – 11 July 2002, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>.

- wholesale call origination over a mobile network; and
- wholesale call origination over a broadband network.

5.22 Wholesale call origination on mobile networks is provided by each mobile network operator operating in the United Kingdom.⁷⁹ Substitution at the wholesale level between fixed and mobile would occur only if mobile networks could provide fixed wholesale call origination to fixed line operators selling telephone calls at the retail level. This would require very significant investment to be undertaken and, in the current market, mobile operators' business strategies are typically focused on mobile markets and the needs of mobile customers.⁸⁰ Whilst market developments, such as femtocells, might change this in the longer term, we do not consider that mobile network operators will act as effective direct constraints in the provision of wholesale call origination quickly enough to be relevant to this review.

5.23 Substitution at the wholesale level to call origination on a broadband network would occur if the broadband access network operator (the ISP) could provide fixed wholesale call origination to fixed line operators selling calls at the retail level.⁸¹ The retail voice provider would use the broadband connection to supply retail calls through a VoIP service. This would require the provision of a broadband service, which requires a fixed access line to be provided. It would also require additional investment to make the switch from narrowband to broadband. For example, assuming the retail service aims to replicate the narrowband service as closely as possible, customer premises equipment would be needed to interface to the broadband connection and to convert the voice traffic to VoIP. The situation differs between customer segments:

- **Wholesale call origination on VoIP for retail consumers:** This service, if provided, may be subject to some of the same quality of service issues as unmanaged VoIP services purchased at the retail level, as discussed below. Additionally, as we also discuss below, consumer attachment to fixed lines (and narrowband services) persists, even in the face of retail price increases. Therefore given that VoIP does not appear to be a close substitute for retail consumers, it is not clear that wholesale call origination over a broadband network would be an attractive alternative for CPs to wholesale call origination on a fixed narrowband network.
- **Wholesale call origination on VoIP for business consumers:** As we discuss below, managed business services are increasingly becoming a viable alternative to narrowband voice. While we expect businesses to increasingly use these services going forward (especially as fibre rollout increases), there are nevertheless costs associated with switching to this solution from narrowband voice.

⁷⁹ Although not critical for this analysis, we note that a 'mobile network' here refers to a firm capable of offering wholesale services sufficient to enable a fixed communications provider to offer a retail (fixed) voice telephony service. It is not necessary for this analysis that the supplier is itself the owner or operators of the mobile network used to serve the end-customer – for example, it would not change this reasoning if the supplier was a virtual mobile network operator (or MVNO). The simpler term 'mobile network' is used for such a supplier for clarity.

⁸⁰ For example, mobile services are generally offered (at both wholesale and retail level) on the basis of a single price for calls, regardless of the location of the caller, which is very different to the sort of 'homezone' services that might be offered using mobile technology to offer a service adapted to the needs of the fixed/residential market.

⁸¹ 'ISP' refers to a firm capable of using broadband services (howsoever acquired) to offer a wholesale service suitable for serving fixed call markets.

- 5.24 Therefore, while we recognise that, for businesses, call origination over VoIP may increasingly become an alternative to call origination over a fixed narrowband network, we do not consider that wholesale call origination on a broadband network will act as an effective direct constraint over the life of this review.

Indirect demand constraints from competition at the retail level

- 5.25 The proportion of any wholesale price increase that is passed on to retail consumers will be a key factor in the profitability of any SSNIP. A SSNIP at the wholesale level may appear profitable where purchasers of wholesale products are unable to switch to alternative products in response to it. However, if the SSNIP at the wholesale level is passed through to retail customers, those customers may switch to other retail products which do not require the wholesale service supplied by the hypothetical monopolist, thus reducing the volume of the wholesale service purchased from the latter and rendering the SSNIP unprofitable.
- 5.26 We therefore consider in our analysis below whether, if the price of wholesale call origination increased by 5-10%, retail customers would switch away from retail fixed narrowband calls products to use mobile or VoIP voice services, or text based services.

Pass-through to retail prices

- 5.27 Although calls only products are still offered and bought, calls are increasingly sold as part of a bundle. This may be a simple pairing of calls and access (which may offer an 'inclusive bundle' of calls that are purchased as part of the fixed monthly price) through to more complex bundles (e.g. voice telephony and other services). In particular:
- a) 95% of residential consumers (90% of businesses) with a fixed line in our research use the same supplier for access and calls⁸²;
 - b) 85% of residential consumers with a landline have unlimited calls to United Kingdom landlines included at some time of the day/week⁸³;
 - c) About 60% of consumers purchase voice as part of a larger bundle including fixed broadband, and for some, pay TV⁸⁴; and
 - d) 68% of respondents to our consumer survey admitted to considering only the cost of the overall bundle (rather than individual components) when purchasing services.⁸⁵
- 5.28 For retail customers who purchase calls as part of a bundle, we consider that any increase in the price of wholesale call origination is more likely to be passed on through the overall price of the line rental and calls bundle, rather than through the price of individual calls.⁸⁶ While in principle inclusive minutes might be reduced or

⁸² Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

⁸³ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

⁸⁴ The exact figure is 57% of all consumers (see Figure 3.3) or 61% of those with a landline (Ofcom Technology Tracker).

⁸⁵ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

⁸⁶ This argument was also made by a confidential respondent to the CFI. [X]

discontinued in response to a wholesale price increase, we consider it unlikely that CPs would react in this way given that the marginal cost of origination would remain very low compared with the overall cost of supplying the bundle.

- 5.29 In such a case, we need to consider how customers might react to an increase in the price of wholesale call origination that led to an increase in the price of their retail bundle more generally (i.e. including line rental and inclusive minutes).⁸⁷ This approach implies that for consumer switching to be an effective constraint on the price of wholesale call origination, consumers would need to be prepared to switch their entire fixed voice calls bundle i.e., in some cases, they might need to give up the ability to make fixed voice calls.
- 5.30 However, for some customers (e.g. those who purchase access and calls separately, and those who do not have inclusive calls within their fixed line bundle) and for some call types which are often not included in bundled minutes or are included at a high premium (e.g. international calls, premium non-geographic numbers etc), consumers might be exposed to individual call prices. Therefore, to the extent that an increase in wholesale call origination leads to an increase in the price of individual calls, we also consider potential switching by these customers. The number of residential customers likely to be exposed to such a change is decreasing (due to the increase in call bundle offers) and we take this into account when considering the strength of this constraint.
- 5.31 Similarly, we recognise the situation might be different for some business consumers, e.g. if CPs do not offer bundles of inclusive calls for these customers to the same extent as to residential products. As a result, we consider whether a change in relative call prices at the margin could lead to switching by business customers.
- 5.32 We now consider to what extent such a price increase would be likely to trigger switching to retail alternatives to fixed voice calls, including mobile, text-based services, and VoIP.
- 5.33 We note that an increase in the price of wholesale call origination would imply a much smaller increase in price at the retail level, both where we consider the price of a bundle of products which includes calls, and when we consider call prices separately.⁸⁸ However, in practice, assessing the level of pass-through to the retail level is complicated as we discuss below.

Indirect demand constraint – competition based on mobile

- 5.34 Between 2006 and 2011, the volume of mobile calls has increased significantly, while fixed line calls steadily decreased year on year.⁸⁹ This trend is present for both business and residential consumers, and suggests that consumers may consider mobile to be a substitute for at least some fixed line calls (not least given that 79% of

⁸⁷ Several respondents to the CFI noted the increasing sophistication of retail bundles, from calls plus line rental to those which contain products that encompass multiple markets (e.g. broadband), which complicate the retail analysis of the effects of a wholesale price increase.

⁸⁸ In the 2009 wholesale review, we indicated that we believed a 5-10% increase in wholesale call origination would imply at most an increase in the range of 1.5-3% at the retail level in the event that retailers would entirely pass the increase on to consumers.

⁸⁹ Between 2006 and 2011, the number of mobile-originated minutes grew by 40% while the number of fixed-originated minutes declined by 25% (while there was a slight decrease in mobile-originated minutes between 2010 and 2011, this is unlikely to affect our analysis). Figure 5.15, Ofcom, *Communications Market Report*, July 2012, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/UK_5.pdf.

households have access to both fixed and mobile telephony⁹⁰). A large proportion of respondents make calls from a mobile that could have been made from a landline (46%) and nearly half agreed with the statement “I have a landline but generally use mobile” (47%).

- 5.35 In the event of an increase in the price of wholesale call origination, we consider that some fixed voice or bundle plan prices may rise. As noted above, for those customers who purchase calls as part of a bundle, it seems to us unlikely that the price of making an individual fixed voice call would rise (although prices for out-of-bundle calls could increase for some consumers). As a result, we consider whether consumers would consider mobile a substitute for their fixed voice calls package - i.e. whether they would be prepared to give up the ability to make any fixed voice calls and use their mobile instead.
- 5.36 We also consider the potential for switching on a call by call basis for those consumers who might be exposed to individual call prices.

Increase in bundle price

- 5.37 Consumers facing a higher bundle price of fixed access and calls could:
- give up the bundle of access and calls and become a mobile-only consumer (possibly together with mobile broadband if the consumer had a fixed broadband service); or
 - give up the call package/plan and switch calls to mobile but keep the fixed access line for broadband; or
 - downgrade to a cheaper call package/plan that would imply more out-of bundle calls (e.g. from an ‘Unlimited Anytime United Kingdom calls’ to an ‘Unlimited Week-end calls’ plan) and switch some out-of bundle calls to mobile on a call-by-call basis.
- 5.38 We believe that the first of these three options (become a mobile-only consumer) is unlikely for two main reasons.
- 5.39 First, most residential customers appear unlikely to give up the ability to make fixed voice calls in favour of relying on mobile. Most respondents to our consumer survey (72%) said that they would “never” give up their landline access. Among these respondents, the most popular reasons for this attitude were the need for internet access (31%) and the fact that they had always had a landline (31%). Others explained their attachment to a fixed line on the grounds of reliability (29%) and price (27%).
- 5.40 Widening the focus across the full sample, to include those that would consider giving up their landlines, shows that a significant proportion of respondents agreed that security, the wish to avoid upheaval and reliability were the main reasons for keeping a landline. In particular, 44% agreed that mobiles were not reliable enough to give up their landline. Only 24% of respondents indicated they would get rid of their landline if mobile calls were cheaper, suggesting that most residential customers would not. Whilst there was a slightly greater willingness to consider

⁹⁰ Figure 5.76, Ofcom, *Communications Market Report*, July 2012, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

giving up landline calls than there was for access, most respondents still said they would never give up their landline calls package (60%).

- 5.41 Second, while uptake of internet on a mobile phone and mobile broadband⁹¹ have both continued to grow, they are almost always used alongside (rather than in place of) fixed broadband access. In particular, only 3% of United Kingdom adults rely solely on their mobile phone for home internet access⁹², and only 5% of households rely solely on mobile broadband.⁹³ Instead, most households rely solely on a fixed broadband connection (84% of those with broadband⁹⁴). Although uptake has been increasing and a move to 4G will increase the speeds available, following the latest round of spectrum auctions, we consider that this is unlikely to significantly affect the demand for broadband via fixed line access within the time horizon of this review. This is due to two reasons:
- given the timeline for 4G deployment (the auctioned 4G spectrum will not be available for use until Spring 2013 and will require a rollout period after this), it is unclear whether these services will be available to – and adopted by – a significant proportion of United Kingdom consumers within the period of this review such that they are an alternative to fixed broadband access rather than used in addition (as suggested by current usage, set out above)⁹⁵; and
 - the expected continued deployment of higher speed fibre broadband means it is not clear that the material difference in broadband speeds between fixed and mobile will significantly narrow in the period of this review.
- 5.42 Our preliminary view is therefore that mobile access is not and will not be considered to be a sufficiently close substitute for fixed line access for the majority of retail customers during the period relevant to this review.
- 5.43 Whilst demand for fixed calls is affected by the relative price of mobile calls, non-price factors may be even more important. We asked interviewees in our market research⁹⁶ how they would respond to a 10% increase in the price of their monthly landline bill. Whilst 25% of respondents indicated they would substitute *some* landline calls for mobile, this suggests they would still use their landline for at least some calls (and so the provider of wholesale call origination would not lose all fixed call volumes). Only 11% said they would give up all fixed voice calls and 10% that they would give up fixed access.⁹⁷ Most respondents in the survey expressed strong intentions against switching in the future.⁹⁸ As discussed at paragraphs 5.28 to 5.29,

⁹¹ Mobile broadband means access via a mobile network using a USB stick or dongle, or built-in 3G connectivity in a laptop, netbook or tablet PC with a data card, but excludes access from mobile handsets.

⁹² Ofcom, *Communications Market Report*, July 2012, p.4,

http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/UK_5.pdf.

⁹³ Ofcom, *Communications Market Report*, July, 2012, p.26,

http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/UK_5.pdf.

⁹⁴ Section 5.2.1, Ofcom, *Communications Market Report*, July 2012,

http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/UK_5.pdf.

⁹⁵ For example, the requirement to offer indoor coverage to 95% of the United Kingdom population in one 4G licence available in the auction would be phased in and would not fully take effect until 2017.

⁹⁶ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

⁹⁷ We consider that these numbers are likely to overstate any actual response to a SSNIP since they are stated preferences rather than based on actual behaviour.

⁹⁸ For landline calls, 53% of consumers said they will certainly not / be very unlikely to switch in the next two years and 29% said they are fairly likely / unlikely to switch. For landline access, 54% of

we consider that most residential consumers would need to switch all calls and access in order to avoid an increase in the price of their monthly bill.

- 5.44 At the margins, some consumers may give up their fixed line and switch all calls to mobile, resulting in a loss of fixed call volumes and revenues for the hypothetical monopolist. However, given the importance of non-price factors in access choice, we consider it unlikely that a sufficient number of residential customers would completely switch to mobile to render an increase in the price of wholesale call origination unprofitable. This preliminary finding primarily reflects consumer preferences regarding access.
- 5.45 In relation to the second option (give up the call package and switch calls to mobile but keep the access line for broadband), the existing trend in bundling retail access and calls would likely imply that such an option would either be available at a price which is not significantly different from the status quo price (of the whole bundle), or may not be available at all. This is because the cost of access is such a significant proportion of the price of a bundle of calls and access (whilst call packages are offered for a relatively small incremental price once access has been purchased). Because of this, there is unlikely to be significant benefit in giving up a package that bundles access and calls in favour of an access only service.
- 5.46 Mobile operators may offer fixed access - e.g. O2 and EE supply fixed line access with broadband.⁹⁹ This means that consumers who would give up their fixed call packages and switch their calls to mobile can continue to have a landline for their broadband with the mobile provider. However, for the same reasons as above, the cost saving between the status quo (keeping the bundle of access and calls) and giving up the bundle and taking access from the mobile provider is unlikely to be material. This is especially true once the costs (both monetary and non-monetary) of switching access and the higher costs of any eventual out of bundle fixed calls have been taken into account.
- 5.47 The third option (downgrade to a cheaper call plan and switch to mobile on a call by call basis) is analysed below. It is worth noting that because this option implies keeping access, the same argument as under option 2 (giving up the bundle and purchasing access only) also applies.

Increase in price of out-of-bundle calls

- 5.48 In response to a wholesale SSNIP, those customers who do not have an inclusive calls package within their bundle (approximately 15% of those with a fixed line) and those who make calls outside of their bundle (e.g. outside of inclusive minutes, or for non-geographic and international calls etc), could be faced with a change in the call price. Therefore we now consider if mobile might be an effective constraint for these calls.
- 5.49 Price appears to be the most important factor preventing even greater use of mobile, although reliability is also important. When asked why they did not make more calls from mobile, 56% of respondents cited price as a reason and 21% cited reasons of reliability/coverage/quality.¹⁰⁰ In general, respondents had strong perceptions of

consumers said they will certainly not / be very unlikely to switch in the next two years and 29% said they are fairly likely / unlikely to switch. Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

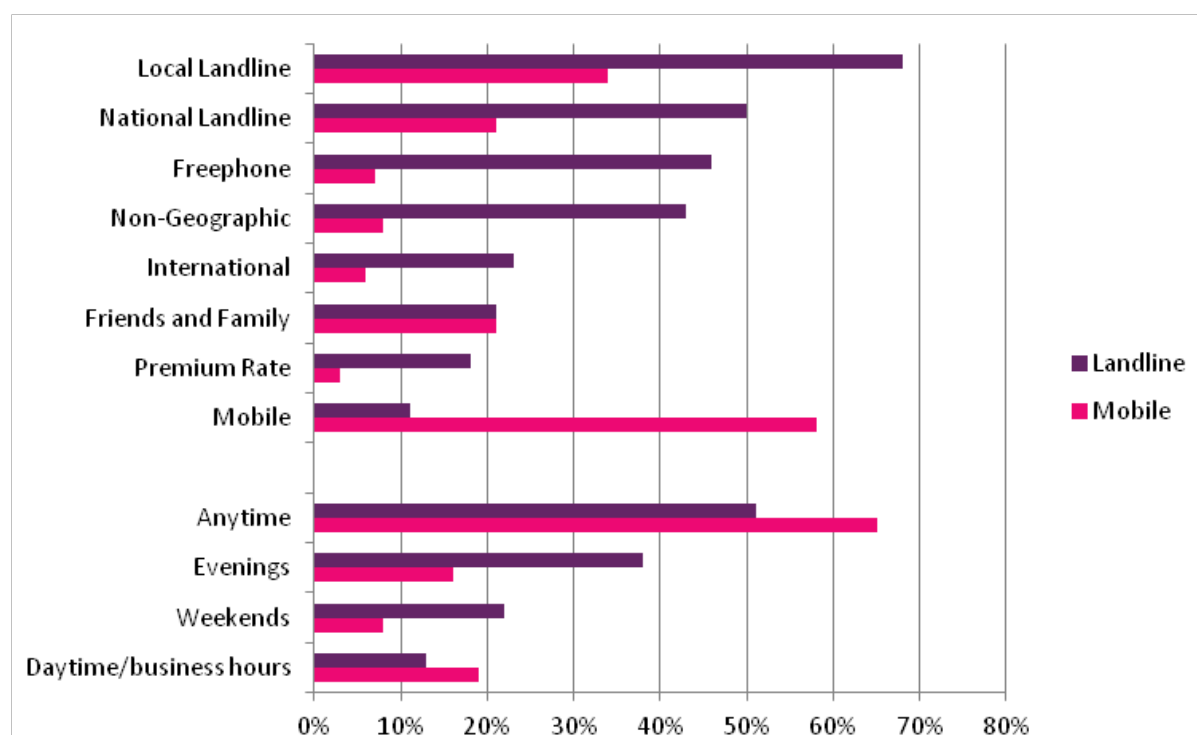
⁹⁹ Correct at 22 November 2012.

¹⁰⁰ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

when a call was more expensive on a mobile than on their landline, with the majority identifying calls to landlines, international calls and calls to non-geographic numbers (e.g. 0845 calls) as being more expensive from a mobile (with calls to mobile being identified as more expensive from a landline).¹⁰¹

- 5.50 Further, as shown in Figure 5.1, consumers also adjust their relative use of landline and mobile in line with these perceptions. In particular, while they use their mobile phones significantly more to call other mobile phones, they use their landlines significantly more to call landlines and other numbers which are less costly to call from landlines (e.g. non geographic and international numbers). This suggests that where a fixed call has an explicit price (e.g. out of inclusive bundle calls) a change in relative call prices could lead to some switching to mobile on a call by call basis.

Figure 5.1: Outgoing calling patterns when at home



Source: Ofcom¹⁰²

- 5.51 While some switching to mobile could occur on a call by call basis at the margins, we do not consider that the fixed volumes and revenue lost by the hypothetical monopolist would be sufficient to make a wholesale price increase unprofitable. Despite rationalising choices on the basis of price, when making a call most respondents said they do not consider about the call price: 67% either never or rarely consider call prices when choosing which method to use. The evidence suggests that the choice between fixed and mobile calls is driven not only by price but also by reliability of connection, quality of network coverage and ease of use.¹⁰³ Whether the consumer uses a pre- or post-paid mobile service¹⁰⁴, the type of calls made, and the

¹⁰¹ Ibid

¹⁰² Ibid

¹⁰³ Ibid. These were all expressed as reasons that consumers do not currently make all calls by mobile when at home.

¹⁰⁴ For example, for post-pay contract customers the marginal cost of a call is effectively zero within a bundle, and so these retail customers may be more sensitive to changes in retail fixed call prices than pre-pay customers who often pay a ppm charge.

needs of the customer at the time the call is made (e.g. out of the house, no interference etc¹⁰⁵) will also affect the decision. In some cases the current price differential between fixed and mobile calls (particularly for some call types, such as non-geographic numbers) can be very large.¹⁰⁶ It is not clear how much fixed call prices would need to increase in order for consumers to be prepared to switch to mobile to the extent necessary to render a wholesale call origination price increase unprofitable.

- 5.52 Different groups of consumers appear more or less likely to switch. Those more likely to switch include younger people and those living in urban areas.¹⁰⁷ This suggests that switching to mobile may be a less plausible option for some consumer groups. Some of these groups can be identifiable and separable to some extent, which means price discrimination could be used to further limit any switching that would occur.¹⁰⁸
- 5.53 Therefore, there could be some switching at the margins for those consumers who are exposed to individual call prices if the relativity between mobile and fixed call prices was affected. We do not consider any such switching would be sufficient to constrain wholesale call origination prices, since:
- a) for many consumers, retail price is not the main consideration when choosing the method to make calls;
 - b) retail call prices may have to increase very significantly to trigger switching to mobile; and
 - c) the majority of customers are unlikely to be exposed to such an individual call price change (as discussed above).

Business consumers

- 5.54 The logic set out above also largely holds for business customers, although there is some evidence that mobile may be a closer alternative for businesses. Figure 5.2 below shows that the reduction in fixed minutes for businesses appears, at least in part, to have been compensated by an increase in mobile minutes. As noted in paragraph 5.31, bundling of inclusive minutes is relatively less important in the business market compared with the residential market, and our business survey finds little evidence of an attachment to landline due to free or pre-paid minutes of landline calls.¹⁰⁹ According to a confidential CFI respondent, this is because business customers generally demand to see end-to-end call charges for their main

¹⁰⁵ In our research, quality within the home was raised as a potential concern with mobile.

¹⁰⁶ Table 3.1, Ofcom, *Simplifying Non-Geographic Numbers: Improving consumer confidence in 03, 08, 09, 118 and other non-geographic numbers*, December 2010, <http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-numbers/summary/non-geo.pdf>. Mobile call prices for non-geographic numbers can be (and have historically been) many multiples of the fixed line equivalent. As discussed above, consumers also have strong perceptions around call prices, particularly that certain calls are more expensive than others from a mobile.

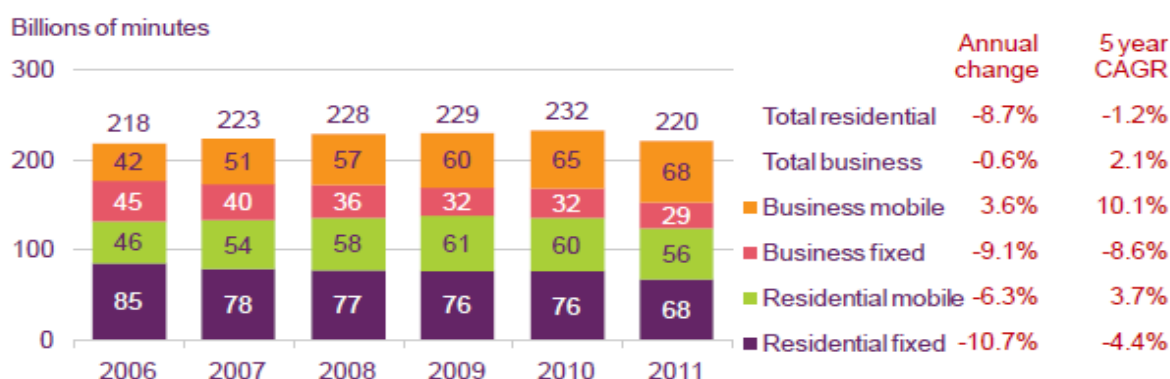
¹⁰⁷ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

¹⁰⁸ For example, fixed CPs can identify where their consumers live and may therefore confine price increases to rural consumers, who are less likely to switch to mobile.

¹⁰⁹ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

destinations.¹¹⁰ As a result, businesses may be more likely to switch calls at the margin than residential customers.

Figure 5.2: Total fixed and mobile voice call volumes, by customer type¹¹¹



Note: Includes estimates where Ofcom does not receive data from operators; fixed call volumes exclude NTS voice calls

- 5.55 However, these differences need to be weighed against other evidence of the similarities. Like residential consumers, the vast majority of businesses (90%) purchase fixed line rental and calls from the same provider, and have an attachment to a fixed line.¹¹² In particular, only 6% of businesses stated they would cancel their fixed line and switch all calls in response to a 10% increase in costs of calls from their fixed line.¹¹³ Additionally, the call-by-call switching decision within businesses is generally removed from the purchaser, and instead made by employees who are likely to prioritise non-price factors (such as needs at the time of the call) over price considerations. Indeed, 74% of businesses in our survey claim that staff lacked an active awareness of call costs incurred during work.¹¹⁴
- 5.56 More significantly, there are other considerations that would be likely to limit the extent of switching to mobile by business customers. For example, respondents to our survey suggested that mobile calls cannot replicate the quality of customer service, or air of professionalism and reputability, which a fixed landline confers upon their business. Overall, 70% of businesses indicated that they would not consider switching more/all calls from their fixed line to mobile, with price, reliability, quality and coverage cited as the main barriers to further future mobile substitution.¹¹⁵ Only 19% of businesses in our survey stated they would switch some calls to mobile (5% would switch all calls) if the cost of calls from a fixed line increased by 10%, with 47% stating they would do nothing (and did so with relatively greater certainty than for the alternative options).¹¹⁶ However, as with the consumer research, we consider that this stated preference response to a price increase may overstate actual behaviour. This is particularly true on a call-by-call basis where users are often separate from the bill-payer, and indeed for switching all calls, due to the qualitative non-price factors identified as important drivers for keeping a landline.

¹¹⁰ [X]

¹¹¹ Figure 5.16, Ofcom, *Communications Market Report*, July 2012,

http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

¹¹² Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

¹¹³ Ibid

¹¹⁴ Ibid

¹¹⁵ Ibid

¹¹⁶ Ibid

- 5.57 As a result, we consider that while some switching to mobile could occur (both for some calls, and potentially to a lesser extent, for all calls), this would be limited to a relatively small proportion of business users, who together account for a small proportion of the total fixed calls market. Overall, we do not consider this switching is likely to render a price increase in wholesale call origination unprofitable.

Overall conclusions on mobile

- 5.58 While mobile calls appear to constitute an increasing competitive constraint in the retail market for calls (particularly for businesses), it is not clear this would be likely to affect the relevant wholesale market definition in the period covered by this review. This is primarily due to the increasing tendency to bundle fixed access with calls combined with consumers' unwillingness to give up fixed voice access, but also reflects non-price factors.

Indirect demand constraint – competition based on VoIP

- 5.59 We observe that there are two main types of VoIP:
- a) **Managed VoIP:** the ISP that provides a customer's broadband service also provides a voice service over the broadband connection. The ISP controls the provision and quality of this voice service. Calls to the PSTN are likely to be supported, and prices may be similar to calls made over the narrowband network.¹¹⁷ Managed VoIP also includes integrated communications services where a business is provided with a single access connection to support all its traffic (managed voice, private data traffic and internet access).¹¹⁸ The traffic will not, in general, be passed via the public Internet.
 - b) **Un-managed VoIP:** a separate voice SP (such as Skype) provides the service "over-the-top" of a broadband connection. The provider of the broadband connection (whether a residential ISP or a provider of integrated business communications) routes the traffic to the Internet, and there is no guarantee they will prioritise this traffic, so quality of service is likely to be more variable than a managed service. Calling between customers subscribing to the service is likely to be free, and the service may allow the subscriber to make and receive calls to and from the PSTN but this is likely to be charged for.
- 5.60 Currently, residential consumers are much more likely to use unmanaged VoIP services. Businesses utilise both managed and un-managed VoIP in roughly equal measure¹¹⁹, but the use of VoIP for both has been increasing. More than one in five adults (21%) stated that they currently make voice calls over a broadband connection¹²⁰, and 17% of adults stated they use VoIP at least once a week to communicate with friends and family.¹²¹ Meanwhile, more than 50% of large

¹¹⁷ Providers of Managed VoIP include Virgin Media. BT used to provide Managed VoIP ('Broadband Talk'). However, it was discontinued in 2011.

¹¹⁸ This is sometimes referred to as IP Voice and/or Session Initiation Protocol (SIP) trunking.

¹¹⁹ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

¹²⁰ Figure 5.59, Ofcom, *Communications Market Report*, July 2012, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

¹²¹ Figure 6.19, Ofcom, *Communications Market Report*, July 2012, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

businesses (employing more than 250 people) use some form of VoIP communication.¹²²

- 5.61 This suggests a growing potential for substitution from fixed voice calls to voice over broadband calls.

Residential consumers – increase in bundle price

- 5.62 As noted in paragraph 5.27, the majority of consumers purchase access and calls from the same supplier and, increasingly, fixed bundles are sold including some fixed calls. As a result, retail customers may need to switch their entire bundle of fixed voice calls to VoIP in order for VoIP to exercise a strong constraint on wholesale call origination. A fixed line is required to provide the broadband connection over which the service is provided, so that a customer needs to retain the access line even where they choose to make calls via VoIP. This means that once the consumer decides to keep its access line (and call package), calls from a fixed line are effectively “free” within the inclusive minutes in the package. Therefore, we do not consider that an increase in the price of wholesale call origination would be likely to trigger significant retail switching towards VoIP such that it would no longer be profitable.

- 5.63 There are additional factors affecting the choice between fixed voice telephony and VoIP besides price, which would significantly limit the degree of switching. For example, VoIP use requires a broadband connection of sufficient quality, and there may be issues with convenience (if the VoIP service is provided via software installed on a computer so that the computer needs to be on before calls can be made), quality of sound and the perceived reliability which a fixed landline is said to possess.¹²³ This is reflected in the relatively few respondents to our survey who indicated they would switch some calls to VoIP in response to a 10% increase in their monthly landline bill (9%).

Residential consumers – increase in price of out-of-bundle calls

- 5.64 As with mobile (albeit to a lesser extent), residential customers are likely to consider VoIP calls to be a substitute for some fixed line calls (35% of people in our consumer survey choose VoIP for outgoing calls based on price, the most commonly cited individual reason¹²⁴), and as such are likely to be fairly sensitive to material changes in the relative price of calls at the margin. However, any such switching does not appear to be sufficient to constrain wholesale call origination prices, since there continue to be non-price factors which are relevant in this switching decision (as well as the fact that the majority of customers are unlikely to be exposed to such an individual call price change, discussed above).

Business consumers

- 5.65 For business customers, changes in the prices of wholesale call origination could affect relative call prices more strongly. In particular, whilst the use of VoIP by business customers has many of the same considerations as set out above for residential customers, those who have stated that they would consider switching to a managed VoIP service are likely to be increasingly willing do so in the future as the

¹²² Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

¹²³ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

¹²⁴ Ibid

quality of managed business services increases (e.g. when provided over a leased line directly into an ISP's IP network).

- 5.66 The number of business fixed lines (excluding broadband) decreased for the fourth consecutive year in 2011, and the increased use of IP-based services for business telephony was one factor identified as likely to have contributed to this.¹²⁵ Of the applications used over businesses' wide area network connections, VoIP was used by 45% of businesses and 'PSTN grade' voice services were used by 47%.¹²⁶
- 5.67 Businesses that use international services may also benefit from VoIP-based international calls, which could offer significant cost savings.¹²⁷
- 5.68 However, switching to VoIP is not costless or risk-free. Moving to a VoIP solution may involve costs related to the change of equipment which, depending on the size of business, could be significant. Additionally, changing equipment can represent an operational risk that businesses might wish to avoid. Therefore, it is unclear that a small but perceptible increase in retail fixed call prices would trigger sufficient switching to managed VoIP by business customers (in the period covered by this review) to make the wholesale price increase unprofitable.

Overall conclusions on VoIP

- 5.69 Looking forward, managed VoIP is likely to continue to develop for business customers (particularly larger businesses), and residential customers may continue to increase their use of unmanaged VoIP services over the longer term. We do not consider any such increased use would change our analysis, in the period under review; just 4% of business in our survey currently without VoIP services said that they would consider introducing them in the next two to five years (although this does increase somewhat among large businesses).¹²⁸
- 5.70 Therefore, while mobile and VoIP services are increasingly substitutable for fixed voice calls on a call-by-call basis, our preliminary view is that a price increase in wholesale call origination would not trigger sufficient switching to these alternatives to render the price increase unprofitable.

Indirect demand constraint – competition from text-based and social media services

- 5.71 In addition to mobile and VoIP calls, texting using a mobile phone and potentially emails and social media may act as a substitute for some calls.

Residential consumers

- 5.72 Text messages are the most-used method for daily communication with family and friends: 58% of United Kingdom adults text friends and family at least once a day

¹²⁵ Section 5.2.5, Ofcom, *Communications Market Report*, July 2012, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

¹²⁶ Figure 5.47, Ofcom, *Communications Market Report*, July 2012, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

¹²⁷ We note that there is currently a higher take-up of VoIP among large businesses compared to the business community as a whole. To the extent that large businesses have greater international interests, VoIP can be attractive for international calls. However, we acknowledge that many small businesses may also be interested in cheaper international calls which means it is not clear that cheaper international calls is a key factor affecting VoIP take up.

¹²⁸ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

(47% of United Kingdom adults talk on a mobile every day). Social networking is used daily to communicate by about one third (32%) of adults.¹²⁹ Our consumer survey found that 54% of residential consumers agree that sending a text message is a viable alternative to making a call via landline,¹³⁰ While 39% agreed that sending an email is a viable alternative to making a call.

- 5.73 However, there are barriers to increasing use of text based communication. When asked why they do not use text messaging more often at home versus landline calls, consumers stated a preference to talk to the person, saw it as not being suitable for certain conversations, mentioned the need to obtain an immediate response, and that text would take too long or is inconvenient to use.¹³¹ Similar barriers to increasing use of emails were raised.¹³² While 21% stated they would switch some landline calls to text message in response to a 10% price increase in their overall landline bill (16% to email), it is not clear what proportion of calls they would be willing to switch, particularly in light of the identified barriers to increased use.¹³³ Additionally, as noted in relation to mobile calls, relatively few customers would be prepared to give up fixed line access - or all fixed line calls - and switch to alternatives to these.¹³⁴ As a result, we do not consider that any switching to text or email would be sufficient to make a price increase in wholesale call origination unprofitable.

Business consumers

- 5.74 Similarly to residential consumers, we recognise that text messaging and emails may provide an alternative to some fixed line calls for businesses. In our business survey, 43% agreed that sending a text message is a viable alternative to making a fixed line call, and 67% agreed regarding emails. However, respondents identified that there are barriers to increasing the use of both of these as alternatives to fixed line calls, including the preference to talk, lack of suitability for some types of communication, inappropriateness for contacting clients, the need for the 'personal touch' and immediate response, and inconvenience.¹³⁵ Only 6% of respondents stated they would switch some landline calls to email in response to a 10% increase in fixed line call prices (less than 0.5% stated they would switch all calls to email).¹³⁶ Therefore, combined with the drivers for using fixed line calls set out above, we do not consider that any switching to text or email would be sufficient to make a price increase in wholesale call origination unprofitable.

Overall conclusions on alternative networks

- 5.75 Whilst mobile and, to a lesser extent, VoIP are potential alternatives for fixed calls, the competitive constraint exercised on fixed narrowband calls at the retail level from calls originated on a mobile network or via VoIP, or by text-based services, does not appear to be sufficiently significant at this stage to justify widening our product market definition.

¹²⁹ Ofcom, *Communications Market Report*, July 2012, p.5,

http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/UK_5.pdf

¹³⁰ Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

¹³¹ Ibid

¹³² Ibid

¹³³ This is likely to overstate actual responses to price increases due to the stated preference nature of the research.

¹³⁴ Ibid

¹³⁵ Ibid

¹³⁶ Ibid

- 5.76 We also do not consider that the constraints posed by these retail alternatives are sufficient *collectively* to constrain a hypothetical monopolist in wholesale call origination. This is because even when combined, we would expect any actual reduction in fixed calls volumes to be relatively limited. As a result, it is not clear that loss of voice traffic to mobile and VoIP services would collectively be sufficient for a 5-10% increase in the price of fixed wholesale call origination to be unprofitable.

Different call types

- 5.77 Retail consumers use their fixed lines to make various types of calls, including to other geographic numbers, to mobile numbers, international calls and for non-geographic call services. A hypothetical supplier of wholesale call origination for one call type could easily switch to providing call origination for another call type following a change in relative prices. Indeed, suppliers provide wholesale call origination services for a number of call types using the same wholesale services set out above in our candidate market (reflecting the fact that CPs tend to provide call services which enable their retail customers to make all types of calls). This suggests that all wholesale call origination services should be treated as part of the same market, irrespective of the type of number being called, on the basis of supply-side substitutability.

Different retail bundles

- 5.78 We consider that all wholesale call origination (irrespective of the retail offering it is an input for) should be considered part of the same market.
- 5.79 In response to the September 2012 Consultation, [X] argued that there is a separate and distinct downstream market for the provision of bundled voice and broadband services.¹³⁷ Should this be the case, it could have implications for the wholesale market definition, and so it would be necessary to consider any potential affects further.
- 5.80 We recognise the trend towards bundling of voice and broadband in the retail market, as set out in Section 3. However, we do not consider this trend sufficiently advanced for there to be a distinct market for bundles at the retail level. It is possible to purchase broadband and fixed voice separately, and a significant proportion of consumers purchasing both products exercise this option – approximately 22% of those with a landline buy it on a standalone basis and purchase fixed broadband separately.¹³⁸
- 5.81 Even if there were a separate downstream market for bundles of voice and broadband, we do not consider that this would affect the wholesale call origination market definition. Full LLU (i.e. MPF) is not used as an input for all retail voice calls, as it is typically only commercially viable when used to provide a bundle of voice and broadband. As we discuss below (under geographic market definition), for a variety of reasons, a significant proportion of all retail LLU lines are still SMPF lines, and LLU operators are reliant on BT's wholesale call origination to supply a fixed voice product to these customers (even as part of a bundle with broadband). BT's wholesale call origination service is also used to provide voice-only retail services. This means wholesale call origination remains a key upstream input to supply retail bundles.

¹³⁷ [X]

¹³⁸ These figures are based on data collected from the Ofcom Technology Tracker, Q1 2012, http://stakeholders.ofcom.org.uk/binaries/research/statistics/2012apr/Ofcom_Technology_Tracker_Wa1.pdf

- 5.82 As a result, our preliminary view is that there is not a separate market for wholesale call origination used to supply bundled voice offerings nor will such a market emerge during the period under review, despite the fact that we expect the purchase of bundles to continue to grow. Defining a narrower market for wholesale call origination for the provision of calls in bundled voice and broadband retail offerings does not appear to be appropriate (nor would it add to our analysis). However, we do reflect this trend in bundling where appropriate in the market power assessment below.

Residential and business

- 5.83 Retail competition for calls (and suitability of alternatives) is likely to differ between residential and business consumers, as reflected in the above analysis of indirect constraints. However, wholesale call origination costs and charges to competing providers are the same, irrespective of whether they provide residential or business services. This means that, because of supply-side substitution, we consider that there is a single market for wholesale call origination to retailers supplying the residential and business market.

Geographic markets

- 5.84 The purpose of geographic market definition in the context of a market review is to identify areas where competitive conditions are similar. This enables us to assess which CPs, if any, have market power and in which geographic areas. If competitive conditions vary significantly between different local areas, it may be appropriate to assess and address market power separately in these different areas.
- 5.85 We start with two candidate geographic markets in line with the retail markets they serve, and from which demand for wholesale call origination is derived:
- a) The United Kingdom excluding the Hull Area; and
 - b) The Hull area.
- 5.86 The characteristics of these geographic areas are sufficiently different to consider these areas separately. The competitive conditions (in terms of market participants and their relative positions) vary significantly between the two areas. The provision of wholesale call origination in these areas is by different networks with no overlap in market participants. In addition, there is no prospect of supply-side substitution between the two areas unless significant infrastructure investment were to occur, which has not happened to date and does not seem likely in the period of this review - even in response to a significant price increase in one of these areas.
- 5.87 To consider if there are any further geographic variations in competitive conditions that justify defining more localised markets, we consider further variations in the market for wholesale call origination on a fixed narrowband market within each of these areas.
- 5.88 First, we recognise there is some variation in the competitive conditions in different areas of the United Kingdom excluding the Hull Area due to availability of LLU/cable. In particular, a small proportion of premises are currently not connected to an LLU-

enabled exchange¹³⁹ and to the cable network, meaning BT's network is the only network able to reach those customers.

5.89 If we considered that it would affect our analysis of competition and/or our application of appropriate remedies (if needed) to define more granular geographic areas in relation to the availability of LLU/cable, we would seek to do so. However, we do not consider this to be the case. This is because even where LLU deployment has occurred, LLU operators are still reliant on BT's wholesale call origination to supply particular customers mainly for the following reasons¹⁴⁰:

- **Consumer preferences:** MPF lines can be used to supply wholesale call origination to customers who purchase line rental, calls and broadband from the same CP. It is not likely to be profitable to provide a voice-only service over LLU, and so MPF cannot be used to self-supply wholesale call origination to voice-only customers (approximately 17% of those with a landline). In addition, MPF cannot be used to supply customers who purchase their broadband and voice services separately (approximately 22% of those with a landline).¹⁴¹ Therefore LLU operators will not be able to self-supply wholesale call origination using MPF unless they can successfully migrate customers in an MPF-enabled exchange to a combined line rental, calls and broadband bundle. This may be relatively easy to achieve where customers purchase separate voice and broadband for legacy reasons alone. However, others in our consumer survey deliberately purchased their telecoms services from different providers, claiming that it lowered their overall costs.¹⁴² For this group of people, the barriers for CPs to migrate them to full LLU are more significant.
- **Continued use of SMPF, even for some dual-play customers:** Approximately 30% of LLU lines are SMPF.¹⁴³ SMPF lines cannot support voice services and so cannot be used to self-supply wholesale call origination. We understand from LLU operators that they intend to convert as many SMPF lines to MPF as possible in MPF-enabled exchanges since it is more profitable for them. However, the speed at which they do so is limited by factors which are not related to the price of wholesale call origination, mainly the sunk costs involved.¹⁴⁴
- **Sub-national coverage:** further roll-out of LLU is determined by wider investment strategy considerations (plus relative margins of MPF/SMPF) rather than the price of wholesale call origination due to the significant sunk investment required. While an increase in wholesale call origination prices may improve the economics of unbundling some marginal exchanges, the coverage of LLU-enabled exchanges seems unlikely to reach full nationwide coverage due to the

¹³⁹ At July 2012, 8% of premises were not connected to an LLU enabled exchange. Figure 1.2, Ofcom, *Communications Market Report*, July 2012,

http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_UK_2012.pdf.

¹⁴⁰ These factors were also amongst those identified by several CPs in our CFI where they raised concerns about the limited competitive constraint LLU imposes on BT's wholesale call origination services.

¹⁴¹ These figures are based on data collected from the Ofcom Technology Tracker, Q1 2012, http://stakeholders.ofcom.org.uk/binaries/research/statistics/2012apr/Ofcom_Technology_Tracker_Wa1.pdf

¹⁴² Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

¹⁴³ Ofcom quarterly data

¹⁴⁴ For example, CPs may consider that the efficient process to convert from SMPF to MPF is to use the bulk migration process so that a critical mass of customers is needed before it costs in for a retailer to switch them all to MPF.

likely unfavourable costs and limited customer mass in the final exchanges. This is also particularly relevant for increased self-supply by cable due to its more limited geographic coverage and the significant investment required to extend it.

- 5.90 Consumers who are supplied voice services which rely on BT's wholesale call origination together account for a material proportion of LLU operators' customers, even in areas where LLU deployment has occurred. We accept that there is an increasing trend in bundling voice with other services with some operators not offering voice services on a standalone basis. However, the fact is that voice services are still offered by many providers on a standalone basis.¹⁴⁵ Also, even where services are bundled at the retail level, the retailer may use shared LLU (SMPF) for broadband and purchase wholesale call origination services for voice.
- 5.91 For this reason, geographic variation in competition within the United Kingdom excluding the Hull Area is not sufficiently strong or clearly demarcated to justify more narrowly defined local markets. This is because LLU/cable availability is not the only driver of varying competitive conditions, and even where LLU is present there are still a material number of customers who cannot be served using LLU.¹⁴⁶
- 5.92 Taken together, we consider that these factors result in sufficiently homogenous conditions to define a single market for the United Kingdom excluding the Hull Area for this review period.
- 5.93 We also propose that there is a separate (but single) market within the Hull Area. Since there is no cable or LLU footprint in this area, there are no geographic variations in competitive conditions that justify defining more localised markets. As a result, we believe that the Hull Area is captured by a single geographic market.

Conclusion on market definition

- 5.94 In light of the above, we consider that the relevant product market is wholesale call origination on a fixed narrowband network (including self-supplied services). We propose two geographic areas:
- a) the United Kingdom excluding the Hull Area; and
 - b) the Hull area.

Market power assessment

- 5.95 Having identified the relevant product and geographic markets, Ofcom is required to analyse each market in order to assess whether any person or persons have SMP as defined in Section 78 of the Act (Article 14 of the Framework Directive).
- 5.96 Section 78 of the Act provides that SMP is defined as being equivalent to the competition law concept of dominance in accordance with Article 14(2) of the Framework Directive which provides:

"An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an

¹⁴⁵ Correct as at December 2012 from providers' websites.

¹⁴⁶ This is different to the situation in WBA where the variations in competitive intensity are more closely linked to geography.

appreciable extent independently of competitors, customers and ultimately consumers."

- 5.97 In assessing whether an undertaking has SMP, Ofcom has taken due account of the Commission's SMP guidelines¹⁴⁷ ('SMP Guidelines') as it is required to do under Section 79 of the Act and, where relevant, we have had regard to the equivalent guidelines published by Oftel¹⁴⁸ and the ERG's revised working paper on SMP¹⁴⁹ ('ERG Revised SMP Paper').
- 5.98 The purpose of the market analysis conducted under Article 16 of the Framework Directive is to determine whether a market is effectively competitive. Where national regulatory authorities determine that a market is not effectively competitive, they shall identify undertakings holding SMP on that market.
- 5.99 The market analysis is undertaken through a forward looking evaluation of the market, determining whether the market is prospectively competitive, taking account of foreseeable developments.
- 5.100 Market share is an indicator of market power although the SMP Guidelines state that high market share alone is not sufficient to establish the possession of significant market power. The SMP Guidelines further state that:¹⁵⁰
- "In the Commission's decision-making practice, single dominance concerns normally arise in the case of undertakings with market shares of over 40 %, although the Commission may in some cases have concerns about dominance even with lower market shares [...], as dominance may occur without the existence of a large market share. According to established case-law, very large market shares — in excess of 50 % — are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position [...] An undertaking with a large market share may be presumed to have SMP, that is, to be in a dominant position, if its market share has remained stable over time [...]. The fact that an undertaking with a significant position on the market is gradually losing market share may well indicate that the market is becoming more competitive, but it does not preclude a finding of significant market power."
- 5.101 However dominance cannot be established on the basis of market shares alone. A thorough and overall analysis is required before coming to a conclusion on the existence of SMP. The SMP Guidelines list a number of non-exhaustive criteria to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers.¹⁵¹
- 5.102 We have considered the following criteria to be of particular relevance to this review:
- market shares (current and future);

¹⁴⁷ Commission guidelines on market analysis and the assessment of significant market power (2002/C165/03) – 11 July 2002, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>

¹⁴⁸ Oftel's market review guidelines: criteria for the assessment of significant market power, http://www.ofcom.org.uk/static/archive/oftel/publications/about_oftel/2002/smpg0802.htm

¹⁴⁹ Revised ERG Working paper on the SMP concept for the new regulatory framework, ERG (03) 09rev3, September 2005.

¹⁵⁰ Ibid. See paragraph 75

¹⁵¹ Ibid. See paragraph 78

- degree of substitution of competing services at the wholesale and retail level; and
- barriers to expansion (particularly of LLU operators).

The United Kingdom excluding the Hull Area

Summary of market power analysis

5.103 The material increase in the use of MPF by LLU operators since the last market review and higher dual-play take up by consumers mean that there are more effective constraints on BT since the last review. However, our preliminary view is that BT continues to have SMP in this market for the following reasons:

- a) BT still has approximately 67% market share of wholesale call origination on fixed narrowband networks (although BT's market share has declined from a level of approximately 73% in 2009 when the market was defined on the same basis).¹⁵²
- b) Absent regulation, BT would not face a sufficiently strong constraint on the price of wholesale call origination:
 - i) Despite significant development in LLU, there is still a material reliance on BT's wholesale call origination even by LLU operators in on-net areas.
 - ii) At the retail level, there are constraints to switching both in relation to certain groups of customers and in relation to bundling.
 - Certain customer groups have no retail options which are not reliant on BT's wholesale call origination input e.g. voice-only customers (16% of those with a landline do not have broadband) and those outside the LLU/cable footprint.¹⁵³ Additionally those who currently purchase voice and broadband independently of each other (approximately 22% of those with a landline at home¹⁵⁴) may need to switch to a bundled offer.
 - Bundling (of inclusive minutes, as well as other services such as broadband and TV) might mean that even consumers who do have an alternative are less likely to switch their entire bundle as a result of a price increase on their fixed calls package alone.
- c) There are non-price barriers to the speed and extent of increased self-supply (and to the potential market for the supply of third party wholesale call origination) in the review period, meaning that there will be a continued and material reliance on BT even by LLU operators in on-net areas. This is especially likely given that wholesale call origination prices are not a key driver in LLU roll-out decisions.

5.104 Therefore, our preliminary view is that - although BT's market share has declined since the last review - BT is likely to continue to hold a position of SMP in wholesale call origination for this review period.

¹⁵² Ofcom, *Review of the fixed narrowband services wholesale markets*, March 2009, Paragraph 6.83, http://stakeholders.ofcom.org.uk/binaries/consultations/review_wholesale/summary/fnwm.pdf

¹⁵³ These figures are based on data collected from the Ofcom Technology Tracker, Q1 2012, http://stakeholders.ofcom.org.uk/binaries/research/statistics/2012apr/Ofcom_Technology_Tracker_Wa1.pdf

¹⁵⁴ These figures are based on data collected from the Ofcom Technology Tracker, Q1 2012, http://stakeholders.ofcom.org.uk/binaries/research/statistics/2012apr/Ofcom_Technology_Tracker_Wa1.pdf

Market shares

5.105 Current suppliers of wholesale call origination on a fixed narrowband network in the United Kingdom excluding the Hull Area include:

- a) BT;
- b) LLU operators (including Sky, CWW and TalkTalk) who self-supply to their own retail business but may also provide wholesale call origination to other CPs; and
- c) Other operators who self-supply to their own retail businesses but may also provide wholesale call origination to other CPs (for example, Virgin Media, Gamma, COLT and Verizon).

5.106 There are also some other CPs who provide wholesale call origination to other operators, but these resale BT's wholesale inputs to do so. The shares of these players in the wholesale call origination market are set out in Table [5.2].¹⁵⁵

Table 5.2: Estimated shares of the wholesale call origination market

| | BT | LLU operators self-supply | Other self-supply |
|--------------|-----|---------------------------|-------------------|
| Market share | 67% | [10-20]% | [10-20]% |

Source: Ofcom

5.107 BT has a market share of approximately 67% for wholesale call origination (split between that which is self-supplied for its own retail service and that which it sells to other CPs). In line with the SMP guidelines and competition law principles, BT is likely to enjoy a dominant position in the proposed market due to a market share in excess of 40%. However dominance cannot be established on the basis of market shares alone and an overall analysis is required before coming to a conclusion on the existence of SMP. It is therefore necessary to consider the extent of constraints posed by other CPs on BT going forward and therefore BT's future market shares.

BT's pricing and profitability

5.108 As explained above (see paragraph 5.13), our analysis of market power should be conducted on the basis of an absence of regulation in wholesale call origination (the so called 'modified Greenfield' approach). Specifically, we need to take into account the existing charge control on wholesale call origination and consider what prices BT would set in the absence of the charge control.

¹⁵⁵ The determination of these market shares does not take into account the supply of smaller CPs for whom we have not gathered volumes for this market review. Comparison of the total volume from data gathered during this market review with total volume from Ofcom 's Quarterly Telecoms Update show that the volumes of these smaller providers is not significant enough to have any material impact on the market share of the large providers and BT in particular.

- 5.109 In the first three years of the existing charge control (years ending 2010 to 2012), BT's prices have essentially been at the level of the cap set by Ofcom, and shown in Table 5.3.

Table 5.3: BT's prices for wholesale call origination

| Year ending | Daytime | Evening | Weekend |
|--------------------|----------------|----------------|----------------|
| 31/03/2012 | 0.2855 | 0.1307 | 0.1029 |
| 31/03/2011 | 0.2755 | 0.1261 | 0.0993 |
| 31/03/2010 | 0.2651 | 0.1214 | 0.0956 |
| 31/03/2009 | 0.2631 | 0.1204 | 0.0948 |

- 5.110 In some wholesale markets subject to a charge control, the presence of (some) competitive constraints during the control period has sometimes led to prices below the cap and, in some cases, substantially below the cap. This was the case for instance in the Single Transit market where BT cut prices by 66% in 2008 while a charge control was in place for that service.

Constraint exercised by competing services at the retail level

- 5.111 In the market definition section above, we analysed substitution between retail services using the candidate wholesale call origination product and other alternative retail services (i.e. using mobile or VoIP wholesale input). We analyse the constraint on retail services provided using BT's wholesale call origination products exercised by retail alternatives (including services which make use of wholesale call origination products provided by alternative suppliers, such as LLU or cable).
- 5.112 As set out above, one of the most significant recent developments in the market for wholesale call origination has been the extended footprint of LLU and the move from SMPF to MPF by the large LLU operators. Combined with retail uptake of bundles of voice and broadband, this means for a large number of CPs (and retail customers), wholesale call origination using LLU is a potential substitute for BT's wholesale call origination. As a result, voice services originated over LLU have increased significantly since the last review, reducing the dependency of LLU operators on BT's wholesale call origination and so contributing to the decline in BT's share of the market from an estimated 73% in 2007.¹⁵⁶
- 5.113 However, BT's market share remains high - above the level at which dominance tends to be presumed. Therefore we have considered the extent to which wholesale call origination over LLU and cable act as a direct constraint on BT's pricing of wholesale call origination (either in terms of increased self-supply or as an alternative wholesale input for third parties), and any other constraints (or lack thereof) arising at the retail level from LLU/cable based services.

Reliance of LLU providers on BT wholesale call origination

- 5.114 Despite significant increases in self-supply over LLU (or cable), operators using these infrastructures still rely significantly on BT's wholesale call origination (43% of total call origination volume is supplied by BT to BT Retail, with about 12% of total

¹⁵⁶ Ofcom, *Review of the fixed narrowband services wholesale markets*, March 2009, Paragraph 6.83, http://stakeholders.ofcom.org.uk/binaries/consultations/review_wholesale/summary/fnwm.pdf.

call origination volume being supplied by BT to LLU operators). This holds true not only in areas where they do not have a footprint, but also in areas where they do. We have discussed at paragraph 5.89 the reasons for this.

- 5.115 While an increase in wholesale call origination prices may bring forward some investment in increased self-supply, wholesale call origination costs alone are not a major driver in these investment decisions, and so we consider it unlikely that the potential to increase self-supply would provide a sufficiently strong direct constraint on BT's SMP in the period of this review. Similarly, it is not clear that an increase in wholesale call origination would significantly affect the incentives for third party supply of wholesale call origination given the barriers to the uptake of this product.
- 5.116 As such, our preliminary view is that BT's market share is likely to remain high in the period covered by this review, and would do so even if BT were to increase its price for wholesale call origination.

Constraints on retail switching implied by bundling

- 5.117 In relation to constraints from LLU and cable, we note that not all CPs would be affected equally by an increase in the price of wholesale call origination.¹⁵⁷ As a result, an increase in the price of wholesale call origination could create a difference in retail prices between those who are able to self-supply some wholesale call origination and those that are not (i.e. if the wholesale price increase is fully passed onto retail prices). To the extent that this differential leads to consumers switching to CPs who can self-supply, the alternative fixed networks used for self-supply will exert an indirect constraint on BT's wholesale call origination.
- 5.118 However, BT's wholesale call origination prices could increase quite significantly before retail switching is likely to occur to the extent necessary to make such a price increase unprofitable:
- voice-only customers, those outside the LLU/cable footprints and possibly to some extent those who choose to purchase voice and broadband from different CPs may not wish or be able to switch to a dual play LLU offer.
 - For dual-play and triple-play customers in LLU/cable-enabled areas who do have a retail alternative, bundling of voice calls with access, broadband, and also other services (like Pay TV) may mean they are less likely to switch their entire bundle following a price increase in fixed calls alone.¹⁵⁸ This reduces the likelihood of retail switching from dual- and triple-play services where the voice element is

¹⁵⁷ LLU operators and other operators with direct access, such as Virgin Media, would likely see their cost base increase by less than CPs who are wholly reliant upon BT's wholesale call origination to offer retail services because the proportion of their wholesale call origination service which is self-supplied will not be affected by BT's charges. Reliance on BT's wholesale call origination by LLU operators varies, as they are at different stages in the LLU rollout and SMPF to MPF conversion process.

¹⁵⁸ As noted at paragraph 5.27 et seq, there has been a large increase in bundling and, for the majority of consumers, the overall cost of bundles has become an increasingly important consideration in purchasing decisions. This makes it less likely that many dual- or triple-play customers will switch their whole bundle of services in response to an increase in the price of the fixed voice component alone, as that would be unlikely to be noticeable in the bundle.

provided using BT's wholesale call origination to equivalent LLU or cable-provided retail services.¹⁵⁹

5.119 Therefore, these potential limitations to consumers switching in response to a retail price increase suggest that LLU-provided retail services would not act as a sufficient constraint on BT's wholesale call origination price. As a result, we consider that BT could profitably increase its wholesale call origination price above competitive levels. In particular, we consider there to be a risk that some of the limitations to switching set out above may foster price discrimination by BT, with more significant price increases to retailers who are more reliant on BT's wholesale call origination service because they lack available substitutes (e.g. those who are outside of the LLU or cable footprint).

5.120 We note there are further constraints on retail switching for business customers due to the fact that, in the business sector, there is significantly less scope for switching to an operator with its own fixed network due to the limited presence these CPs have in this sector. Historically LLU and cable operators have focused more on residential customers, while competition with BT in the business market comes to a much greater extent from resellers of BT's wholesale products.¹⁶⁰

Constraints on the supply of wholesale call origination over LLU to third party CPs.

5.121 There are also barriers to the supply of wholesale call origination over LLU to third party CPs. We note that it is technically possible for CPs to purchase wholesale call origination and access from a third party LLU operator in any exchange where the LLU operator has deployed MPF lines and has spare capacity in these exchanges¹⁶¹, or from a cable operator within its network area. Indeed some LLU operators, notably TalkTalk and CWW, offer wholesale products to third party CPs on this basis. However, we consider there to be limitations to increasing the purchase of wholesale call origination inputs from such alternative (non-BT) network operators:

- a) **The same barriers as for increased LLU self-supply (set out above):** i.e. consumer preferences, operational limitations and geographic coverage.
- b) **Incentives of LLU/cable operators:** there are several reasons why operators may not want to offer wholesale access, e.g. for strategic reasons (to maintain control over their own networks and avoid cannibalisation of own sales), or a lack of interest in investing in third-party supply. A confidential respondent to the CFI argued that the fact that LLU operators remain focused primarily on retail markets (with only limited wholesale products being offered) limits the constraint on BT.¹⁶²
- c) **Costs for CPs:** Potentially high switching costs, plus ongoing costs involved with managing multiple contracts due to sub-national coverage of LLU and cable (and a lack of a voice-only service), may mean it is not economic for CPs to switch

¹⁵⁹ This is further supported by the way in which we would expect an increase in wholesale call origination prices to affect retail prices (set out above), meaning it is unlikely to visibly affect the cost of making calls at the margin.

¹⁶⁰ For example, Ofcom quarterly data shows that Virgin has a 6% share of business lines compared to a 17% share of residential lines for Q1 2012. Whilst LLU and cable could attempt to increase business services, this would require time and planning due to the differing needs of businesses. Further, the same constraints around switching to self-supply for residential customers are also relevant.

¹⁶¹ In the 2009 market review we found that these operators could easily start providing a wholesale product given the investment they had already undertaken in relation to their retail product.

¹⁶² [X]

away from BT to purchase wholesale call origination from a third party. Costs could include connecting with the LLU or cable operator's network, any quality issues arising from migrating customers, and establishing a new commercial relationship (e.g. negotiating terms, adapting billing systems etc). Further, there may be operational difficulties, such as ported numbers and quality considerations.

Conclusion on overall constraint on BT

- 5.122 While there are a range of potential direct and indirect constraints on BT from both inside and outside the market defined at paragraph 5.94, we do not consider it likely that they will sufficiently constrain BT's market power in wholesale call origination during the time period of this review.
- 5.123 We consider that no other network has SMP given the reliance of other CPs on BT's wholesale inputs and limited purchases of non-BT wholesale call origination by CPs.

The Hull area

- 5.124 KCOM is the only supplier of retail and wholesale analogue lines in the Hull area, and so it has 100% market share of wholesale call origination, which creates a presumption of dominance.
- 5.125 In its response to the May 2012 CFI, KCOM argued that the absence of a wider choice of fixed line providers in the Hull Area is likely to generate a greater degree of consumer substitution between fixed and mobile call provision. However, as set out at paragraphs 5.34 *et seq*, we do not consider, for a variety of reasons, that mobile services act as a significant constraint on fixed services at this stage. We do not consider that the markets in the Hull area present any significant differences which might call into question that conclusion. We do not therefore consider that mobile operators are likely to exercise a sufficiently strong constraint on the activities of KCOM in the relevant market which might call into question our SMP finding.
- 5.126 We also note that entry has been limited to date, meaning that alternative networks do not provide a constraint on KCOM as both cable and LLU have limited presence, if any, in the Hull area.
- 5.127 Barriers to entry are high in the market for wholesale call origination in the Hull area as an operator that wanted to compete with KCOM in the Hull area would need to incur significant sunk costs to develop a fixed narrowband access network (either a direct access network or a solution based on LLU). Further, the market in the Hull area is relatively small, meaning there is a comparatively smaller potential customer base over which to recover these costs. As set out above, there has been no entry so far into the residential access market and we are not aware of any planned cable expansion or LLU-rollout in the Hull area. This indicates that barriers to entry are higher than in the rest of the United Kingdom where we have seen entry based on LLU.
- 5.128 Whilst this also largely holds for business customers, we note that there have been deployments of alternative infrastructure in the Hull area since the last market review targeting business customers via PPC, leased lines tails and radio links. In response to the CFI, KCOM has also noted the deployment of fibre which is currently taking

place by MS3, for the same purposes.¹⁶³ However, market entry has been limited to date and, as we discuss in more detail in Section 4, we consider that MS3's operations are at an early stage of development and it is unclear which markets MS3 will operate in. In particular, it is not clear whether this development would be sufficient to constrain KCOM in the supply of wholesale call origination services such that it would not be considered to have SMP. Until there is greater certainty about how MS3's network deployment will impact the wholesale call origination market in Hull, we consider that this situation will continue over the period of this review.

5.129 Therefore, we propose that KCOM has SMP in wholesale call origination in the Hull area.

Conclusions on market power

5.130 Having taken into account the analysis above, we propose that BT has SMP in wholesale call origination on a fixed network in the United Kingdom excluding the Hull area.

5.131 We also propose that KCOM has SMP in wholesale call origination on a fixed network in the Hull area.

Competition concerns

5.132 In the absence of regulation, there are a number of competition concerns which might arise as a result of the SMP identified in these markets. We consider these below.

The United Kingdom excluding the Hull area

5.133 Absent regulation, we have identified two main competition concerns regarding BT's SMP. BT could:

- a) stop providing a wholesale call origination product (refuse access); and/or
- b) increase prices for external sales of wholesale call origination above the competitive level.

Refuse access to wholesale call origination services

5.134 BT might have an incentive to refuse access to wholesale call origination services if the profits it would make from selling wholesale call origination (and in practice WLR) were lower than the profits it would make from the retail customers it would gain if it stopped supplying wholesale call origination.

5.135 Currently, approximately 25% of call origination minutes are sold by CPs in the retail market using BT's wholesale call origination services. Therefore, there is potentially a material customer base available for BT to retail directly to if it stopped offering wholesale call origination.

5.136 The availability of retail alternatives not based on BT's wholesale call origination (i.e. MPF LLU, cable) for at least some of these customers means it is unlikely that BT would gain all the residential customers currently being supplied by these CPs in the

¹⁶³ KCOM has also made a slightly more detailed submission on this issue in response to a CFI for a separate market review (we discuss this in more details in Section 4).

event that it stopped providing wholesale call origination to them. We nonetheless consider that switching to BT would still be significant despite the availability of retail alternatives for some customers, due to their limitations in this review period (discussed in further detail in paragraph 5.89), namely:

- a) Consumer preferences (particularly for voice only or those who purchase their broadband and voice services separately);
- b) Continued use of SMPF by LLU operators, even for some dual-play customers due to external and operational constraints; and
- c) Sub-national coverage for full MPF LLU and cable footprints.

5.137 BT is therefore likely to have an incentive to refuse to provide access to wholesale call origination to some or all CPs with which it competes at the retail level. Such conduct may lead to an increase in customers switching to BT at the retail level which would more than offset any reduction in wholesale revenues. BT is therefore able to distort competition at the retail level as a result of its conduct at the wholesale level.

Increase prices for wholesale call origination above the competitive level

5.138 Absent regulation, we consider that BT would have an incentive to increase prices for external sales of wholesale call origination above the competitive level. We consider this could be in the form of:

- a) price increases to all purchasers; and/or
- b) different price increases for different retailers: there are some retailers who are more reliant on BT's wholesale call origination input because they do not have available substitutes.

5.139 In the absence of regulation, BT is able to increase prices for wholesale call origination due to the absence of competitive constraints detailed at paragraphs 5.111 to 5.123 above. As set out in those paragraphs, a price increase above the competitive level for wholesale call origination (either for all wholesale customers or a subset of those customers) is likely to be profitable. Even if faced with a reduction in wholesale revenues (to the extent that wholesale customers faced reduced retail demand and therefore did not purchase the same level of wholesale call termination) this would be likely to be offset by an increase in retail revenues as a result of retail consumers switching to BT. BT is therefore able to charge excessive prices at the wholesale level and may have an incentive to do so.

5.140 Such price increases at the wholesale level would then be passed through by the different retailers to the detriment of consumers although not all consumers would be affected in the same way. We consider this detriment to be significant given the potentially large proportion of consumers who would be affected. Since the last review, the number of calls-only CPS subscribers has declined significantly, such that in Q1 2012 a very small proportion - [3%]- of BT Retail's current customers purchase calls through an alternative provider. We believe it is likely that this decline is due to CPs migrating their customers to bundled offerings (e.g. LLU, WLR or cable based services) where calls and lines are provided together, and that it is likely that this trend will be sustained during the period of the current review. As such, consumer detriment from BT's high prices would be most significant among those customers of

CPs using WLR and CPS to provide a combined line rental and voice service.¹⁶⁴ Our analysis shows that approximately 16%¹⁶⁵ of UK fixed lines are non-BT Retail WLR, which suggests price increases in wholesale call origination could therefore lead to significant detriment, for both residential and business customers.

The Hull area

- 5.141 In the absence of regulation, we consider that KCOM might refuse to supply wholesale call origination and, in doing so, remove the opportunity for CPs to compete at the retail level.
- 5.142 Compared to the rest of the United Kingdom, potential competition in the Hull area is weak because there are higher barriers to entry for any CP wishing to develop an LLU or cable network (as set out in Section 4). KCOM currently supplies wholesale call origination to CPs supplying business customers through IA (although with relatively small volumes). Absent regulation, KCOM would have incentives to refuse to supply wholesale call origination to these CPs as it would likely gain their business customers and this would prevent the development of competition in the Hull area.
- 5.143 Alternatively, KCOM could continue to supply wholesale call origination at prices above the competitive level (either for all wholesale customers or a subset of those customers). As with BT, such a price increase is likely to be profitable either as a result of increased wholesale revenues or as a result of a competitive advantage at the retail level.

Conclusions

- 5.144 We consider that BT and KCOM have the incentives and ability to exploit their position of SMP in each relevant market.
- 5.145 We therefore believe that it is appropriate to impose regulatory obligations on BT and KCOM in the wholesale call origination markets in which they hold SMP in order to address those concerns.

Remedies

- 5.146 In this section we set out our proposals for remedies to address our concerns. We start by discussing what we see as the main options for remedies:
- Option 1: network access, non discrimination and transparency remedies; and
 - Option 2: charge controls in addition to network access, non-discrimination and transparency remedies.
- 5.147 Having discussed the approach that we consider to be most appropriate, we then discuss each specific condition in relation to whether it meets the relevant legal tests for imposing such conditions.

Option 1 (network access, non-discrimination and transparency obligations)

- 5.148 As described in paragraphs 5.138 to 5.145, BT and KCOM might have incentives to refuse to supply wholesale call origination in the respective markets in which they

¹⁶⁴ We also note that calls-only CPS operators could also provide line rental by purchasing WLR.

¹⁶⁵ This figure was determined using BT and Ofcom data.

possess SMP. To address this concern, we propose to impose a general network access remedy on both BT and KCOM. Such a condition would restrict the ability of BT and KCOM to distort competition at the retail level.

- 5.149 However, we believe that an obligation to provide network access on its own would not be sufficient to protect competition in downstream markets. Where dominant providers like BT and KCOM are vertically integrated, they might have an incentive to provide wholesale services on terms and conditions that favour their own retail activities in a way that would have a material adverse effect on competition. In particular, they might charge competing providers more than the amount charged to their own retail activities for wholesale services, thereby increasing the costs of competing providers and giving themselves an unfair competitive advantage.
- 5.150 BT and KCOM might also discriminate between competing providers by setting different prices to each provider, depending on the degree of available substitutes. This kind of discrimination could extend to terms and conditions of services, such as different delivery timescales, which would disadvantage their retail competitors, and in turn consumers, even further. In addition, therefore, we believe we should impose a requirement on BT and KCOM not to unduly discriminate.
- 5.151 To ensure that this requirement is effective, we also propose a series of obligations designed to deliver transparency of information. Under these requirements, BT and KCOM must publish a reference offer which assists with the monitoring of their pricing strategies. They must also notify CPs of changes to charges 56 days in advance of implementation. This constitutes a departure from previous conditions which required a 90 day notification period in advance of changes to such information. We explain our reasoning further in paragraphs 5.219 to 5.231 below.
- 5.152 Finally, BT and KCOM are both currently subject to an obligation to provide CPS and Indirect Access (IA) to their subscribers on request. This obligation was imposed in the context of a requirement in the Universal Service Directive for national regulatory authorities to impose such an obligation on providers with SMP in markets relating to the provision of fixed services.
- 5.153 The Universal Service Directive was amended in 2009 to remove this obligation on national regulatory authorities and we have therefore considered the extent to which it is appropriate to retain the CPS and IA obligations for BT and KCOM.
- 5.154 Our view is that the conditions in the United Kingdom excluding the Hull Area are different to those in the Hull Area and therefore propose different approaches. As explained in Section 3, retail competition in the United Kingdom excluding the Hull area is largely focussed on bundles of access and calls, and this is underpinned by the Wholesale Line Rental (WLR) obligation in the exchange lines markets and CPS in the wholesale call origination market. In order to support this competition, and to allow all retail providers to compete on the same basis, we propose to require BT to provide CPS where BT also provides WLR to an external CP.
- 5.155 However, we propose that this obligation will not require BT to provide CPS on BT Retail lines given the focus of competition appears to have moved away from calls-only services. Since the last review, the number of calls-only CPS subscribers has declined significantly, such that in Q1 2012 a very small proportion - [X] - of BT Retail's current customers purchase calls through an alternative provider. We believe it is likely that this decline is due to CPs migrating their customers to bundled offerings (e.g. LLU, WLR or cable based services) where calls and lines are provided together, and that it is likely that this trend will be sustained during the period of the

current review. We do not therefore consider that it is proportionate to maintain an obligation to supply CPS on a calls only basis where this is no longer a driver of competition at the downstream level. We propose to include a sunset clause to ensure CPS-only access remains available for 12 months to allow any necessary negotiations between CPs to occur.

- 5.156 We have also considered whether it would be appropriate to remove the current obligation on BT to provide indirect access (IA) on BT's retail lines. BT's IA obligation allows consumers to access the services of any interconnected CP on a call-by-call basis by dialling a carrier selection code. In this sense, it is a specific form of request for access to call origination which predates CPS.
- 5.157 Because IA is a call-by-call product, the customer maintains a retail relationship with BT for its line and for calls not made via IA. However, the majority of CPs now address the retail market with a bundle of access and calls, based on WLR and CPS, which allows them much greater ownership of the customer relationship. As such, IA (which allows for calls-only competition) does not appear to be an important driver of competition at the retail level. We therefore propose to remove the obligation on BT to provide IA in this review. However, we also propose to include a sunset clause of 12 months for this obligation, in order to ensure that CPs who currently use IA are afforded sufficient time to find an alternative means of providing calls services.
- 5.158 In the Hull area, KCOM is currently subject to an obligation to provide Carrier Pre Selection to its subscribers and an obligation to provide carrier selection (Indirect Access) to its subscribers. In practice, there have been no reasonable requests for CPS to date and we do not expect conditions will change such that there may be demand in the future. We therefore do not believe that it is proportionate to impose a specific CPS remedy in this review in addition to the proposed network access obligation.
- 5.159 In relation to IA, there has been uptake of IA services but they still represent a relatively limited proportion of retail narrowband call volumes in the Hull Area.¹⁶⁶ Due to the small volumes of IA purchased, we do not believe that it is proportionate to impose a specific IA remedy in Hull over the period of this review beyond the general access obligation. However, we propose to include a sunset clause for the removal of this obligation of 12 months to allow any necessary negotiations between CPs currently using IA and KCOM to occur. This could include negotiation regarding the continued access to wholesale call origination services under the general access obligation. For example, whether the ongoing provision of IA would meet the conditions of fair and reasonable access.

Option 2 (Option 1 plus charge controls)

- 5.160 While we believe these general remedies to be important and necessary, we do not, however, expect them to be sufficient. This is because we consider it likely that, if BT and KCOM are only obliged to provide network access with no undue discrimination, they would retain significant scope to universally increase wholesale call origination prices for the reasons discussed in paragraphs 5.141 to 5.143 and 5.146 to 147.
- 5.161 In relation to BT, there is a risk that prices could universally increase quite significantly before the presence of direct and indirect constraints for particular customer groups would constrain further increases. This would be to the detriment of

¹⁶⁶ [X] million minutes were originated via IA in 2011/2012. This equates to [X] % of total call origination minutes as a whole and [X] for the business market. (KCOM)

consumers that use a CP reliant on BT's wholesale call origination, particularly those unable to switch to a CP who self-supplies wholesale call origination.

- 5.162 In light of the above, we do not consider that general access remedies on their own would adequately address the consumer harm we have identified as they would not constrain BT price setting behaviour.
- 5.163 To address these concerns, we propose (under Option 2) to impose an additional pricing remedy on BT. This would eliminate any risk of excessive pricing by requiring BT to charge a call origination rate which reflects its underlying costs associated with supplying wholesale call origination. In order to ensure that excessive pricing in the Hull area is also avoided, meanwhile, we propose that KCOM's call origination rates must be set on fair and reasonable terms. We discuss the precise form of remedy for each of BT and KCOM below.

Cost orientation

- 5.164 A cost orientation obligation would limit price increases for wholesale call origination by providing a cost-based benchmark while avoiding the need for a charge control. This obligation could therefore be considered appropriate and proportionate in the context of BT's declining market share. In combination with a no undue discrimination requirement this obligation could provide protection for consumers without being as restrictive as a full charge control. A cost orientation obligation could also allow prices to reflect market conditions, including changes in costs and the increasing availability of substitutes for wholesale and retail customers.
- 5.165 If we were to impose a cost orientation obligation on BT, along with guidance as to the interpretation of this (for example, we could provide guidance that BT's prices should be between Distributed Long Run Incremental Cost (DLRIC) and Distributed Stand Alone Costs (DSAC)), BT would be required to adjust its prices to comply with the obligation if its current pricing was outside this range.
- 5.166 We consider that a cost orientation obligation would not provide sufficient constraint on BT's pricing. The DSAC figures reported in BT's regulatory financial statements for 2012 are much higher than current charges and as such would allow for significant price increases.¹⁶⁷ Given its SMP, BT could set a combination of charges at or close to DSAC in such a way that it recovered more than the incremental and common costs incurred in providing wholesale call origination services.
- 5.167 In addition, in this consultation we are proposing to use a LRIC approach to set the price of call termination and to allow BT to recover additional common costs from wholesale call origination prices that would no longer be recovered from call termination (see discussion in Section 8). Given this proposed change, we do not consider that cost orientation in wholesale call origination would provide sufficient guidance to BT about the recovery of common costs. In light of this, a cost orientation obligation is unlikely to give adequate guidance on an appropriate basis for pricing.
- 5.168 For the same reasons as for BT, we do not consider a cost orientation obligation for KCOM to be appropriate.

¹⁶⁷ BT, *Regulatory financial statements – 2012*

http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2012/RFS_2012.pdf

Charge control

- 5.169 We consider that a charge control would remove the risk of excessive pricing by setting a price ceiling that was reflective of costs, while still providing a reasonable opportunity to recover costs.
- 5.170 While we recognise the downward trend in BT's market share of wholesale call origination, we consider that a charge control would provide regulatory certainty over common cost recovery for BT while still addressing the identified consumer harm. This is because our preferred method of charge control regulation (RPI+/-X) would create incentives on the dominant provider to increase its efficiency, thereby imitating the effect of a competitive market. If the firm can reduce its costs below the level expected when the cap was set, then the firm retains any increase in profits accrued during the period the charge control is in place.
- 5.171 We also acknowledge that a charge control might, in theory, stifle the potential for wholesale call origination to become effectively competitive. It could also reduce incentives to invest in infrastructure (as it ensures wholesale call origination is available from BT at a regulated price). However, we consider these risks to be low given the continuing use of LLU and planned further conversion of SMPF to MPF under the current regime, which will increasingly allow alternative CPs to self-supply wholesale call origination.
- 5.172 The appropriate cost standard for a charge control is an important consideration. This is considered further in Section 8, where we also consider the implications of the change in cost standard for wholesale call termination.
- 5.173 Together with the general access remedies described under Option 1, we believe that this pricing remedy constitutes the most appropriate and proportionate response to the finding of SMP by BT in the United Kingdom excluding the Hull area. We also propose to impose on BT a cost accounting remedy to ensure that we have the information necessary to set, monitor and review charge control obligations.
- 5.174 Although we have also proposed that KCOM has SMP in the provision of call origination in the Hull area, we do not believe that a charge control would be appropriate or proportionate due to the small size of this market and the fact that KCOM's wholesale sales are very limited. We therefore propose an obligation on KCOM to provide call origination on fair and reasonable terms which, as set out at paragraph 5.313 below and given our proposed guidance in schedule 15, we anticipate should result in KCOM's charges for wholesale call origination being symmetric with those set out in the charge control for BT. Such an obligation would, therefore address the concerns identified whilst ensuring that any remedy is proportionate.
- 5.175 Table 5.4 provides a summary of our proposed remedies. We then discuss the rationale for each remedy in more detail.

Table 5.4: Summary of proposed remedies for wholesale call origination

| Obligations ¹⁶⁸ | BT | KCOM |
|--|----|------|
| Requirement to provide network access on reasonable request | Y | Y |
| Requests for new forms network access | Y | N |
| Requirement not to unduly discriminate | Y | Y |
| Requirement to publish a reference offer | Y | Y |
| Requirement to notify charges | Y | Y |
| Requirement to notify technical information | Y | Y |
| Transparency as to quality of service | Y | N |
| Cost accounting | Y | N |
| Accounting separation | Y | Y |
| Specific form of network access (Carrier Pre-Selection on non-BT Retail lines only) ¹⁶⁹ | Y | N |
| Requirement to provide NTS wholesale call origination until unbundled remedy introduced | Y | N |
| Charge control | Y | N |

Conditions we propose for BT

Requirement to provide network access on reasonable request

- 5.176 Ofcom proposes to retain the condition requiring BT to meet reasonable requests for network access in the call origination market. Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as it may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and that conditions are complied with within the periods and at the times required.
- 5.177 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the Act, including, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access.

¹⁶⁸ We propose to remove the obligation on BT and KCOM to provide Indirect Access. However, we also propose to include a sunset clause of 12 months for this obligation.

¹⁶⁹ We propose to include a sunset clause for the current CPS obligations on BT and KCOM of 12 months. This is discussed further below in paragraph 5.269.

Aim of regulation

5.178 This remedy is designed to promote competition in downstream markets by requiring providers with SMP to provide wholesale access to their network facilities. The level of investment required by a third party to replicate BT's network in order to compete at this level is a significant barrier to entry. As set out at paragraph 5.140 above, Ofcom considers that in the absence of such a requirement, the dominant provider would have both the ability and incentive not to provide access.

Proposed condition

5.179 The proposed condition will require requests made to BT for network access to be 'reasonable' requests. The condition will also require BT to provide network access in response to such a reasonable request and that access should be provided on fair and reasonable terms and conditions (excluding charges).

5.180 As we also propose a charge control on BT's provision of wholesale call origination, we propose to exclude the requirement to provide services at fair and reasonable charges from the network access condition. This is because we consider that a charge control is sufficient to address our competition concerns so that additional price regulation is not required.

Legal tests

5.181 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The proposed condition is:

- objectively justifiable as its intention is to promote retail competition by ensuring third parties are able to acquire wholesale access on fair and reasonable terms where they are unable to replicate the network of BT;
- non-discriminatory as it is only imposed on BT, which we propose has SMP in the wholesale call origination market. We propose a similar condition for KCOM, which is the only other provider that we propose has SMP in the market. The difference between the obligations imposed on BT and KCOM is due to the difference in scale of the two CPs; this means that we propose BT will, in addition, be subject to a charge control and, as a result, this condition does not need, in BT's case, to address charges;
- proportionate since without such an obligation BT could refuse to provide access and this would mean other CPs would not be able to effectively compete at the retail level, but does not require BT to provide access where it is not technically feasible or reasonable; and
- transparent as it is clear the intention is to ensure that BT provide access to their networks in order to facilitate competition.

5.182 We have also considered our duties under section 3 of the Act. We consider that, in ensuring Network Access is provided at the reasonable request of third parties, the proposed condition would in particular further the interests of consumers in relevant markets by the promotion of competition.

5.183 We have also considered the Community requirements as set out in section 4 of the Act. We consider that the proposed obligation will promote competition in relation to the provision of electronic communications networks and encourage the provision of

network access for the purpose of securing efficient and sustainable competition in markets for electronic communications networks and services.

- 5.184 For the reasons set out above, we consider that the proposed condition is appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

Requests for new forms of network access

- 5.185 We propose that it is appropriate to impose an obligation on BT regarding the process by which it will address requests for new forms of network access (its statement of requirements (SOR) process).
- 5.186 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as it may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for new forms of network access are made and responded to, and that conditions are complied with within the periods and at the times required.
- 5.187 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the Act, including, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed form of network access.

Aim of regulation

- 5.188 The aim of this regulation is to support access seekers in understanding the process they should follow in order to make reasonable requests for new forms of network access from BT. To make such a request, the CP should provide BT with a Statement of Requirements (SOR) against which the reasonableness of the request can be assessed.
- 5.189 There are certain key principles that BT's process for handling SORs should meet in order for it to be effective. Therefore, the condition we propose to impose will require BT to have in place, and follow for each SOR, a SOR process which must meet the following principles:
- the process for consideration of requests shall be documented end-to-end;
 - the timescales for each stage of the process shall be reasonable;
 - the criteria by which requests will be assessed shall be clearly identified; and
 - any changes to the guidelines shall be agreed between BT and other communications providers in an appropriate manner.
- 5.190 We consider that the SOR process as currently documented (based on the process previously set out by us in specific SMP conditions in the 2003 market review) meets these criteria. In 2009 we removed the specific process as set out in the condition to allow for changes to the existing process that better meet the requirements of industry, if agreed by industry and BT. We propose to impose a condition that again sets out the main principles but allows industry to agree the specifics of any changes to the process.

Legal tests

- 5.191 Section 87(3) of the Act authorises the setting of SMP services conditions in relation to the provision of network services. We consider that that under section 87(5)(a), the proposed condition will assist in securing fairness and reasonableness in the way in which requests for new forms of network access are made and responded to.
- 5.192 Ofcom deems that the proposed condition meets the criteria set out in section 47(2) of the Act. The proposed condition is:
- objectively justifiable as it recognises that a process for handling new requests is needed but that the condition should be flexible to allow for process improvements;
 - not unduly discriminatory as it only applies to providers with SMP. Ofcom does not propose to impose this obligation on KCOM as the different market conditions in the Hull Area mean that there is not the same level of demand for network access;
 - proportionate as it facilitates the process for requests for new forms of network access, and thus encourages competition at the retail level, while allowing scope for BT to contribute to the shaping of this process; and
 - transparent as it is clear the intention is to support the provision of access to BT's networks in order to facilitate competition.
- 5.193 We have considered our duties under section 3 of the Act. We consider that, in ensuring access seekers are able to make requests for new forms of network access based on an agreed SOR process, the proposed condition would in particular further the interests of consumers in relevant markets by the promotion of competition.
- 5.194 We have considered the Community requirements as set out in section 4 of the Act. We consider that the proposed obligation will promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficient and sustainable competition in markets for electronic communications networks and services.
- 5.195 For the reasons set out above, we consider that the proposed condition is appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

Requirement not to unduly discriminate

- 5.196 For the reasons set out at paragraph 5.148 to 5.150, Ofcom proposes to retain the condition on BT not to unduly discriminate in relation to the provision of network access.
- 5.197 Section 87(6)(a) of the Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons, or against a particular description of persons, in relation to matters connected with the provision of Network Access.

Aim of regulation

- 5.198 Ofcom considers that, in order to meet our objective to promote efficient and sustainable competition at the wholesale level, a non-discrimination SMP condition is necessary.
- 5.199 Where dominant providers are vertically integrated, like BT, they may have an incentive to provide wholesale services on terms and conditions that favour their own retail activities, in a way that would have a material adverse effect on competition. They might also discriminate between competing providers by setting different terms and conditions (including prices) depending on the degree of available substitutes.
- 5.200 An obligation to provide network access on its own is not adequate to promote downstream competition. In the absence of a requirement not to unduly discriminate, BT could favour its own downstream businesses and/or favour particular CPs over others who lack any available substitutes, which would have the effect of restricting or distorting competition in the retail market.

Legal tests

- 5.201 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. We believe the proposed condition is:
- objectively justifiable, as it provides a safeguard to prevent BT from favouring its own retail business, to the disadvantage of its competitors, and to prevent BT from favouring particular CPs over others who lack any available substitutes;
 - not unduly discriminatory as it is only imposed on those providers who are found to have SMP;
 - proportionate as it is intended to prohibit only undue discrimination, that is discrimination that would materially affect the ability of BT's competitors to compete on equal terms; and
 - transparent, as it is clear that its intention is to prevent undue discrimination.
- 5.202 We have also considered our statutory obligations and the Community objectives set out in sections 3 and 4 of the Act.
- 5.203 On the basis that BT has SMP in the provision of wholesale call origination, the proposed obligation would encourage the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition in the retail markets for calls, by ensuring BT does not unfairly favour its own retail businesses (or some CPs on the basis of available substitutes) and therefore distort competition.
- 5.204 Therefore, we consider that the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.
- 5.205 Ofcom has considered the Community requirements as set out in section 4 of the Act. The proposed condition encourages the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition in the retail markets for access and calls by ensuring BT does not unfairly favour its

own retail business, and therefore distort competition, or favour particular CPs over others (for example, who lack available substitutes).

- 5.206 For the reasons set out above, we consider that the proposed condition is appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

Transparency

- 5.207 Ofcom considers that it is appropriate to ensure that there is transparency of charges, terms and conditions in a market in which one operator is dominant. In the absence of requirements obliging BT to publish this information, they might offer differential charges, terms and conditions to both its downstream division and also between providers. Third party providers would not be able to check that they were being charged an equitable rate, or that the terms and conditions that they were offered were also equitable.
- 5.208 Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a dominant provider to publish all such information, and in such manner as Ofcom may direct, for the purpose of securing transparency. Section 87(6)(c) of the Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract. Section 87(6)(d) also permits the setting of SMP services conditions requiring the dominant provider to include specified terms and conditions in the reference offer. Finally, section 87(6)(e) permits the setting of SMP services conditions requiring the dominant provider to make such modifications to the reference offer as may be directed from time to time.
- 5.209 We propose to impose the following obligations to provide transparency:
- Requirement to publish a reference offer;
 - Requirement to notify charges;
 - Requirement to notify technical information; and
 - Transparency as to quality of service.

Requirement to publish a reference offer

- 5.210 Ofcom proposes to retain the condition on BT to publish a reference offer (RO) for wholesale call origination services and products.

Aim of regulation

- 5.211 The main reasons for requiring the publication of a RO are to assist with transparency in monitoring potential anti-competitive behaviour and to give visibility to the terms and conditions on which other providers would be able to purchase wholesale access services. The publication of a RO therefore helps to ensure stability in markets and ensures that incentives to invest would not be undermined.
- 5.212 Additionally, the publication of a RO allows for speedier negotiations and can help to avoid possible disputes. Together with a non-discrimination requirement, the publication of a RO gives confidence to those purchasing wholesale services that they are being provided on non-discriminatory terms.

Proposed changes to existing condition

5.213 In the 2009 market review, we required BT to include information relating to network components in the RO. In this review we propose to remove this specific obligation, on the basis that we no longer consider that this information is required in order to assist CPs in monitoring for potential anti-competitive behaviour by BT, or to provide transparency that would allow CPs to make better informed decisions about purchasing wholesale call origination.

Proposed condition

5.214 Ofcom considers that it is appropriate for the published RO to include:

- a clear description of the services on offer;
- terms and conditions including charges and ordering, provisioning, billing and dispute resolution procedures. The RO should provide sufficient information to enable providers to make technical and commercial judgements such that there is no material adverse effect on competition; and
- conditions relating to maintenance and quality (service level agreements and guarantees). The inclusion of service levels, as part of the contractual terms of the RO, that provides for a minimum acceptable level of service, will ensure that services are provided in a fair, reasonable, timely and non-discriminatory fashion.

Legal tests

5.215 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The proposed obligation is:

- objectively justifiable in that it requires that terms and conditions are published allowing competing providers the ability to ensure they are receiving offers that do not unduly discriminate in favour of BT's own retail operations, therefore encouraging competition to the benefit of consumers;
- not unduly discriminatory as it is applied only to those operators who have SMP and all such providers are subject to the same obligation;
- proportionate in that only information that is necessary to ensure that there is no material adverse effect on competition is required to be provided; and
- transparent as it is clear the obligation is designed to ensure that potential competitors have sufficient information to make investment decisions about entry into this market.

5.216 We have also considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the Act.

5.217 The requirement to publish a RO would, in combination with a requirement not to discriminate unduly, facilitate service interoperability, secure freedom of choice for wholesale customers of BT and allow CPs to make informed decisions about future entry into the relevant market. Further, the proposed obligation would enable purchasers to adjust their downstream offerings in competition with BT, in response to changes in BT's terms and conditions. Finally, the proposed obligation would make it easier for Ofcom and other CPs in the relevant market to monitor any instances of

discrimination. Therefore, we consider that the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

- 5.218 Ofcom considers that the proposed condition meets the Community requirements set out in section 4 of the Act. In particular, the proposed condition promotes competition and encourages the provision of Network Access and service interoperability for the purpose of securing efficient and sustainable competition for the maximum benefit for consumers. The publication of a RO would mean that other CPs would have the necessary information readily available to allow them to make informed decisions about entry into the market.

Requirement to notify charges

- 5.219 Ofcom proposes to retain the condition on BT to publish any planned changes to charges in advance of those changes taking place.

Aim of regulation

- 5.220 Notification of changes to services at the wholesale level can further assist competition, as it means other CPs would have the opportunity to consider whether these changes require amendments to their own retail offerings.
- 5.221 The notification of charges at the wholesale level has the joint purpose to assist transparency for the monitoring of potential anti-competitive behaviour and to give advanced warning of charge changes to competing providers who purchase wholesale access services. The latter purpose ensures that competing providers have sufficient time to plan for such changes. Notification of charges therefore helps to ensure stability in markets, without which incentives to invest might be undermined and market entry made less likely.

Proposed condition

- 5.222 We consider that the notice should include:

- A description of the access service;
- The location of terms and conditions in the RO;
- The effective date or period from which the changes will have effect;
- The current and proposed charge;
- Other charges for services that would be directly affected by the proposed change; and
- The network tariff gradient.

Proposed change to notification periods

- 5.223 The existing condition requires the notification of charges 90 days in advance of changes taking effect.
- 5.224 However, use of email and online publication mean that price notifications can now be almost instantaneous. Responses to the CFI reflect a general consensus that

price notification periods for wholesale call origination services could be shortened to reflect that notifications can be made much more quickly. Most respondents agree that a 56 day notification period would allow sufficient time for BT's notified price changes to be reflected in retail prices, and, in this way, promote competition by ensuring that CPs could all meet their regulatory obligations without incurring any commercial risk.

5.225 We therefore propose to reduce the notification period for wholesale call origination charges from 90 days to 56 days.

5.226 However, as discussed in Section 11, we are proposing an exception to this to allow BT to make the necessary changes to wholesale call origination charges required in order to implement the proposed adjustments on 1 October 2013.

Legal tests

5.227 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. It is:

- objectively justifiable, because general and reliable visibility of a dominant operator's prices is needed to enable competitors to set prices for their services that are based on purchasing the regulated inputs. It also allows Ofcom and other CPs to monitor BT's prices for possible anti-competitive behaviour;
- not unduly discriminatory as it is only imposed on those providers who have SMP and all providers are subject to the same obligation;
- proportionate, in that only information that other CPs would need to know in order to adjust for any changes would have to be notified. Periods are proposed to be the minimum required to allow changes to be reflected in retail offers; and
- transparent as it is clear the intention is to ensure that BT notifies those who purchase wholesale access of changes to charges, terms and conditions.

5.228 We have also considered our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

5.229 In particular, the proposed obligation would encourage compliance with transparency, for the purpose of facilitating service interoperability and securing freedom of choice for the customers of CPs. The proposed obligation would also promote competition in downstream markets by allowing BT's competitors to make appropriate changes to their products. Finally, the proposed obligation would make it easier for Ofcom and BT's competitors to monitor any instances of discrimination.

5.230 For the above reasons, we consider that the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

5.231 Ofcom considers that the proposed condition meets the Community requirements set out in section 4 of the Act. In particular, the proposed condition promotes competition and secures efficient and sustainable competition for the maximum benefits of consumers by ensuring that providers have the necessary information to allow them to make informed decisions about competing in the relevant market.

Requirement to notify technical information

5.232 Ofcom proposes to retain the condition on BT to notify technical information in advance of providing new wholesale services or amending existing technical terms and conditions.

Aim of regulation

5.233 The aim of the obligation to provide advance notification of technical characteristics is to ensure that competing providers have sufficient time to respond to changes that may affect them. For example, a competing provider may need to introduce new equipment or modify existing equipment or systems to support a new or changed technical interface.

5.234 Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of network access and technical standards (including any usage restrictions and other security issues). Relevant information about network configuration is likely to include information about the function and connectivity of points of access, for example, the connectivity of exchanges to end users and other exchanges.

Proposed condition

5.235 The existing condition requires the notification of new technical information 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. We continue to believe that 90 days is the minimum time that competing providers would need to make modifications to their network to support changes.

Legal tests

5.236 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. It is:

- objectively justifiable as it enables competing operators to make full and effective use of network access. The period allows CPs time to react to proposed changes without imposing an unnecessarily long notification period on BT that may restrict their ability to develop and deploy new features or products;
- not unduly discriminatory as it is only imposed on those providers who have SMP and all providers are subject to the same obligation;
- proportionate in that 90 days is considered the minimum period necessary to allow competing providers to modify their networks; and
- transparent in that it is clear in its intention that BT notifies technical information.

5.237 We have also considered our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

5.238 We consider that, by ensuring that other CPs are given sufficient time to make any changes to technical specifications that might affect their businesses, the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

5.239 Further, we consider that, in line with section 4 of the Act, the proposed condition in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of Network Access and service interoperability for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

Transparency as to quality of service

5.240 We consider that it is also appropriate to impose an obligation on BT to provide transparency as to quality of service. This obligation will require BT to publish such quality of service information in the manner and form as Ofcom may from time to time direct.

Aim of regulation

5.241 The intention of the transparency of quality of service remedy is to monitor whether any undue discrimination is occurring by requiring the publication of data regarding the delivery of wholesale services by BT to downstream BT businesses versus other third party CPs.

5.242 We note that in previous market reviews we have imposed this general obligation on BT for wholesale call origination but have not imposed specific data publication obligations as we have not identified a specific need. We have also not currently identified specific data publication requirements for this review period. However, given the risk of undue discrimination, this regulation allows us to respond quickly in the event that a concern arose, and thus require BT to publish quality of service information should such a need arise in the future.

Proposed regulation

5.243 We propose to impose an obligation which requires BT to publish such quality of service information in the manner and form as Ofcom may from time to time direct, but we do not propose any specific data publication obligations for wholesale call origination at this time.

Legal Tests

5.244 We consider that the proposed condition and associated direction meets the requirements in section 47(2). The proposals are:

- objectively justifiable because where concerns arise about quality of service provided by BT, it allows Ofcom to react quickly to impose additional transparency requirements;
- not unduly discriminatory as we propose to impose it on BT, which we propose has SMP in wholesale call origination. Whilst we also propose KCOM has SMP in wholesale call origination, we do not propose a similar condition because the different market conditions in the Hull Area mean that there is a much lower demand for wholesale call origination from KCOM compared to BT (and we consider this is unlikely to substantially change in this review period);
- proportionate as BT will only be required to publish data if required by Ofcom in line with the aim of this obligation; and

- transparent as it is clear that its intention is to monitor the quality of service provided by BT.

5.245 We consider that, in ensuring the network access that third party CPs receive from BT allows CPs to provide products that compete with those provided by BT in downstream markets, the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

5.246 We have considered the Community requirements in section 4 of the Act and believe that the proposed condition promotes competition and secures efficient and sustainable competition by ensuring the ability to provide transparency through comparison of the service levels BT provides to itself versus third party CPs, should the need arise.

Cost accounting

5.247 Ofcom proposes to retain the condition on BT to provide cost accounting data which is necessary for Ofcom to set, monitor and review charge control obligations for BT. Under sections 87(9) to 87(11) and 88 of the Act, appropriate cost accounting obligations may be imposed on dominant providers in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities.

Aim of regulation

5.248 Ofcom believes it is appropriate to retain cost accounting obligations for the following reasons:

- Cost accounting ensures we have the necessary information monitor the effectiveness of remedies, in particular to ensure that the charge control remedies we propose in this consultation continue to address the competition problems identified, and to enable our timely intervention should such intervention ultimately be needed;
- Cost accounting also ensures we have the necessary information to support our market reviews. Our market reviews involve a forward-looking, structural evaluation of the relevant markets, based on existing market conditions. The information deriving from cost accounting obligations assists us in this evaluation, in particular, at the remedies stage in determining whether a form of price control (if any) should be imposed and, if so, what the appropriate price control should be;
- Cost accounting obligations further ensure that BT records all information necessary for the purposes listed above at the time that relevant transactions occur, on an ongoing basis. Absent such a requirement, there is a strong possibility that the necessary information would not be available when it is required, and in the necessary form and manner;
- The imposition of cost accounting obligations ensure that wholesale costs are attributed across the wholesale markets (and the individual services within them) in a consistent manner. This mitigates the risk of over recovery of costs or that costs might be loaded onto particular products or markets; and

- Publication of cost accounting information aids transparency, providing reassurance to stakeholders about compliance with SMP obligations, allowing stakeholders to monitor compliance and more generally enabling stakeholders to make better informed contributions to the development of the regulatory framework.

Proposed conditions

5.249 BT is required to comply with obligations governing cost accounting systems and processes as set out in an Ofcom statement published in 2004.¹⁷⁰ The outputs, relevant to this review, include:

- Preparation of a variety of financial statements;
- Preparation of extensive supporting documentation explaining how the financial statements have been put together;
- Provision of an independent assurance statement;
- Publication of most of the information; and
- Preparation of reconciliation statements.

We have set out in our Business Connectivity Market Review consultation of 15 November 2012 that we believe that where we no longer require cost orientation, BT should no longer publish DLRIC and DSAC figures (while continuing to provide such figures to Ofcom). We propose we follow the same approach in relation to cost accounting for wholesale call origination. We propose to implement this amendment in the directions which implement the cost accounting conditions in our annual update of BT and KCOM's regulatory financial reporting obligations.

Legal tests

5.250 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The obligation is:

- objectively justifiable, for the reasons set out above;
- not unduly discriminatory. While it is not imposed on KCOM, we do not feel that it would be proportionate to do so given that KCOM is not subject to a charge control;
- proportionate since only information that is necessary to ensure the continuing effectiveness of price control remedies is required to be provided; and

¹⁷⁰ Ofcom, *The regulatory financial reporting obligations on BT and Kingston Communications, Final Statement and notification: Accounting separation and cost accounting*, July 2004, http://stakeholders.ofcom.org.uk/binaries/consultations/fin_reporting/statement/finance_report.pdf. See also Ofcom, *Changes to BT's regulatory financial reporting and audit requirements*, May 2007, <http://stakeholders.ofcom.org.uk/binaries/consultations/obligations/statement/statement.pdf> and Ofcom, *Changes to BT and KCOM's regulatory and financial reporting 2012/13 update*, January 2013, <http://stakeholders.ofcom.org.uk/binaries/consultations/bt-kcom-2012-13/summary/condoc.pdf>

- transparent as it is clear the intention is to monitor compliance with specific remedies and the particular cost accounting requirements of BT are clearly documented.
- 5.251 In addition to the tests set out in Section 47(2) of the Act, Ofcom is also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act.
- 5.252 Section 88(1)(b) of the Act states that Ofcom are not to set an SMP condition falling within section 87(9) except where it appears from the market analysis that there is a relevant risk of adverse pricing effects arising from price distortion and it also appears that the setting of the condition is appropriate for the purposes of:
- i) promoting efficiency;
 - ii) promoting sustainable competition; and
 - iii) conferring the greatest possible benefits on the end users of public electronic communications services.
- 5.253 Section 88(2) also requires us to take account of the extent of the investment when setting this type of condition.
- 5.254 We have identified the risk of excessive pricing by BT in the wholesale call origination market and consider that, by supporting transparency and reassuring stakeholders, cost accounting obligations will encourage market entry. In this way, the obligations help to promote efficiency and sustainable competition. We have also taken account of the extent of the investment of BT in the matters to which the cost accounting obligations relate.
- 5.255 We have also considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.
- 5.256 We consider that the imposition of a cost accounting obligation is justifiable and proportionate to promote competition in relation to the provision of electronic communications networks and services and to ensure the provision of Network Access and service interoperability for the purpose of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation will ensure that other obligations designed to curb potentially damaging leverage of market power – in particular the setting of prices at excessive levels - can be effectively monitored and enforced.
- 5.257 We have considered the Community requirements set out in section 4 of the Act and believe that cost accounting obligations in particular promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

Accounting separation

- 5.258 Ofcom proposes to retain the accounting separation obligation on BT in relation to the wholesale call origination market. Under section 87(7) and 87(8) of the Act, appropriate accounting separation obligations may be imposed on the dominant

provider in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities.

Aim of regulation

5.259 The accounting separation obligation will require BT to account separately for internal and external 'sales', which allows Ofcom and third party CPs to monitor the activities of BT to ensure that it does not discriminate in favour of its own downstream business.

Legal tests

5.260 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The obligation is:

- objectively justifiable as it relates to the need to ensure competition develops fairly, to the benefit of consumers;
- non-discriminatory as it is only imposed on those providers who have SMP and all providers are subject to the same obligation;
- proportionate as it is necessary as a mechanism to allow us and third parties to monitor potentially discriminatory behaviour by dominant providers; and
- transparent as it is clear the intention is to monitor compliance with specific remedies and the particular accounting separation requirements of BT are clearly documented.¹⁷¹

5.261 We have considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.

5.262 We consider that the imposition of an accounting separation obligation is justifiable and proportionate to promote competition in relation to the provision of electronic communications networks and services; to ensure the provision of Network Access and service interoperability for the purpose of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation will ensure that other obligations designed to curb potentially damaging leverage of market power – in particular the requirement not to unduly discriminate - can be effectively monitored and enforced.

5.263 We have considered the Community requirements set out in Section 4 of the Act and believe that the proposed condition meets the requirements. Specifically, we believe Section 4(8) is met, where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by ensuring dominant providers comply with charge control remedies implemented to promote competition.

¹⁷¹ Ofcom, *The regulatory financial reporting obligations on BT and Kingston Communications, Final Statement and notification: Accounting separation and cost accounting*, July 2004, http://stakeholders.ofcom.org.uk/binaries/consultations/fin_reporting/statement/finance_report.pdf.
Ofcom, *Changes to BT's regulatory financial reporting and audit requirements*, May 2007, <http://stakeholders.ofcom.org.uk/binaries/consultations/obligations/statement/statement.pdf>.

Carrier Pre-Selection (CPS) and Indirect Access (IA)

- 5.264 Since the 2009 market review, the Universal Service Directive has been amended along with the related directives. Under the amended Universal Service Directive, Ofcom is no longer required to impose CPS and IA remedies but Article 12(1)(a) of the amended Access Directive¹⁷² leaves open the possibility for Ofcom to impose such obligations on CPs with SMP, if this is deemed suitable.
- 5.265 BT is currently obliged:
- a) to provide Carrier Pre Selection to its subscribers; and
 - b) to provide carrier selection (Indirect Access) to its subscribers.
- 5.266 CPS enables consumers served by the BT network to choose a competing calls provider (or, when used together with the WLR remedy imposed in the exchange lines markets, a competing calls and line provider) over this network. In its current form, therefore, this obligation requires BT to provide wholesale call origination for CPs offering a calls-only voice service (over BT retail lines) as well as for those CPs offering a combined line rental and voice service (through CPS with WLR).

CPS in the United Kingdom excluding the Hull area

- 5.267 As set out previously, the number of calls-only CPS subscribers has declined and is a very small proportion of BT Retail's current customers.
- 5.268 In light of these changed market conditions, we propose to remove the requirement for BT to provide CPS on BT Retail lines. Those customers who currently use CPS on BT Retail lines could alternatively be served through a CP's own lines or through that CP purchasing WLR from BT (at regulated rates). As a result, we consider that the removal of CPS on BT Retail lines would have a limited effect on consumers or competition.
- 5.269 We propose to retain the requirement to offer CPS together with WLR. This will ensure that BT is not able to undermine WLR regulation by refusing to provide call origination which is necessary for WLR providers to offer retail call services.
- 5.270 Our proposal distinguishes between CPS for the purposes of serving BT's retail customers, and CPS purchased for serving non-BT retail customers. In the first instance, where BT provides WLR to itself in order to provide a retail access line, it is not required to provide CPS on the line. Where BT provides WLR to another CP – i.e. the end customer is not a BT retail customer – the CP that purchases WLR is able to choose how to provide calls originated over that line. This will be via one of the following options:
- purchase CPS from BT itself;
 - allow another CP to purchase CPS on the line to provide calls; or

¹⁷² Paragraph 20, Directive 2009/136/EC amending Directive 2002/22/EC on universal service and users' rights, Directive 2002/58/EC concerning the processing of personal data and the protection of privacy and Regulation (EC) No 2006/2004 on cooperation between national authorities responsible for the enforcement of consumer protection laws ("Citizens' Rights Directive") – 25 November 2009 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0011:0036:en:PDF>

- purchase a wholesale call service provided by BT.

5.271 We believe that these proposals adequately reflect the decline in CPS purchased on BT Retail lines. CPS was originally introduced prior to WLR in order to facilitate calls-only competition. Since the introduction of WLR, which allows CPs to provide both access and calls, there is no longer any need for consumers to purchase their retail line from BT in order to benefit from alternative calls providers.

5.272 However, we propose to include a sunset clause for the current CPS remedy of 12 months. The sunset clause will allow sufficient time for CPs to make appropriate changes to their contracts or find alternative means of providing calls services, limiting the potentially negative impact for CPs who currently use calls-only CPS and also ensuring that any resulting impact of the removal of this regulatory obligation on consumers is small.

Same and adjacent exchange calls (SAD)

5.273 In 2004, we published a statement addressing the local call disadvantage related to same/adjacent-DLEs.¹⁷³ As set out in that statement, the disadvantage arises for CPs other than BT due to an effect referred to as “tromboning”, whereby for same and adjacent¹⁷⁴ DLE calls, fewer switching stages would be included in the end-to-end call by BT than for a CP using the CPS product (who therefore has to pay for the inefficiency of such switching).¹⁷⁵ As a result, we required BT to provide an option within the CPS product to allow CPs to choose to have same/adjacent DLE calls routed end-to-end on the BT network in order to avoid the inefficiency of tromboning. This option is available on a DLE by DLE basis (but only at DLEs to which the CP is directly interconnected), and we would expect this to continue where CPS is provided in accordance with the revised obligation.

Operator Assistance (OA)

5.274 BT currently provides two options for call origination services:

- Call origination including Operator Assistance (OA) and intermediate emergency services; and
- Call origination including intermediate emergency services.

5.275 The option to include OA allows a CP to select whether calls to OA services are routed via BT’s operator services, or not. Allowing CPs to select the option without OA allows them to make their own arrangements for operator services. We consider this is important to allow the CP to take over the relationship with the retail customer. As such, we propose that BT should be required to continue to provide both of these product options.

¹⁷³ Ofcom, *Addressing the local call disadvantage: Final statement on CPS same/adjacent-DLE calls*, July 2004, http://stakeholders.ofcom.org.uk/binaries/consultations/cps_option/statement/cps_stmnt.pdf

¹⁷⁴ This is where BT implements direct routes between DLEs as traffic volumes justify such a route.

¹⁷⁵ For example, within the same DLE only one switching stage is included in the end-to-end call but a CP using the CPS product would pay for two switching stages since the call would be switched on its routing from the customer to the CP at the BT DLE (the call origination market) and would be switched again routing back from the CP to the customer at the BT DLE (the call termination market). In addition, the call would also use additional transmission capacity to route from the DLE to the CP’s network in both directions.

Legal tests

5.276 We consider that the proposed condition would meet the criteria set out in section 47(2) of the Act. It is

- objectively justifiable, in that it relates to the need to ensure competition continues to the benefit of consumers;
- not unduly discriminatory, as, while it is not imposed on KCOM, we consider that it would not be proportionate based on market conditions to do so;
- proportionate as it only requires BT to provide access on reasonable terms; and
- transparent in that it is clear in its intention to ensure that BT provides CPS services to allow competitors to provide alternative access and calls products to their retail customers.

5.277 We have also considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.

5.278 We consider that the imposition of a CPS obligation is justifiable and proportionate to promote competition in relation to the provision of electronic communications networks and services; to ensure the provision of Network Access for the purpose of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation will ensure that other CPs can effectively obtain network access in a way which will drive competition at the retail level.

5.279 We have considered the Community requirements set out in section 4 of the Act and believe that the proposed condition meets the requirements. Specifically, we believe Section 4(8) is met, where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by ensuring dominant providers comply with network access requirements implemented to promote competition.

NTS transitional arrangements

5.280 The NTS market provides access to a wide range of telephone-based services provided by Service Providers (SPs). Because it would be impractical and costly for the SPs to establish a billing relationship with customers, NTS calls are retailed by the originating CP (OCP) on behalf of the terminating CP (TCP) and SP. Any excess in the amount billed to the caller over and above the costs of originating and retailing the call is then passed to the TCP.

5.281 In an unregulated environment, however, neither the caller nor the SP would be able to competitively constrain the price that BT sets (and thus retains) to retail NTS calls due to its SMP in wholesale call origination. Switching by callers is not a viable constraint because callers are unlikely to feel the direct effect of an increase in retention by BT. Instead it would be TCPs and thus SPs who face a revenue squeeze following this increase. Although SPs could respond by seeking to change the number range to restore the value of their payments, such migration could entail significant costs and would distort the pricing structure of NTS calls. Therefore, there is a concern that BT could exploit its SMP in the wholesale call origination market by unduly raising the charge for NTS wholesale call origination (including retail costs),

and thus squeeze the revenue received by the SP and TCP, which could in turn undermine competition in the provision of services using NTS.

- 5.282 As a result of this NTS-specific concern, BT is currently subject to an NTS Call Origination Condition. In its present form, this condition requires BT to originate and retail NTS calls on behalf of the terminating operator, and it is remunerated for this service (in addition to wholesale call origination rates, currently set by a charge control) through two specific channels:
- a) The Retail Uplift: This charge control allows BT to recover reasonable costs that relate to wholesale call origination and conveyance. The existing control, which was set in 2011¹⁷⁶, currently allows for an annual increase equal to RPI + 1.25%. The above RPI value of this control is driven by the need to account for under-recovery of costs in the previous Retail Uplift control; and
 - b) The PRS Bad Debt Surcharge: This allows BT an additional retention to reflect the high incidence of bad debt which is incurred in the retailing of PRS calls. The level of this surcharge is currently set at 5.2% of BT's PRS retail revenues.
- 5.283 The purpose of the NTS Call Origination Condition, therefore, was to prevent BT from exploiting its SMP whilst still allowing it to recover the costs it incurs on behalf of TCPs.
- 5.284 In April 2012, Ofcom proposed a new form of NTS regulation.¹⁷⁷ Under this approach, known as the 'unbundled tariff' remedy, a new call charge structure which separates the retail price of a non-geographic call into two different components would be implemented:
- a) Access Charge: This is set by, and paid to, OCPs to cover the costs of their wholesale call origination service (including retail costs). Under this regulatory framework, BT will be expected to recover its retailing and conveyance costs from its own retail customers through the Access Charge. As a result, BT cannot increase the price of NTS wholesale call origination to reduce the revenue stream to the SP (and TCP).
 - b) Service Charge: This will be selected by SPs from a range of a minimum of 100 different Service Charge price points. It will be paid to SPs by the OCP (through the TCP) to cover or contribute towards costs of providing the service, including termination. Because SPs will choose their own service charge from the range made available by OCPs, TCPs and SPs will be afforded certainty over the level of termination payment (and therefore revenue) they receive.
- 5.285 Separating the wholesale call origination charge (Access Charge) from the revenue to the TCP and SP (Service Charge) removes any concerns that BT could use its SMP in wholesale call origination to restrict the revenue received by TCPs and SPs for termination. Therefore, we do not consider it necessary to retain the specific additional NTS Call origination Condition following the implementation of this unbundled tariff.

¹⁷⁶ Ofcom, *Wholesale charges for Number Translation Services and Premium Rate Services*, July 2011, http://stakeholders.ofcom.org.uk/binaries/consultations/nts-retail-uplift/statement/NTSRU_statement.pdf

¹⁷⁷ Ofcom, *Simplifying Non-geographic Numbers*, April 2012, <http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geographic-no/summary>

- 5.286 Ofcom has not yet issued a statement in relation to the adoption of these measures. But we expect to do so during the lead-up to the period covered by this review, and therefore this review needs us to consider how we should regulate NTS Call Origination, if at all, in the interim period covering:
- after the conclusion of this review when obligations imposed in this review take effect, but prior to the implementation of changes (if any) in relation to non-geographic calls; and
 - following the implementation of changes to non-geographic calls.
- 5.287 Because the unbundled tariff remedy will not be implemented until late-2014 (at the earliest), we must consider appropriate action to cover this 'transitional' period.
- 5.288 Any suitable interim remedy must continue to safeguard competition in the market for NTS. Given the relatively short period of time for which it may be required, though, it must also be proportionate.
- 5.289 With this in mind, we propose to set an RPI-based price ceiling on the retail uplift until the new NTS regime is implemented. We consider that this will limit the amount that BT can retain for the costs of NTS wholesale call origination and conveyance (limiting any reduction in the revenue available to TCPs¹⁷⁸) while still facilitating reasonable cost recovery by BT.
- 5.290 Although the current control allows a 1.25% real increase in the retail uplift, this was not because we envisaged a significant increase in unit costs for the duration of the existing charge control.¹⁷⁹ Instead, it was because the previous retail uplift had led BT to under-recover relevant FAC retail costs by approximately £2m per year.¹⁸⁰ Going forward, we do not consider under-recovery of costs to be a concern given that BT's prices will have brought into line with forecast costs by the end of September 2013. Consequently, we consider it unlikely that the issue of under-recovery will persist beyond the current control period.
- 5.291 Under these circumstances, therefore, we do not consider it necessary to maintain the upward glide-path (over and above inflation) in the retail uplift to ensure efficient cost recovery. Instead, we believe it is sufficient to set the price ceiling at current levels plus RPI, which will remain in place until the new NGCS regime is implemented.
- 5.292 Accordingly, we also propose to maintain the imposition of the current PRS Bad Debt surcharge for the duration of this interim period. We believe that no material changes have occurred since July 2011, when the surcharge was set at 5.2% of PRS retail revenues¹⁸¹, to warrant a review of the level of this control. As the current surcharge was only implemented in 2011 it is based on relatively recent data from BT. As a

¹⁷⁸ This is particularly undesirable at a time when geographic wholesale call origination rates are likely to increase significantly (due to the increase in common costs recovered as a result of the move of FTRs to LRIC), placing additional pressure on TCP margins.

¹⁷⁹ Although BT's underlying unit cost had been placed under continued pressure from falling volumes, we expect this to be balanced out by continuing efficiency gains.

¹⁸⁰ Ofcom, *Wholesale charges for Number Translation Services and Premium Rate Services*, July 2009, p.24, paragraph 3.42,

<http://stakeholders.ofcom.org.uk/binaries/consultations/nts/summary/ntscondoc.pdf>

¹⁸¹ Ofcom, *Wholesale charges for Number Translation Services and Premium Rate Services*, July 2011, p.4, http://stakeholders.ofcom.org.uk/binaries/consultations/nts-retail-uplift/statement/NTSRU_statement.pdf

result, we consider it appropriate to maintain the surcharge at the current level until the implementation of the unbundled tariff.

Legal tests

5.293 We consider that the proposed condition would meet the criteria set out in section 47(2) of the Act. It is:

- objectively justifiable because it is necessary to promote competition and innovation in downstream markets to the benefit of consumers;
- not unduly discriminatory, in that while it is not imposed on KCOM, our view remains that regulation would not be proportionate in respect of the Hull Area;
- proportionate because it is necessary for BT to provide retailing services to third parties using NTS call origination, in order for this service to be effective to promote competition and innovation in the downstream markets until such time as the new regime is implemented; and
- transparent as it is clear that the intention is to ensure that the charges paid by third parties are fair and reasonable, while at the same time, representative of BT's costs involved in providing the service.

5.294 In addition, we have considered the tests in section 88 of the Act which authorises Ofcom to implement regulation where there is a risk that, in situations where SMP is persistent, pricing will be distorted and not at competitive levels. As discussed, we continue to believe that it is necessary to control the charge for wholesale input to retail services where the absence of competition will mean there is no other pressure on pricing.

5.295 We have also considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.

5.296 In particular, we have sought to propose a set of NTS obligations that further the interests of consumers by promotion of competition. We have sought through the obligations to deliver efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation will ensure that BT's wholesale NTS call origination charges are not set excessively, but also allow BT to recover its efficiently incurred costs.

5.297 We have considered the Community requirements set out in section 4 of the Act and believe that the proposed condition meets the requirements. Specifically, we believe Section 4(8) is met, where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by setting a price ceiling that seeks to promote competition.

Charge control

5.298 Section 87(9) of the Act authorises the setting of SMP services conditions imposing on the dominant provider price controls connected with the provision of network access.

Aim of regulation

- 5.299 In the absence of a charge control, BT has the ability and incentive to set prices above the competitive level. BT's wholesale competitors would then be forced to pay these high prices in order to provide retail services to their customers, who would suffer accordingly from higher retail prices. As BT could recover its own costs through higher prices charged at the wholesale level, which would ultimately be passed on in higher retail charges, they would not be incentivised to reduce costs and improve efficiency.
- 5.300 In order to address this, we have proposed that BT should be subject to a charge control to ensure it does not price excessively for wholesale call origination services.

Proposed condition

- 5.301 BT is currently subject to a charge control for wholesale call origination. In Section 11, we explain the proposed charge control design. As set out in paragraphs 5.169 to 5.175, our preferred method of charge control regulation (RPI+/-X) would create incentives on the dominant provider to increase its efficiency, thereby imitating the effect of a competitive market.

Legal tests

- 5.302 We consider that a charge control obligation would meet the criteria set out in section 47(2) of the Act. It is:
- objectively justifiable. Without the proposed charge controls, BT may price excessively. The benefits expected of a competitive market would not be available to consumers without the imposition of RPI+/-X price controls;
 - not unduly discriminatory. While it does not apply to KCOM, we consider that it would not be proportionate to impose such a remedy on KCOM given current market conditions in the Hull Area, specifically the low number of CPs seeking access;
 - proportionate. As it requires BT to meet an RPI+/-X control which includes allocating common costs to the provision of relevant services, BT has the correct incentives to improve efficiency which leads to benefits that would be expected in a competitive market, but allows BT to benefit from any further improvements in its efficiency; and
 - transparent. It is clear in its intention to control BT's charges while creating efficiency incentives.
- 5.303 In addition to the tests set out in Section 47(2) of the Act, we also consider that the proposed condition satisfies the tests set out in section 88 of the Act.
- 5.304 Section 88(1)(a) of the Act requires that Ofcom must not impose price control conditions unless it appears from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. We explained above that we consider that in the absence of charge controls BT may price excessively, and therefore that there is such a risk of adverse effects.

- 5.305 Section 88(1)(b) of the Act requires that the charge control condition should be appropriate for the purposes of:
- i) promoting efficiency;
 - ii) promoting sustainable competition; and
 - iii) conferring the greatest possible benefits on the end users of public electronic communications services.
- 5.306 We believe that the structure of the proposed charge control provides BT with incentives to improve efficiency, since it retains any savings from improved efficiency that reduces its costs below this level over the period of the control.
- 5.307 We also consider that the obligation will continue to promote sustainable competition by allowing CPs to purchase wholesale call origination services at prices which allow them to compete effectively at the retail level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end users of the services.
- 5.308 Section 88(2) requires us to take account of the extent of the investment when setting this type of condition. We consider that the design of the RPI +/- X control allows common costs to be taken into account and also allows BT to retain any increased profits should it be able to reduce its costs (through increased efficiency) below the level expected when the cap was set.
- 5.309 We have considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.
- 5.310 In particular we have sought to propose a charge control that furthers the interests of consumers by promotion of competition. We have sought, through the charge control, to secure efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation will ensure that the charges for call origination services by BT are not set excessively, while allowing BT to recover its efficiently incurred costs.
- 5.311 We have considered the Community requirements set out in section 4 of the Act and believe that the proposed condition meets the requirements. Specifically, we believe Section 4(8) is met, where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by setting a charge control that seeks to promote competition.

Conditions we propose for KCOM

- 5.312 Below, we present the obligations that we propose to impose on KCOM. Where the conditions are similar to those imposed on BT and where we consider that the legal tests are met for the same reasons as in BT's case, we propose not to repeat the analysis.

Requirement to provide network access on reasonable request

- 5.313 Ofcom proposes to retain the condition requiring KCOM to meet reasonable requests for network access in the call origination market. Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as it may, from time to time, direct. These conditions may, pursuant

to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and that conditions are complied with within the periods and at the times required.

- 5.314 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the Act, including, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access.

Aim of regulation

- 5.315 This remedy is designed to promote competition in downstream markets by requiring providers with SMP to provide wholesale access to their network facilities. The level of investment required by a third party to replicate KCOM's network in order to compete at this level is a significant barrier to entry. As set out at paragraph 5.140 above, Ofcom considers that in the absence of such a requirement, the dominant provider would have an incentive not to provide access.

Proposed condition

- 5.316 The proposed condition will require requests made to KCOM for network access to be 'reasonable' requests. The condition will also require KCOM to provide network access in response to such a reasonable request and that access should be provided on fair and reasonable terms, conditions, and charges.
- 5.317 Further guidance on what would amount to fair and reasonable charges is set out in Section 8.

Legal tests

- 5.318 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The proposed condition is:
- objectively justifiable as its intention is to promote retail competition by ensuring third parties are able to acquire wholesale access on fair and reasonable terms where they are unable to replicate the network of KCOM;
 - non-discriminatory as it is only imposed on KCOM which we propose has SMP. A similar obligation is proposed for BT, which is the other provider we propose has SMP in the market. The difference in the conditions, related to charges, reflects the fact that, due to the scale of BT, we propose BT should be subject to a charge control;
 - proportionate since without such an obligation KCOM could refuse to provide access and this would mean other CPs would not be able to effectively compete at the retail level, but does not require KCOM to provide access where it is not technically feasible or reasonable; and
 - transparent as it is clear the intention is to ensure that KCOM provides access to its network in order to facilitate competition.
- 5.319 In addition to the tests set out in Section 47(2) of the Act, Ofcom is also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act as the requirement places controls on network access pricing, insofar as charges are required to be fair and reasonable.

- 5.320 Section 88(1)(a) of the Act requires that Ofcom must not impose price control conditions unless it appears from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. We have discussed above that we consider that in the absence of price regulation requiring prices to be “fair and reasonable”, KCOM may price excessively, and therefore propose that there is such a risk.
- 5.321 Section 88(1)(b) of the Act requires that the charge control condition should be appropriate for the purposes of:
- i) promoting efficiency;
 - ii) promoting sustainable competition; and
 - iii) conferring the greatest possible benefits on the end users of public electronic communications services.
- 5.322 We consider that fair and reasonable charges will prevent KCOM from passing on any inefficiently incurred costs to other wholesale providers through excessively high prices. This is especially important given that we do not propose to impose a charge control on KCOM. In this way, this condition supports the aim of improved efficiency.
- 5.323 We also consider that the provision of network access on fair and reasonable terms will promote sustainable competition by ensuring that other CPs can effectively compete at the retail level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end users of the services.
- 5.324 We are also required, under Section 88(2) of the Act, to consider KCOM's investment. We believe that fair and reasonable charges will allow KCOM's costs to be taken into account and will also provide for common cost recovery. This condition is therefore an appropriate basis upon which to control KCOM's prices.
- 5.325 We have also considered our duties under section 3 of the Act. We consider that, in ensuring Network Access is provided at the reasonable request of third parties, the proposed condition would in particular further the interests of consumers in relevant markets by the promotion of competition.
- 5.326 We have also considered the Community requirements as set out in section 4 of the Act. We consider that the proposed obligation will promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficient and sustainable competition in markets for electronic communications networks and services.
- 5.327 For the reasons set out above, we consider that the proposed condition is appropriate to address the competition concerns identified, in line with section 87(1).

Requirement not to unduly discriminate

- 5.328 Ofcom proposes to retain the condition on KCOM not to unduly discriminate in relation to the provision of network access.
- 5.329 The proposed condition, the rationale for this regulation and the legal tests are the same as discussed above for BT in paragraphs 5.201 to 5.211.

Transparency

5.330 Ofcom considers that it is appropriate to ensure that there is transparency of charges, terms and conditions in a market in which one operator is dominant. In the absence of requirements obliging KCOM to publish this information, it might offer differential charges, terms and conditions to both its downstream division and also between providers. Third party providers would not be able to check that they were being charged a reasonable rate, or that the terms and conditions that they were offered were also reasonable.

5.331 To provide transparency, we propose to retain the following conditions on KCOM:

- Requirement to publish a reference offer for wholesale call origination services and products. The proposed conditions, the rationale for the regulation and the legal tests are the same as discussed above for BT in paragraphs 5.215 to 5.224.
- Requirement to notify charges:
 - The proposed condition, the rationale for this condition and the legal tests are the same as discussed above for BT in paragraphs 5.224 to 5.236.
 - Notification periods - The existing condition requires the notification of charges 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. In this consultation, however, we have proposed that BT should be required to provide 56 days' notice of changes to prices (as discussed in paragraphs 5.229 to 5.231, subject to the proposed exception discussed in Section 11 for the 1 October 2013 proposed charge adjustments). On the basis that KCOM holds SMP in an equivalent wholesale call origination market, we consider it is appropriate to also propose that KCOM should provide 56 days' notice of changes to charges.
- Requirement to notify technical information. The proposed conditions, the rationale for the regulation and the legal tests are the same as discussed above for BT in paragraphs 5.237 to 5.244.

Cost accounting

5.332 Cost accounting obligations may be imposed on dominant providers in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities. Cost accounting rules may be made in relation to charge controls, the recovery of costs and cost orientation.

5.333 KCOM is currently subject to a cost accounting obligation. However, we are proposing in this review to remove KCOM's cost orientation obligation, for which cost accounting assists with compliance monitoring. In practice, KCOM would no longer be required to report Fully Allocated Costs (FAC) and therefore the 'Network Activity Statement'¹⁸² and 'Statement of Current Cost Mean Capital Employed'¹⁸³ would no longer be required to be produced.

¹⁸² KCOM Regulatory Financial Statements: http://www.kcomplc.com/docs/regulatory-pdf/final_statements_2012.pdf; Page 26.

¹⁸³ KCOM Regulatory Financial Statements: http://www.kcomplc.com/docs/regulatory-pdf/final_statements_2012.pdf; Page 25.

5.334 Given that KCOM is no longer subject to cost orientation and is unlikely to be regulated in this way by future market reviews, this remedy is no longer necessary nor proportionate.

5.335 We therefore propose to remove the cost accounting obligation on KCOM.

Accounting separation

5.336 Ofcom proposes to retain the accounting separation obligation on KCOM in relation to the wholesale call origination market.

5.337 The proposed conditions, the rationale for the regulation and the legal tests are the same as discussed above for BT in paragraphs 5.258 to 5.263.

Proposed pricing remedies

5.338 In the United Kingdom excluding the Hull area, we are proposing a charge control on BT. KCOM is not currently subject to a charge control in the Hull Area and there have been limited market developments since the last review (as set out above). As a result, it would not be justifiable or proportionate to increase the regulatory burden on KCOM in this review.

5.339 Instead, we consider that we can reasonably address the SMP held by KCOM in the Hull area through a network access requirement, provided on fair and reasonable terms.

5.340 As described in Section 8, KCOM's wholesale call origination rate has been falling into line with BT's since 2009.¹⁸⁴ In addition, KCOM's retail prices remain broadly in line with BT's retail prices for the United Kingdom excluding the Hull area. This suggests that KCOM's cost base for fixed geographic call origination is likely to be comparable with BT's.

5.341 As such, in considering any dispute in relation to KCOM's charges for wholesale call origination, we would start from a presumption that rates no higher than BT's charge controlled rate would be fair and reasonable. In the event that KCOM seeks to set a higher rate we would expect it to demonstrate that the BT rate would prevent it from recovering its efficiently incurred costs. This might be the case if, for example, the size of the Hull area prevented KCOM from exploiting economies of scale as effectively as BT.

5.342 We consider this approach to be effective. This is because it provides a framework for protecting consumers, by linking KCOM's wholesale call origination charges with those costs of an efficient operator and therefore addressing the risk of excessive pricing, while also providing regulatory certainty both to KCOM and to other CPs who may wish to purchase wholesale call origination from KCOM.

5.343 We also believe that this approach is the most proportionate response as it achieves these aims without adding the burden of a separate charge control.

Question 5.1: *Do you agree with our assessment that the relevant service market is "Wholesale call origination on a fixed narrowband network"? If not, please explain why.*

¹⁸⁴ KCOM Group plc, *Regulatory financial statements for the year ended 31 March 2012 – 27 July 2012*, http://www.kcomplc.com/docs/regulatory-pdf/final_statements_2012.pdf

Question 5.2: Do you agree with our assessment that there are two relevant geographic markets: “The United Kingdom excluding the Hull Area” and “The Hull Area”? If not, please explain why.

Question 5.3: Do you agree with our assessment that BT has SMP in the market for “Wholesale call origination on a fixed narrowband network” in the United Kingdom excluding the Hull Area? If not, please explain why.

Question 5.4: Do you agree with our assessment that KCOM has SMP in the market for “Wholesale call origination on a fixed narrowband network” in the Hull Area? If not, please explain why.

Question 5.5: Do you agree with the remedies imposed on BT in the market for “Wholesale call origination on a fixed narrowband network” in the United Kingdom excluding the Hull Area? If not, please explain why.

Question 5.6: Do you agree with the remedies imposed on KCOM in the market for “Wholesale call origination on a fixed narrowband network” in the Hull Area? If not, please explain why.

Section 6

Wholesale fixed geographic call termination

Summary

- 6.1 This section covers our proposals in relation to market definition, market power and remedies for wholesale fixed geographic call termination services (“wholesale call termination”).
- 6.2 Wholesale call termination relates to the conveyance of all signals (including relevant control signals) required to terminate calls on a customer’s exchange line from the point in the network closest to the end customer’s point of connection to the network where those signals can be accessed by another CP.
- 6.3 With regard to market definition, we propose that the relevant service markets are:
- “termination services that are provided by [named fixed communications provider] (CP) to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which that CP has been allocated by Ofcom in the area served by that CP.”
- 6.4 With regard to market power, we propose that each CP has SMP in wholesale call termination within the relevant market applicable to that CP.
- 6.5 We propose the following remedies as shown in Table 6.1.

Table 6.1: Proposed remedies for wholesale call termination markets

| CP | Obligations |
|--|---|
| BT | Requirement to provide network access on reasonable request Requirement not to unduly discriminate Charge control Requirement to publish a reference offer Requirement to notify charges Requirement to notify technical information Cost accounting Accounting separation |
| All other CPs with SMP in the provision of wholesale call termination services (including KCOM) ¹⁸⁵ | Requirement to provide network access on reasonable request Requirement to notify charges |

¹⁸⁵ For a full list of relevant CPs, see Annex 6 (schedule 3). This list includes KCOM.

Regulatory framework

- 6.6 The 2007 EC Recommendation on relevant product and service markets establishes that wholesale call termination on a fixed network is a market that is susceptible to ex ante regulation and should be reviewed on a regular basis. In reviewing this market we must take into account the particular competitive circumstances in the United Kingdom.

Background

2009 Market Review

- 6.7 In the 2009 wholesale review¹⁸⁶ we defined the relevant market for wholesale call termination as:

“wholesale fixed geographic call termination on each individual network”

- 6.8 In that review we found that all fixed network CPs had SMP in relation to the provision of wholesale fixed geographic call termination services over their networks and imposed remedies accordingly.

2011 Wholesale Mobile Call Termination Statement

- 6.9 It is also relevant to consider our approach to market definition in call termination markets other than wholesale fixed geographic call termination, in particular with regard to mobile services. In 2011, we published our wholesale mobile call termination statement (2011 MCT Statement)¹⁸⁷ where we considered that market power in termination services was related to the number ranges that have been allocated to CPs. We concluded that the relevant market for the termination of mobile calls is:

“termination services that are provided by [named mobile communications provider] (MCP) to another communications provider, for the termination of voice calls to United Kingdom mobile numbers which that MCP has been allocated by Ofcom in the area served by that MCP and for which that MCP is able to set the termination rate.”

- 6.10 A number of network elements are involved in terminating a mobile call, including switching elements, transmission networks and authentication servers. An MCP may wholly own (or lease) all the elements necessary for terminating a call or may make use of third-party elements to terminate calls. Of these different elements, control of the mobile number plays a pivotal role because the number acts as an identifier of the recipient (and hence, determines from whom the originator will purchase wholesale call termination). We said that the MCP who holds the number, controls the ability to authenticate users, enabling them to receive calls. This means that

¹⁸⁶ Ofcom, “Review of the fixed narrowband services wholesale markets: Statement on the markets, market power determinations and remedies including further consultation”, 15 September 2009, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf

¹⁸⁷ Ofcom, “Wholesale Mobile Voice Call Termination - Statement”, 15 March 2011, http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/statement/MCT_statement.pdf

control of the number “profoundly influences the competitive conditions under which wholesale call termination is purchased.”¹⁸⁸

- 6.11 In relation to market power in these markets, we concluded that, for each of the individual proposed markets, the relevant undertaking (MCP) has SMP.

Market definition

Product market

- 6.12 As set out in Section 5, market definition requires a definition of the relevant product and geographic markets. We begin by defining the relevant product market(s) in order to establish those products which are regarded as interchangeable or substitutable by reason of the product’s characteristics, prices and intended use. We then go on to consider the relevant geographic market(s) to determine those areas in which the conditions of competition are sufficiently homogenous and can be distinguished from neighbouring areas because the conditions of competition are appreciably different in those areas.

Starting point

- 6.13 To define the relevant product market, we have taken as our starting point the market identified in the 2007 EC Recommendation, namely call termination on individual public telephone networks provided at a fixed location. As set out above, in the 2009 review, we followed the approach set out in the 2007 EC Recommendation and defined the relevant market by reference to individual networks.
- 6.14 However, in our 2011 MCT Statement we reconsidered the definition of the market by reference to individual networks alone and recognised the role of the allocated number range as a critical element in the individual network used to provide MCT.¹⁸⁹ We have therefore considered the extent to which it is appropriate to adopt a similar approach in relation to fixed geographic call termination.
- 6.15 MCT and wholesale fixed call termination both involve the provision of a service to terminate calls to a number within the called provider’s number range. The characteristics of termination markets are well-established and widely recognised in the 2009 EC Recommendation:

Wholesale call termination can only be supplied by the network provider to which the called party is connected. There are currently no demand- or supply-side substitutes for wholesale call termination on an individual network. Therefore, each network constitutes a separate relevant market and each network operator has a monopolistic position on the market for terminating calls on its own network.¹⁹⁰

¹⁸⁸ Ofcom, “*Wholesale mobile voice call termination market review, volume 2 – main consultation*”, 1 April 2010, paragraph 3.15, page 20,

http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

¹⁸⁹ Ofcom, “*Wholesale mobile voice call termination - statement*”, 15 March 2011, paragraph 3.164, page 55, <http://stakeholders.ofcom.org.uk/consultations/mtr/statement>

¹⁹⁰ Explanatory Note to the 2009 EC Recommendation, section 2.1, page 6, http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/eu_consultation_procedures/explanatory_note.pdf

- 6.16 The determination of when a call is terminated on a CPs “own network” is, generally speaking, defined by reference to an allocated number range because calls are initiated using a telephone number identifying the network on which the call will be terminated. A CP which is allocated numbers is uniquely positioned to control (i.e. terminate) calls to those numbers and hence, those users. In this respect, fixed wholesale call termination and mobile wholesale call termination are identical and this would suggest a comparable approach.
- 6.17 However, fixed geographic call termination differs from mobile wholesale call termination in some respects, because the former is provided at a fixed location. The number dialled is used by the originating CP to identify the specific point on the PSTN at which the termination service is provided. It routes the call to this specific point and hands it over to the network provider that provides the network at that point. In MCT, the number dialled does not indicate the point of handover closest to the called party since this may change depending upon the location of the person receiving the call. Consequently, termination is deemed to occur at a logical point on the mobile network in order to determine when termination payments may become due. Nevertheless, the identification of the terminating operator in both fixed and mobile calls results from the number called and this is not affected by the differences between call routing for fixed calls and mobile calls.
- 6.18 In both fixed and mobile calls, a number range holder may not control its own access network and may choose to purchase some or all of the network elements required to physically terminate the call. In fixed markets, the relationship between a number range holder and the CP providing the underlying network elements (the “hosting CP”) may extend to enabling the hosting CP to conclude termination agreements for all of the numbers of the number range holder on its behalf. In this case, an originating CP would have no direct commercial relationship with the number range holder.
- 6.19 Nevertheless, underlying control of fixed call termination ultimately rests on control of the number allocation; hosted numbers may be moved between different hosting networks or, ultimately, a number range holder may move the numbers onto its own network. The intervention of a hosting CP can only occur with the authorisation of the number range holder and consequently wholesale call termination cannot occur without, directly or indirectly, the involvement of the number range holder.
- 6.20 This indicates that, as for mobile, the control of the number range plays an important role in the provision of the fixed geographic call termination service. Therefore, we consider that, as in mobile wholesale call termination, the control of the number range is a key element defining the ‘individual network’ necessary in identifying the termination service.
- 6.21 We therefore propose that the candidate market for our consideration of fixed geographic call termination is:
- “termination services that are provided by [named fixed communications provider] (CP) to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which that CP has been allocated by Ofcom in the area served by that CP.”

Direct and indirect constraints

- 6.22 Having proposed (above) a candidate service market definition, we now consider whether this market definition should be widened to take into account possible substitute services. This analysis relies on the SSNIP concept, which we discussed in details in Section 5 (at paragraphs 5.16 to 5.19).
- 6.23 To assess whether substitutes exist, we consider both direct and indirect constraints. A direct constraint is a factor that limits wholesale price-setting by competition (that is, there is potential for direct substitution at the wholesale level), e.g. CPs switching between wholesale fixed geographic call termination and potential alternatives. Indirect constraints are those that operate indirectly through the retail markets (from which wholesale demand is derived).

Direct constraints

- 6.24 We consider that there are no material direct competitive constraints on a CP's ability to set fixed termination rates above the competitive level. Once the originating CP's subscriber has chosen to call a particular geographic number, the originating CP has no alternative to purchasing fixed call termination from the CP controlling that geographic number. This is because the CP that controls the geographic number being called also controls the termination of calls to that number even if it does not host them on its own network. The originating CP cannot purchase termination services from a third party CP in order to terminate calls to that number. The same principle applies to all calls terminated on the number range held by each CP. Therefore, we broaden the market definition from individual numbers to the level of all numbers in a particular geographic number range held by each relevant CP.
- 6.25 We do not propose to expand the market definition to include call termination to non-geographic numbers held by the same CP. CPs face different competitive constraints when setting termination rates for calls to non-geographic numbers within their number ranges than they do to calls to geographic numbers. In contrast to geographic calls, calls to non-geographic numbers are made to a service platform, where a number of features can be applied before the call is routed to the physical connection of the customer. This connection may be a fixed geographic number but may also be a mobile, international or another type of number, and multiple points of termination may be attached to a single non-geographic number. Because of this ability to supply features and sophisticated routing, there is much greater potential for competition between TCPs in providing these services. As a result, there are some CPs present in the termination of non-geographic numbers who are not active in the termination of geographic numbers.
- 6.26 As with geographic calls, once the originating CP's subscriber has chosen to call a particular non-geographic number, the originating CP has no alternative to purchasing fixed call termination from the TCP hosting that non-geographic number. However, the service providers offering the services callers wish to access via non-geographic numbers can and do switch between TCP hosts on the basis of their competitive offerings, including their termination rates. In contrast to call termination to geographic numbers, TCPs will therefore be influenced by the preferences of their SP customers when setting termination rates to non-geographic numbers.
- 6.27 In light of the above, we consider that the conditions of competition in relation to the provision of call termination to non-geographic numbers are not sufficiently homogenous with those present in wholesale fixed geographic call termination.

Consequently, we do not consider that the relevant market encompasses call termination to non-geographic numbers.

Indirect constraints

- 6.28 With respect to indirect competitive constraints, we do not believe that an increase in termination rates would be effectively constrained by retail demand-side substitution.
- 6.29 Even in the case where consumers face an increase in the price of their fixed end-to-end call following an increase in wholesale call termination, their decision to make a call to a fixed geographic number is unlikely to be affected.¹⁹¹ What might be affected is their decision on where to make the call from (e.g. from a landline or a mobile) but not where the call will be made to. In particular, we consider it is unlikely to lead to any significant proportion of consumers switching to calling their recipients on the recipients' mobile or VoIP.¹⁹²

Conclusion

- 6.30 For the reasons above, we consider that a hypothetical monopolist of wholesale call termination would be able to profitably implement a SSNIP. Consequently, we consider that the relevant product market is termination services that are provided by [named fixed communications provider] (CP) to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which that CP has been allocated by Ofcom.

Geographic market definition

- 6.31 The purpose of geographic market definition in the context of a market review is to identify areas where competitive conditions are similar. This enables us to assess which CPs, if any, have market power and in which geographic areas. If competitive conditions vary significantly between different areas, it may be appropriate to assess and address market power separately in these different areas.
- 6.32 We propose that the geographic extent of each market is defined as the area served by that CP. The competitive conditions a CP faces in providing termination services are not affected by the number of other operators in a particular geographic area since, as set out above, voice termination provided by one CP is not a substitute for termination provided by another. Consequently, the relevant geographic market is determined by reference to the area in which the CP provides termination services.
- 6.33 We do not consider that the relevant geographic area is wider than the United Kingdom as the only way to terminate a call to a fixed number in the United Kingdom is to do so on the United Kingdom network serving the recipient.

¹⁹¹ The majority of consumers (66%) rarely or never considered the price when making a call. Research undertaken for consultation on business and residential consumers (Jigsaw, on behalf of Ofcom), December 2012

¹⁹² An additional issue with calling recipients on their VoIP is that i) Consumers see VoIP services as lower quality, or that they are more susceptible to variations in quality than the fixed equivalents; ii) calling a VoIP line would require having the user's (generally second) VoIP number - it is currently less common for consumers to distribute their VoIP numbers to potential callers; and iii) it might be necessary for the user to be connected to the internet in order to be reached via VoIP, which is less convenient than for a call over a fixed line. This additional issue is unlikely to be worth the savings from not making the call to the geographic number.

The May 2012 Call For Inputs

- 6.34 In May 2012 we invited stakeholders to respond to a call for inputs (CFI) on the subject of fixed narrowband services. We received 12 responses.
- 6.35 In the CFI we asked two questions relevant to fixed call termination. We asked:
- “do you consider that there have been any changes in the markets for fixed call termination that would be relevant in our assessment of SMP in these markets?”
- 6.36 Stakeholders’ responses were in general agreement that the substance of market definition and the assessment of SMP for fixed termination services has not materially changed since the previous review in 2009.
- 6.37 However, a number of respondents (including [X]¹⁹³, EE¹⁹⁴, Verizon¹⁹⁵ and UKCTA¹⁹⁶) argued that non-geographic call termination should be included in the scope of this review as they believe the regulatory asymmetry between geographic and non-geographic numbers has allowed BT to progressively increase the termination rates for non-geographic numbers. Furthermore, they argued that there is no distinction made between geographic and non-geographic numbers in the 2007 EC Recommendation and, therefore, Ofcom is required to either undertake analysis of the market or fully explain why it has chosen not to do so. EE¹⁹⁷ argued that Ofcom’s historic reasoning for excluding non-geographic call termination (essentially the sensitivity of ISP wholesale customers to price changes) was no longer relevant. UKCTA¹⁹⁸ did not consider the ongoing NTS review would be sufficient to address the issues it identified in non-geographic call termination, noting that the NTS review is not a competition-based assessment and, in any event, any remedies resulting from the review are likely to be implemented towards the end of the current review period.
- 6.38 Following on from the market definition we adopted for mobile call termination in the 2011 MCT Statement (where we adopted a market definition based on termination to number ranges, as opposed to the previous network definition)¹⁹⁹, we also asked stakeholders for their views on whether number ranges are a relevant factor in defining the market for fixed call termination. Specifically, we asked:

¹⁹³ [X]

¹⁹⁴ Everything Everywhere, *Fixed narrowband market review and network charge control: call for inputs – Everything Everywhere response*, June 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/EE.pdf>

¹⁹⁵ Verizon, *Verizon Enterprise Solutions response to Ofcom’s call for inputs*, June 2012

¹⁹⁶ UKCTA, *Call for inputs: narrowband market review – UKCTA response to Ofcom*, June 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/UKCTA.pdf>

¹⁹⁷ Everything Everywhere, *Fixed narrowband market review and network charge control: call for inputs – Everything Everywhere response*, June 2012, pg. 8, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/EE.pdf>

¹⁹⁸ UKCTA, *Call for inputs: narrowband market review – UKCTA response to Ofcom*, June 2012, pg. 9, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/UKCTA.pdf>

¹⁹⁹ Ofcom, “*Wholesale mobile voice call termination - statement*”, 15 March 2011 paragraph 3.164, page 55, <http://stakeholders.ofcom.org.uk/consultations/mtr/statement>

“Do you consider that individual CPs’ number ranges are a relevant factor in defining the relevant market in fixed call termination?”

- 6.39 Responses to this question were mixed. CWW²⁰⁰ agreed that the same broad principles apply to both fixed and mobile markets for call termination and [X]²⁰¹ noted that an increase in take-up of IP technology may support a move to a number range-based market definition.
- 6.40 H3G²⁰² also supported a move to a number range-based market definition, arguing that a definition based on access networks may not be precise as some fixed CPs offer call termination without operating their own access network.
- 6.41 BT²⁰³ argued that the network operator is responsible for providing access for call termination and that the holder of the number range is not relevant, and therefore that a change in the market definition might not be appropriate. Similarly [X]²⁰⁴ considered that they do not see number ranges as a “definitive metric” as the allocation of number ranges is not analogous to having a Public Electronic Communication Network (PECN). Equally, FCS²⁰⁵ stated their concern that smaller CPs, without access networks, might be disproportionately affected by any regulatory changes.
- 6.42 In contrast to [X] and FCS, [X]²⁰⁶ argued that smaller providers should be subject to the same level of regulation as the CPs with access networks in order to maintain a level playing field.

Our views and conclusions on market definition

- 6.43 As we discuss in paragraphs 6.28 to 6.30, we have proposed that call termination to non-geographic numbers is not in the same market as call termination to geographic numbers. We agree with EE that the historical reasons for its exclusion are no longer relevant and recognise that the Commission does not explicitly exclude call termination to non-geographic numbers from its list of relevant markets. However, we have considered the current market context in the United Kingdom and have provisionally concluded that call termination to non-geographic numbers is a distinct service subject to different competitive constraints for the reasons outlined in paragraphs 6.28 to 6.30. As a result, we do not consider it to be part of the same market as call termination to geographic numbers. As to why we do not propose to define a separate market for call termination to non-geographic numbers and conduct a competitive assessment of this market as part of this narrowband review, we note

²⁰⁰ Cable and Wireless Worldwide, *Ofcom call for inputs: fixed narrowband market review and network charge control*, June 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/CWW.pdf>

²⁰¹ Virgin Media, *Virgin Media’s response to Ofcom’s fixed narrowband market review and network charge control call for inputs*, June 2012, pg. 7.

²⁰² H3G, *Three response to Ofcom’s fixed narrowband market review and network charge control – call for inputs*, June 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/Three.pdf>

²⁰³ BT, *BT’s response to Ofcom’s call for inputs on the fixed narrowband market review and charge control*, June 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/BT.pdf>

²⁰⁴ [X]

²⁰⁵ FCS, *Fixed narrowband market review and network charge control – FCS response*, June 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/FCS.pdf>

²⁰⁶ [X]

that we are currently considering the provision of services using non-geographic numbers separately.²⁰⁷ As a result of this separate review, we are consulting on proposals that would imply very significant changes to the way the NTS market operates. Because we anticipate these changes to affect the NTS market within the period of the current narrowband market review, we do not consider this is an appropriate time to undertake a market review of non-geographic call termination. We will consider whether any further review of the market for call termination to non-geographic numbers is necessary once the NTS review has been completed and any resulting proposals implemented.

- 6.44 [X]²⁰⁸ stated in its CFI response that having a number range might not always mean that the relevant CP operates a PECN. In our approach we are seeking to identify the correct delineation of individual markets. Ultimately, both a number range and use of a network are required for the completion of a call, but those elements can be brought together in a variety of different ways. In some cases (which we expect may account for the majority of traffic), the same CP controls the number range and the network point at which the termination service is provided. In the case of a CP who has hosted its number ranges on another network, it has, in effect, outsourced the provision of the network to their host (and may have also provided their host with the means and authority to provide the network point at which the termination service is provided on their behalf). What is critical is the question of who exercises ultimate control over the price of wholesale call termination – and in that regard, we believe that the number range provides a more significant indicator than any other asset. As number range holders have the choice of which network they can host their numbers on, they will be the party which exercises control over the provision of the termination service.
- 6.45 In response to FCS' comment, the definition of the relevant market is an element in assessing whether or not an undertaking hold significant market power and, if so, whether or not it is appropriate to impose regulation on such undertakings. Once the relevant market has been defined, it will be for Ofcom to consider the issue of significant market power. Whilst, under certain circumstances, the size of the undertaking may be a factor in determining whether or not it holds significant market power, in particular with reference to the issue of countervailing buyer power, we do not consider this to be the case in relation to fixed geographic call termination. As set out in more detail below, we consider that the competition concerns which arise where significant market power is found in relation to wholesale fixed geographic call termination apply irrespective of the size of the undertaking and thus do not consider this to be a relevant factor for consideration in this case.
- 6.46 Based on the preceding analysis we propose that each of the individual proposed markets, with respect to each CP, comprises:
- “termination services that are provided by [named fixed communications provider] (CP) to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which, that CP has been allocated by Ofcom in the area served by that CP.”

²⁰⁷ Ofcom, “*Simplifying non-geographic numbers*”, 16 December 2010, <http://stakeholders.ofcom.org.uk/binaries/consultations/simplifying-non-geo-numbers/summary/non-geo.pdf>

²⁰⁸ [X]

Market power assessment

6.47 In Section 5, we set out the process for assessing market power. In this review of geographic call termination, we regard the following criteria as particularly relevant:

- Market shares (current and future);
- Barriers to entry; and
- Countervailing Buying Power ('CBP').

6.48 As discussed in Section 5 (paragraph 5.107), market shares are an indicator of market power in the relevant market. Although a high market share alone is not sufficient to establish SMP, it is unlikely that a firm without a substantial share of the relevant market would be in a dominant position. Very large market shares are therefore generally taken as an indicator of SMP in a relevant market. However, it is also appropriate to consider whether there is the potential for entry into the market and whether CPs have sufficient countervailing buyer power to constrain any market power which may be identified.

Importance of the 'calling party pays' arrangement

6.49 For fixed geographic telephone calls, the United Kingdom telecommunications industry has a system whereby the calling party (and not the called party) pays the total price of the retail call.²⁰⁹ This is the calling party pays (CPP) principle.

6.50 The implication of the CPP principle is that the terminating CP has an incentive to raise the price of termination services that it charges other network operators, for at least two reasons. First, because the cost is not paid by their own customers, terminating CPs could raise the price that they charge for termination services to maximise the profitability of call termination. Second, a higher price of termination increases the costs borne by rival networks. This could ultimately force rival networks to increase their retail prices, which would in turn be borne by customers of rival networks. The CP with higher call termination prices would therefore have a competitive advantage at the retail level over its direct competitors.

6.51 Because the calling party does not choose the CP for termination services, they are less able to constrain the price of the termination services offered by that CP. This results in terminating CPs being able to exert significant market power over originating CPs.

6.52 The CPP principle therefore has important implications for assessing the ability and incentives for CPs to increase the price of termination services, and therefore on the definition and assessment of market power in these markets.

Market shares

6.53 Each number range holder has, by definition, 100% of the market for calls terminating to their numbers. As discussed in Section 5, the SMP Guidelines state that, in the Commission's practice, single dominance concerns normally arises where market shares are over 40%, and that in established case law, market shares of over 50% are taken as evidence for the presumption of a dominant position. This

²⁰⁹ Unless the called party accepts responsibility for payment, e.g. reverse charge calls.

presumption of dominance is rebuttable and a thorough and overall analysis is required before coming to a conclusion on the existence of SMP.

- 6.54 Number range holders' market shares may therefore lead to a presumption that they enjoy a dominant position (and consequently significant market power) in the proposed market. As discussed above, however, we need to consider other aspects which may negate number range holders' ability to exercise market power.

Barriers to entry

- 6.55 If there is scope for a third-party CP to enter the market for termination of calls to another CP's number range, it is likely to undermine the SMP of the terminating CP. However, in relation to call termination, market entry could only occur if a terminating CP were to grant entry to another CP to terminate calls on their number ranges. We consider that CPs are unlikely to have an incentive to give up their monopoly on call termination to allow other CPs to terminate calls to their number ranges. As a result of this, it is unlikely that the existing barriers to entry are likely to materially reduce in the near future and, therefore, any threat of entry is too insubstantial to restrict the SMP of CPs.

Countervailing buyer power (CBP)

- 6.56 CBP is the degree of restraint that a purchaser is able to place on a seller by imposing an effective counter to any attempt by the seller to set prices appreciably above the competitive level. If the buyer is sufficiently important to the seller, then the threat of the purchaser reducing its demand or purchasing from alternative suppliers may be sufficient to constrain any potential market power. In assessing CBP, we consider BT separately from other CPs given its unique position (i.e. the large volumes of call termination it purchases and, conversely, its own position as the largest provider of fixed geographic call termination).

- 6.57 The European Commission discussed CBP in call termination, noting that a market definition of call termination on individual networks:

“... does not automatically mean that every network operator has significant market power; this depends on the degree of any countervailing buyer power and other factors potentially limiting that market power.”²¹⁰

- 6.58 The presence of CBP is, therefore, a relevant factor in considering whether any supplier has SMP. In order to rebut any presumption of SMP arising from very high market shares, the buyer must be able to exert sufficient CBP that a seller is unable to act independently of its competitors, customers and consumers.

Regulation that is relevant to our assessment of CBP

- 6.59 Negotiations between market participants take place against a background of regulation (or threat of regulation). In undertaking an assessment of CBP, we must

²¹⁰ Commission staff working document, explanatory note: Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002.21.EC of the European Parliament and of the Council on a common regulatory framework for electronic communications and services, SEC(2007) 1483/2, 13 November 2007, p.25, http://ec.europa.eu/information_society/policy/ecomm/doc/library/proposals/sec2007_1483_final.pdf

take into account regulation that will continue to exist throughout the period of the market review but which is independent of an SMP finding in the relevant market.²¹¹ We consider that the following regulatory obligations are relevant (but not dependent on a finding of SMP in fixed call termination):

- Carrier pre-selection (CPS) obligations – The purpose of BT’s obligation to provide CPS services to other CPs is to stimulate competition in a range of markets downstream from call origination. This obligation weakens BT’s ability to threaten to cease purchasing fixed termination services from other CPs as consumers have the ability to switch to alternative providers of fixed calls if BT were to refuse to purchase call termination from some CPs.²¹² A threat by BT to cease purchasing termination is therefore unlikely to prove effective.
- BT’s end-to-end connectivity obligation²¹³ – BT’s requirement to provide end-to-end connectivity reduces its CBP as it cannot refuse to purchase call termination from other CPs as long as the terms offered by these CPs are reasonable.
- Ofcom’s dispute resolution powers – As set out above, both the CPS obligations and the end-to-end connectivity obligations act as a constraint on BT’s ability to exercise CBP. Ofcom’s dispute resolution powers provide a further constraint in this regard by allowing timely intervention in the event that BT did not comply with those obligations.

6.60 These regulatory obligations, although outside of this market review, impact our SMP assessment of fixed call termination as they affect the CBP of BT when negotiating fixed termination rates with other CPs. The impact and details of these individual obligations are described in further detail in the 2009 wholesale review;²¹⁴ we have received no evidence, whether in response to the CFI or otherwise, to suggest that there has been any material change since that time.

Assessment of CBP

6.61 The precise CBP that each fixed CP has when negotiating with every other provider will vary to some extent. A detailed analysis of every bilateral negotiation would be extremely difficult to carry out in practice.²¹⁵ In the following paragraphs, we discuss why providers of fixed termination services are unlikely to have sufficient CBP to negate the market power of individual CPs which are the monopoly providers of wholesale termination services. Our analysis takes into account a Court of Appeal

²¹¹ This is the modified Greenfield test which was endorsed by the Court of Appeal in their Judgement in the case of *Hutchinson 3G v Office of Communications on Mobile Call Termination* of 16 July 2009. Available at: <http://www.catribunal.org.uk/237-645/1083-3-3-07-Hutchison-3G-UK-Limited.html>

²¹² In this review we are proposing to relax the CPS obligation on BT so that BT would no longer be required to provide CPS over lines provided by BT Retail. This is unlikely to have any impact on BT’s CBP since the main reason for this change is that most CPs now purchase CPS with WLR for which the CPS obligation remains unchanged.

²¹³ Ofcom, *End-to-end connectivity* (statement), 13 September 2006, http://stakeholders.ofcom.org.uk/binaries/consultations/end_to_end/statement/statement.pdf

²¹⁴ Ofcom, “*Review of the fixed narrowband services wholesale markets*”, 19 March 2009, paragraph 7.50-7.58, page 92-93,

http://stakeholders.ofcom.org.uk/binaries/consultations/review_wholesale/summary/fnwm.pdf

²¹⁵ We discuss the difficulty of doing this in the 2011 MCT Statement, paragraph 4.71, page 77-78.

judgement²¹⁶ which sets the evidential threshold required for any finding of CBP to be sufficient to constrain any SMP that a terminating operator may have.

BT

- 6.62 As the largest holder of geographic numbers²¹⁷ and the provider whose network terminates the majority of retail calls²¹⁸, it is appropriate to consider initially whether its monopoly in termination is offset by the countervailing buyer power of the purchasers of its fixed geographic call termination services.
- 6.63 Given BT's importance in the market, we consider that other fixed CPs have very little CBP when negotiating to purchase fixed call termination from BT as they require BT's termination service in order to offer a credible service to their customers who expect to be able to contact any other consumer irrespective of which CP they are contracted to. This implies that, in the absence of regulation, Ofcom would not expect other fixed CPs to have sufficient CBP to negate BT's SMP.
- 6.64 As with fixed CPs, MCPs require termination on the BT network to offer a credible service to customers. Given that the four largest MCPs are of a large scale relative to non-BT fixed CPs, MCPs may be able to exert CBP against BT by threatening to raise wholesale mobile call termination rates to BT if they believed BT rates to be too high. However, MCPs are subject to cost-based regulation and therefore the scope for MCPs to engage in such activity is negligible. MCPs therefore have limited CBP with respect to BT which would call into question a finding of SMP in wholesale fixed geographic call termination for BT.
- 6.65 Therefore, we consider that other fixed and mobile CPs do not have sufficient CBP to negate BT's SMP in the market for wholesale fixed call termination.

Other CPs

- 6.66 Despite their relatively small size, we consider that there are commercial and regulatory reasons why FCPs have SMP when negotiating fixed termination rates with BT. Whilst BT, as the largest holder of geographic numbers, is an essential trading partner for FCPs wishing to offer a retail service, its ability to refuse to provide termination on its own network or to refuse to purchase termination from other CPs is limited by regulation. BT's end-to-end connectivity obligation requires BT to purchase call termination from CPs at fair and reasonable rates. BT is therefore limited in its ability to force lower termination rates from smaller CPs (for example by refusing to open its number ranges).
- 6.67 In addition, BT as a transit operator has an incentive to connect with new providers, a necessary condition for winning transit business with these providers. This suggests that it is unlikely that BT would have sufficient CBP vis-a-vis other CPs in order to negate their SMP.

²¹⁶ *Hutchinson 3G UK Limited v Office of Communications (Mobile Call Termination)*, Court of Appeal, Case no. C1 2008/1932, EWCA Civ 683, 16 July 2009, http://www.catribunal.org.uk/files/CofA_Judgement_1083_H36_16.07.09.pdf.

²¹⁷ Data from our quarterly telecommunications update indicates that BT held a 46.3% market share of retail fixed lines (a proxy for the amount of number ranges in use) in Q1 2012, down from 50.1% a year earlier. The CP with the next largest retail share in Q1 2012 was Virgin Media with 14.1%.

²¹⁸ In 2011, around [X] % of the total volume of retail calls were terminated on the BT network (calculated by summing BT's call termination volumes and comparing to total retail call volumes).

- 6.68 We consider it unlikely that non-BT CPs have strong CBP in relation to each other. The existence of BT as a transit provider should mean that even if a large CP were to attempt to influence negotiations with a smaller CP, the smaller CP would be able to indirectly connect with the large CP instead by transiting calls through BT who would effectively be negotiating the termination rate on its behalf. This is because CPs have the option of either, a) directly interconnecting with the terminating CP, negotiating the termination rate bilaterally; or b) transiting their traffic via BT for a fee and effectively allowing BT to negotiate the termination charge on their behalf.
- 6.69 BT's role as a transit operator should act as a ceiling to the termination rate that originating CPs are willing to pay as they will always have the alternative choice of transiting through BT (and paying the transit price plus the termination rate which BT and the terminating CP have negotiated between themselves) if the price offered by the terminating CP in bilateral negotiations with the other CP is in excess of this. Conversely, it should also act as a floor on termination rates in bilateral negotiations as terminating providers will be less likely to agree to setting charges far below the rate offered to BT as they know they could receive a higher fee if the originating CP were to transit via BT. This is consistent with our analysis in the 2011 MCT Statement where we conclude that the overwhelming majority of CPs are unlikely to have sufficient CBP to negate the market power of others.²¹⁹
- 6.70 Even if larger CPs were able to exert CBP over smaller CPs and obtain lower termination rates, there is no mechanism to transmit these lower termination rates to separate bilateral negotiations with other non-BT CPs which do not possess CBP. In light of the above conclusions, we do not consider that considerations of CBP are sufficient to counter a finding of SMP with respect to the supply of wholesale fixed geographic call termination services by non-BT providers.

Conclusion on market power

- 6.71 Our provisional conclusion is that each CP has SMP in the market for fixed geographic call termination to their number range.²²⁰
- 6.72 We note that in our CFI we asked stakeholders whether they considered that there had been any changes to the market for fixed call termination which would be relevant in our assessment of SMP. None of the respondents considered that there had been any changes to the market since the previous wholesale review²²¹ where we concluded that all CPs had SMP in the provision of fixed call termination services.

Competition concerns

- 6.73 We have identified three main competition concerns in relation to CPs having SMP in the market for fixed termination:
- CPs would have the ability to refuse access to termination services. This could reduce the ability of other CPs to offer their customers end-to-end calls to all geographic numbers in the United Kingdom and, in turn, restrict competition in the provision of retail offers;

²¹⁹ Ofcom, "Wholesale mobile voice call termination - statement", 15 March 2011, paragraph 4.82-4.92, page 80-81, <http://stakeholders.ofcom.org.uk/consultations/mtr/statement>

²²⁰ A list of these providers is given in Annex 6 (schedule 3).

²²¹ With the exception of a number of providers which proposed that the market definition should be extended to include non-geographic numbers. We believe that doing this would have no material impact on our assessment of SMP.

- CPs would be able to price discriminate between other CPs by setting higher charges for some CPs than others, in particular where a wholesale provider of termination services favours its own downstream retail operation. This would lead to a situation where the market is distorted and some otherwise efficient operators may be forced to set retail prices above the competitive level, distorting competition at the retail level to the detriment of consumers; and
- CPs would be able to set excessive prices for wholesale call termination. The excess profits that CPs earn from charging excessive termination prices are unlikely to be fully passed on to their consumers.²²² Consumer choices may be distorted by higher retail prices for some services resulting from increased termination rates.

6.74 To address these concerns, we propose to impose a number of remedies on CPs that offer fixed call termination services.

Remedies

6.75 Before setting out the specific remedies, we first discuss our approach to setting these remedies.

6.76 As a result of its large access network and holding of number ranges we consider it necessary to treat BT differently to other fixed CPs when considering which remedies to impose. This is because the distortions of competition resulting from BT engaging in the activities set out above are likely to be greater than the distortions which might result from such actions taken by other providers.

Proposed approach to the regulation of BT's provision of wholesale fixed termination services

6.77 In this section we set out our proposals for remedies to address our concerns. We start by discussing what we see as the main options for remedies:

- Option 1: network access, non-discrimination and transparency remedies ; and
- Option 2: price controls in addition to network access, non-discrimination and transparency remedies.

Option 1 (access and non-discrimination obligations)

6.78 We propose to require BT to provide network access on reasonable request. This remedy is intended to address our concern discussed above (at paragraph 6.76) that, in the absence of regulatory remedies to provide wholesale fixed termination to those that require it, BT could restrict access to other providers (either by offering termination on unfair terms or by simply refusing to supply it).

6.79 We also propose to impose regulation on BT to ensure that it does not unduly discriminate between its own internal use of call termination and rival CPs. In the absence of an obligation not to unduly discriminate, BT would have a strong incentive

²²² In more technical terms, the 'waterbed effect' (which refers to the situation where a change in one set of prices leads to changes in prices in a different part of the market) is unlikely to be 100% complete. Paragraphs 7.44 to 7.54 of the 2011 MCT Statement discuss the waterbed effect (including the empirical evidence) in the mobile sector.

to discriminate in favour of its own retail businesses, by offering more favourable terms which would give them a competitive advantage over third party CPs.

- 6.80 In order to promote transparency, so that it is possible to ascertain whether BT is complying with these two requirements, we propose two additional requirements: a requirement to publish a reference offer and a requirement to notify charges. Without these obligations, BT could change products or pricing with insufficient or no notice to its wholesale customers with the intent of discriminating in favour of its retail divisions.
- 6.81 We also consider it necessary to retain an accounting separation requirement on BT in order to allow Ofcom, and third parties, to monitor its activities to ensure that it does not discriminate in favour of its own downstream business.

Option 2 (Option 1 plus price controls)

- 6.82 Option 1 sets out that, in order to secure supply of wholesale fixed termination services on terms that allow CPs to compete in the retail market, we consider that a number of general (access and non-discrimination) remedies are required. We now consider whether additional remedies are necessary to address our concerns in relation to potential excessive pricing.
- 6.83 We consider that, although the remedies set out in Option 1 ensure that CPs can purchase wholesale fixed termination services, BT would still have the ability to increase the price of this service to impact the ability of other CPs to compete at the retail level. If BT increases the price of wholesale call termination, CPs have no option to purchase wholesale termination to BT from elsewhere and would, therefore, have no choice but to purchase this service at the price quoted by BT.
- 6.84 Whilst the remedies proposed under Option 1 may imply some constraint on BT's pricing of wholesale call termination, we do not consider that this would be sufficient to constrain BT's ability to set prices above the competitive level. Therefore, we propose (under Option 2) to augment the general remedies described in Option 1 by imposing an additional pricing remedy to constrain BT from setting excessive prices for termination services.
- 6.85 In our view a cost-based price remedy would be appropriate to ensure charges reflect the costs of an efficient operator, as a proxy for the level of charges which could be expected in a competitive market. There are a number of price remedies available to achieve this objective, including charge controls and cost orientation. In considering the form of the price control, we must also take utmost account of relevant EC Recommendations. In Section 8 we have considered what cost standard is appropriate to determine the efficient level of costs for the United Kingdom market when setting cost-based regulation and propose to use LRIC, consistent with the 2009 EC Recommendation.
- 6.86 We do not believe that cost orientation (or another form of price control such as a safeguard cap) would be an appropriate form of price control in call termination markets. This is because cost orientation as previously used sets DLRIC as a floor and allows prices up to DSAC, and a safeguard cap would typically be based on an RPI-RPI or RPI-0 cap from the current prices, which are based on LRIC+. We therefore believe that a charge control is the most appropriate remedy for BT's call termination.

- 6.87 A charge control would also address the risk of BT setting excessive prices for wholesale fixed termination.
- 6.88 A charge control would also provide certainty for purchasers of BT's wholesale fixed termination product in that the maximum price which they could be charged would be transparent for the period of the review. It would also provide BT with an incentive to improve its efficiency as any cost reductions resulting from efficiency improvements beyond those included in the charge control would be retained by BT.²²³ A charge control with transparent, easy to monitor compliance conditions can help ensure that BT does not abuse its dominant position to the detriment of other CPs and, ultimately, consumers.
- 6.89 Having proposed to set a cost-based charge control, the appropriate cost-base to use for the charge control is considered further in Section 8 where we provisionally conclude to set wholesale call termination rates on the basis of LRIC. To ensure that we have the information necessary to set, monitor and review charge control obligations, we propose to impose a cost accounting remedy alongside the price control remedy.

Proposed approach to the regulation of non-BT CPs' (including KCOM) provision of wholesale fixed termination services

- 6.90 Whilst we have previously treated KCOM in a different manner to BT and other CPs, we now propose to treat KCOM in the same manner as all other CPs (other than BT) in the market for wholesale geographic fixed call termination in this review. We do not consider KCOM's network in the Hull area gives it any more (or less) market power than other non-BT CPs in the provision of wholesale call termination services with respect to numbers that it has been allocated.
- 6.91 As explained above (in paragraphs 6.69 to 6.73) we consider it necessary to impose regulation on non-BT CPs due to their SMP in the termination of wholesale fixed termination services to their number ranges and the associated potential harm arising from this (as we discussed at paragraph 6.76).
- 6.92 Consistent with the regulatory framework for electronic communications, and United Kingdom domestic legislation, Ofcom's proposals aim to address relevant risks of adverse effects arising from price distortion as a result of significant market power (SMP) in the non-BT wholesale fixed termination markets, and to set conditions that promote efficiency and sustainable competition and confer the greatest possible benefits on end-users of the relevant services.
- 6.93 Ofcom's proposals must also be consistent with its general duties as an NRA. These include that the proposals be transparent, proportionate, consistent and targeted only at cases where action is needed. Ofcom's proposals have been prepared taking utmost account of the Commission's 2009 Recommendation, which includes that fixed termination rates should be:
- a) set at LRIC;

²²³ Under our preferred method of charge control regulation (RPI +/- X), the dominant CP is incentivised to increase its efficiency, thereby imitating the effect of a competitive market. If the firm can reduce its costs below the level expected when the cap was set, then the firm retains the increased profits, at least for the period the control is in place.

- b) use a cost model based on the most efficient available technology (which in principle could be NGN), and;
- c) symmetric (the same for all CPs, unless a different FTR is objectively justifiable and due to factors outside of the CPs control)

6.94 As above, in this section we set out our proposals for remedies to address our concerns. We start by discussing what we see as the main options for remedies:

- Option 1: general access remedies on fair and reasonable terms and conditions;
- Option 2: general access remedy on fair and reasonable terms, conditions and charges, with guidance; and
- Option 3: other price controls in addition to the general access remedies.

6.95 Having discussed the approach that we consider to be most appropriate, we then discuss each specific condition in relation to whether it meets the relevant legal tests for imposing such conditions.

Option 1 (access obligation: fair and reasonable terms and conditions)

6.96 As discussed above (at paragraph 6.76), absent regulation, some CPs would have both the incentive and ability to restrict access to their wholesale fixed termination services to other CPs. This could in turn distort or restrict competition in the provision of retail offers. This access obligation would require non-BT CPs to provide network access on reasonable request at fair and reasonable terms and conditions.

6.97 However, non-BT CPs would still have the ability to increase the price of this service to impact the ability of other CPs to compete at the retail level. If a given CP increased the price of the wholesale call termination service that it offers, other CPs have no option to purchase these services from elsewhere and would, therefore, have no choice but to purchase this service at the increased price. We therefore do not believe that access on fair and reasonable terms and conditions would be sufficient to address our competition concerns in relation to these markets.

Option 2 (access obligation: fair and reasonable terms, conditions and charges, with guidance)

6.98 This access obligation would require non-BT CPs to provide network access on reasonable request at fair and reasonable terms, conditions and charges. We would also provide guidance on our likely interpretation of fair and reasonable charges in the event of a dispute.

6.99 Since 2003,²²⁴ the United Kingdom has regulated non-BT fixed termination services by:

- a) setting a charge control on the incumbent operator;
- b) setting an SMP condition on each other operator to ensure that wholesale fixed termination services prices are “fair and reasonable” – today, there are 179 smaller providers of fixed call termination in the United Kingdom; and

²²⁴ Review of fixed geographic call termination markets, 28 Nov 2003
<http://stakeholders.ofcom.org.uk/binaries/consultations/750148/Eureviewfinala1.pdf>

- c) industry guidance on interpreting “fair and reasonable”: in April 2011, Ofcom published guidance that fixed termination rates that are no higher than the BT controlled rates (symmetric) will be presumed to be reasonable (‘F&R Guidance’).²²⁵ Previously, CPs relied upon industry based agreements (‘Reciprocity Agreements’).²²⁶
- 6.100 Under the 2011 F&R Guidance, higher fixed termination rates are not exhaustively excluded but, in resolving disputes concerning fixed termination rates, Ofcom would only set higher rates in limited circumstances. Since the publication of the 2011 F&R Guidance, no disputes concerning fixed termination rates have been referred to Ofcom.
- 6.101 This approach reflects the EC Explanatory Note for the 2009 EC Recommendation. The 2009 EC Recommendation recognises that there may be objective cost differences outside the control of the operators which would justify a deviation from a single efficient cost level. Whilst the Commission indicates that, in fixed networks, no such objective differences have been identified, the 2009 EC Recommendation does not exclude this possibility.
- 6.102 Ofcom has also not, at this stage, identified any objective differences in fixed networks. We have however, in line with the 2009 EC Recommendation, left open the possibility that operators may have objective cost differences outside their control which would justify a different approach by indicating this in our guidance. Under this Guidance, individual operators must justify any deviation from the charge controlled rates in line with the 2009 EC Recommendation and the guidance.
- 6.103 This approach has led to fixed termination rates in the United Kingdom which are symmetrical. Compared with an approach of setting a charge control on each of the 179 operators, this approach better meets the requirement of proportionality (it is less intrusive but secures the policy objective equally effectively) and efficiency (it saves incurring the increased costs of additional market analysis and regulatory compliance associated with the imposition of charge control or cost orientation obligation which we consider would be disproportionate as they would be high relative to termination revenues for most CPs, and would ultimately be borne by United Kingdom consumers).
- 6.104 We therefore propose to implement an obligation to provide access on fair and reasonable terms and conditions, in conjunction with guidance fair and reasonable fixed termination rates.
- 6.105 In order to promote transparency in relation to this access obligation we also propose to impose a requirement for CPs to notify charges. This should enable us, and third parties, to check compliance with this requirement.
- 6.106 We do not propose to impose an obligation not to discriminate on CPs other than BT. We do not consider that the ability of non-BT CPs to favour their own vertically integrated retail businesses is significant to the extent that it might lead to competitive

²²⁵ *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011
<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

²²⁶ The Reciprocity Agreement was renewed periodically, and the last one expired in September 2009
https://www.btwholesale.com/pages/static/Library/Pricing_and_Contractual_Information/Reciprocity_index.htm

distortions.²²⁷ We consider that, currently, this also holds true in relation to KCOM. Whilst, absent regulation, CPs other than BT (including KCOM) could offer call termination at high prices, we consider that this concern is appropriately addressed by the imposition of a fair and reasonable obligation. We consider that, given the above, such obligation appropriately addresses our competition concerns in relation to CPs other than BT, including KCOM.

Option 3 (Option 1 plus other price controls)

- 6.107 There are a number of price remedies available to address the identified competition concerns in relation to these markets, including charge controls and cost orientation. As set out in relation to BT, a charge control would have the advantage of ensuring that non-BT CPs could not price excessively for wholesale call termination, and could also be designed to meet the objectives outlined in paragraphs 6.96 to 6.97 above.
- 6.108 However, a charge control is likely to require an assessment of the costs of all 179 CPs to ensure that these networks did not have costs that would represent objectively justifiable deviations from symmetry. Such an exercise is likely to be very costly, in terms of time and resources for us and the smaller CPs in question. The implementation of the control could require significant information gathering from smaller CPs, which would represent a significant resource cost in relation to the size of most of the affected CPs. Furthermore, a charge control might require CPs to invest in systems to support compliance with the control and any regulatory reporting requirements. These regulatory costs on non-BT CPs are therefore likely to be disproportionate since they would be high relative to termination revenues for a large number of CPs and, ultimately, this cost would be borne by consumers.
- 6.109 We have also considered whether a cost orientation obligation could be an appropriate form of price control for non-BT CPs FTRs. However, cost orientation as generally applied within the United Kingdom would not be consistent with our proposal to calculate BT's charge control on the basis of LRIC costs (nor with the 2009 EC Recommendation). This is because cost orientation as applied in the United Kingdom has allowed flexibility in pricing in the range between (adjusted) incremental and stand alone costs – which would not ensure symmetry of FTRs at LRIC. Cost orientation for non-BT CPs, as generally applied in the United Kingdom, might also be considered discriminatory against BT.
- 6.110 We do not therefore consider that a price control would be proportionate in these markets where we have identified an alternative means of achieving our regulatory objectives which would be less onerous for those subject to the obligation (see paragraphs 6.103 to 6.107 above). The following table provides a summary of our proposed remedies. We then discuss the rationale for each remedy in more detail.

²²⁷ This is the same position as in the 2009 Market Review. See Paragraph 6.31, Ofcom, *Review of the fixed narrowband services wholesale markets: Further statement on wholesale transit markets and remedies in the wholesale call termination market*, February 2010, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/statement/statement.pdf

Table 6.2: Proposed remedies for wholesale call termination markets

| CP | Obligations |
|--|---|
| BT | Requirement to provide network access on reasonable request Requirement not to unduly discriminate Charge control Requirement to publish a reference offer Requirement to notify charges Requirement to notify technical information Cost accounting Accounting separation |
| All other CPs with SMP in the provision of wholesale call termination services (including KCOM) ²²⁸ | Requirement to provide network access on reasonable request Requirement to notify charges |

Conditions we propose for BT

6.111 We now set out the specific remedies we are proposing to impose on BT and the relevant legal tests associated with them.

Requirement to provide network access on reasonable request

6.112 We propose to retain the condition requiring BT to meet reasonable requests for network access in the wholesale call termination market. Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as it may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and that conditions are complied with within the periods and at the times required.

6.113 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the Act, including, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access.

Aim of regulation

6.114 This remedy is designed to promote competition in downstream markets by requiring providers with SMP to provide wholesale access to their network facilities. In the absence of such requirement, BT could refuse to provide access to its network or could do so on unreasonable terms. As a result of this, customers with services from a CP other than BT may not be able to connect with customers on the BT network. As BT terminates the largest number of calls on its network, this would be likely to have a material effect on competitors and consumer choice.

²²⁸ For a full list of relevant CPs, see Annex 6 (schedule 3).

Proposed condition

- 6.115 The proposed condition will require requests made to BT for access to be 'reasonable' requests. The condition will also require BT to provide network access in response to such a reasonable request and that access should be provided on fair and reasonable terms, conditions (excluding charges).
- 6.116 As we also propose to impose a charge control on BT's provision of wholesale call termination, we propose to exclude the requirement to provide services at fair and reasonable charges from this condition. This is because we consider that a charge control is sufficient to address our competition concerns so that additional pricing regulation is not required. Indeed the requirement for charges to be both "fair and reasonable" and compliant with the charge control might lead for regulatory uncertainty for both BT and purchasers of wholesale call termination.

Legal tests

- 6.117 We have considered our duties under section 3 of the Act. We consider that this proposed condition furthers the interests of consumers in relevant markets by the promotion of competition.
- 6.118 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. The proposed condition would promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficient and sustainable competition in markets for electronic communication services.
- 6.119 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:
- objectively justifiable in that it relates to the need to ensure that competition develops to the benefit of consumers. Without this obligation, BT would be able to restrict consumers on other CPs' networks from calling consumers on its network, and this is likely to mean that the services provided by these other CPs are not viable;
 - not unduly discriminatory as it is imposed on BT. As discussed later in this section, all other fixed CPs who have SMP in fixed geographic call termination have a similar condition, the only difference relating to charges. This is due to the scale of BT which means we also propose a charge control for BT, but not for other CPs;
 - proportionate, in that it is the least restrictive means of ensuring that BT is unable to refuse to provide access to wholesale fixed geographic call termination services to other CPs which would distort competition at the downstream level; and
 - transparent as it is clear in its intention to ensure that BT provides access to its network to facilitate competition.

Requirement not to unduly discriminate

- 6.120 We propose to retain the condition on BT not to unduly discriminate in relation to the provision of network access.

- 6.121 Section 87(6)(a) of the Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons, or against a particular description of persons, in relation to matters connected with the provision of Network Access.

Aim of regulation

- 6.122 We consider that in order to meet our objective to promote efficient and sustainable competition at the wholesale level, a non-discrimination SMP condition is necessary.
- 6.123 BT is a vertically integrated firm which offers fixed call services at both the retail and wholesale levels. We consider that, in the absence of an obligation not to unduly discriminate, BT would have an incentive to discriminate in favour of its own retail businesses by offering more favourable terms which would give them a competitive advantage over other CPs and have a material adverse effect on competition.²²⁹
- 6.124 Therefore, we propose to impose a condition on BT which would prevent it from favouring its own businesses and/or some CPs, to the disadvantage of other CPs.

Legal tests

- 6.125 We have considered our duties under section 3 of the Act. We consider that the proposed condition furthers the interests of consumers in relevant markets by the promotion of competition at the retail level.
- 6.126 We consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. The proposed condition encourages the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition in the retail markets for access and calls by ensuring that BT does not unfairly favour its own retail businesses and/or some CPs and therefore distort competition.
- 6.127 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:
- objectively justifiable as it ensures that competitors, and hence consumers, are not disadvantaged by BT discriminating in favour of its own retail business or between its own different activities;
 - not unduly discriminatory against BT, in that it reflects the circumstances of BT (in particular, its level of vertical integration), and its potential for using market power in termination to distort competition in other related markets;
 - proportionate in that in that it is the least restrictive means of ensuring that BT does not discriminate in favour of its own downstream operations in providing access to wholesale fixed geographic call termination services in a manner which would distort competition at the downstream level; and
 - transparent as it is clear that the intention is to prevent undue discrimination.

²²⁹ They might also have an incentive to discriminate between competing CPs depending on the competitive strength of the providers at the retail level.

Charge control

6.128 In the absence of regulation, BT would have an incentive to charge excessive prices for wholesale fixed termination. We therefore believe that a price control on wholesale fixed call termination is required, and that a charge control (RPI-X) is proportionate. Details of the proposed charge control can be found in Section 11.

Proposed condition

6.129 BT is currently subject to a charge control for wholesale call termination. In Section 11, we explain the proposed charge control design. As set out in paragraph 6.92, our preferred method of charge control regulation (RPI+/-X) would create incentives on BT to increase its efficiency, thereby imitating the effect of a competitive market.

Legal tests

6.130 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:

- objectively justifiable in that it requires BT to provide wholesale fixed termination services at an efficient price. Without the proposed price controls, BT might price excessively. The benefits expected of a competitive market would not be available to consumers without the imposition of RPI+/-X price controls.
- not unduly discriminatory as it reflects the scale of BT's access network and thus its role as a provider of fixed geographic call termination services to other CPs. While we have not directly imposed a price control on other providers of termination services in the United Kingdom, we consider that the prices they set are adequately constrained by the obligations that they provide access on fair and reasonable terms (discussed in paragraphs 6.172 to 6.184), and our Guidance that describes how we would interpret that guidance in the event of a dispute;
- proportionate in that it is the least restrictive means of ensuring that BT is not able to charge for wholesale fixed geographic call termination services at prices above the competitive level. The obligation ensures BT has the correct incentives to improve efficiency which leads to benefits that would be expected in a competitive market, but allows BT to benefit from any further improvements in its efficiency; and
- transparent in that it is clear in its intention to control BT's charges while creating efficiency incentives.

6.131 In addition to the tests set out in Section 47(2) of the Act, we also consider that the proposed condition satisfies the tests set out in section 88 of the Act.

6.132 Section 88(1)(a) of the Act requires that Ofcom must not impose price control conditions unless it appears to them from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. We explained above that we consider that in the absence of charge controls BT may price excessively, and therefore that there is such a risk of adverse effects.

6.133 Section 88(1)(b) of the Act requires that the charge control condition should be appropriate for the purposes of:

- i) promoting efficiency;
- ii) promoting sustainable competition; and
- iii) conferring the greatest possible benefits on the end users of public electronic communications services.

- 6.134 We believe that the structure of the proposed charge control provides BT with incentives to improve efficiency, since it retains any savings from improved efficiency that reduces its costs below this level over the period of the control.
- 6.135 We also consider that the obligation will continue to promote sustainable competition by allowing CPs to purchase wholesale call termination services at prices which allow them to compete effectively at the retail level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end users of the services.
- 6.136 Section 88(2) requires us to take account of the extent of the investment when setting this type of condition. Whilst we are proposing to set wholesale call termination rates for BT on the basis of pure LRIC, termination is part of a two-sided market which provides the opportunity to recover costs from the non-terminating side (i.e. BT's own subscribers). Because we require BT to provide regulated wholesale call origination services (and control the prices it can set for this) we are also proposing to allow BT to recover those common costs that would no longer be recovered from call termination, from wholesale call origination prices. We believe (for the reasons set out in Section 8) that BT will continue to have the ability and incentive to invest, following the imposition of a charge control.
- 6.137 We have considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.
- 6.138 In particular we have sought to propose a charge control that furthers the interests of consumers by promotion of competition. We have sought, through the charge control, to secure efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation, combined with our proposal to set charges at LRIC, will ensure that the charges for wholesale call termination by BT are set at the level we would expect in a competitive market.
- 6.139 We have considered the Community requirements set out in section 4 of the Act and believe that the proposed condition meets the requirements. Specifically, we believe that section 4(8) is met, where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by setting a charge control that seeks to ensure that prices will be in line with those that we would expect to prevail in a competitive market.

Transparency

- 6.140 Ofcom considers that it is appropriate to ensure that there is transparency of charges, terms and conditions in a market in which an undertaking is found to hold SMP. In the absence of requirements obliging BT to publish this information, they might offer differential charges, terms and conditions to both its downstream division and also between providers. Third party providers would not be able to check that they were being charged an equitable rate, or that the terms and conditions that they were offered were also equitable.

6.141 Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a dominant provider to publish all such information, and in such manner as Ofcom may direct, for the purpose of securing transparency. Section 87(6)(c) of the Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract. Section 87(6)(d) also permits the setting of SMP services conditions requiring the dominant provider to include specified terms and conditions in the reference offer. Finally, section 87(6)(e) permits the setting of SMP services conditions requiring the dominant provider to make such modifications to the reference offer as may be directed from time to time.

6.142 We propose to impose the following obligations to provide transparency:

- Requirement to publish a reference offer;
- Requirement to notify charges; and
- Requirement to notify technical information.

Requirement to publish a reference offer

6.143 We propose to retain the condition on BT to publish a reference offer (RO) for wholesale call termination services and products.

Aim of regulation

6.144 We consider that requiring BT to publish a reference offer assists with transparency in monitoring for potential anti-competitive behaviour and provides visibility to the terms and conditions on which other CPs would be able to purchase wholesale fixed termination services. The publication of a reference offer is particularly important in the case of BT as all CPs, either directly or indirectly, have to buy wholesale call termination services from it. It will help to ensure stability in markets and ensure that incentives to invest would not be undermined.

6.145 Additionally, the publication of a RO allows for speedier negotiations and can help to avoid possible disputes. Together with a non-discrimination requirement, the publication of a RO gives confidence to those purchasing wholesale services that they are being provided on non-discriminatory terms.

Proposed changes to existing condition

6.146 In the 2009 market review, we required BT to include information relating to network components in the RO. In this review we propose to remove this specific obligation, on the basis that we no longer consider that this information is required in order to assist CPs in monitoring for potential anti-competitive behaviour by BT, or to provide transparency that would allow CPs to make better informed decisions regarding purchasing wholesale call termination.

Proposed condition

6.147 We consider that it is appropriate for the published RO to include:

- a clear description of the services on offer;

- terms and conditions including charges and ordering, provisioning, billing and dispute resolution procedures. The RO should provide sufficient information to enable providers to make technical and commercial judgements such that there is no material adverse effect on competition; and
- conditions relating to maintenance and quality (service level agreements and guarantees). The inclusion of service levels, as part of the contractual terms of the RO, that provides for a minimum acceptable level of service, will ensure that services are provided in a fair, reasonable, timely and non-discriminatory fashion.

Legal tests

- 6.148 We have considered our duties under section 3 of the Act. We consider that the proposed condition furthers the interests of consumers in relevant markets by the promotion of competition.
- 6.149 We consider that the proposed condition meets the Community requirements set out in section 4 of the Act. In particular, the proposed condition promotes competition and encourages the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition for the maximum benefit of consumers.
- 6.150 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:
- objectively justifiable in that it gives sufficient notice of wholesale pricing changes to competing providers, which is necessary to ensure CPs can adjust their own offerings in a timely manner ;
 - not unduly discriminatory as it reflects the scale of BT's access network and thus its important role as a provider of fixed geographic call termination services to other providers;
 - proportionate in that only information that other network providers would need to know in order to adjust for any changes would have to be notified; and
 - transparent as it is clear the obligation is designed to ensure that BT notifies those who purchase wholesale call termination of changes to charges, which helps to ensure stability in the market.

Requirement to notify charges

- 6.151 We propose to retain the condition on BT to publish any planned changes to charges in advance of those changes taking place.

Aim of regulation

- 6.152 Notification of changes to services at the wholesale level can further assist competition, as it means other CPs have the opportunity to consider whether these changes require amendments to their own retail offerings and are able to respond in a timely manner.
- 6.153 We consider that in the absence of an obligation to provide advance notification of changes to charges, providers of retail services would have insufficient time to restructure their retail prices as a result of a change in the costs at the wholesale

level. This could result in prices being either too high if the wholesale costs decreased or too low if the wholesale costs increased. This would therefore lead to over- or under- recovery of costs, and potentially cause competitive concerns.

Proposed condition

6.154 We consider that the notice should include:

- A description of the access service;
- The location of terms and conditions in the RO;
- The effective date or period from which the changes will have effect;
- The current and proposed charge;
- Other charges for services that would be directly affected by the proposed change; and
- The network tariff gradient.

Proposed change to notification periods

6.155 This remedy was imposed on BT in the 2009 market review, with a 90 day notice period before any proposed changes would be effective.

6.156 However, use of electronic communication means that price notifications can now be almost instantaneous. Responses to the CFI reflect a general consensus that price notification periods for wholesale call termination services could be shortened to reflect that notifications can be made much more quickly. Specifically, most CPs agree that a 56 day notification period would allow sufficient time for them to adjust their own prices accordingly, without incurring any commercial risk.

6.157 In line with our proposals for wholesale call origination services, therefore, we propose to reduce the notification period for changes to wholesale call termination charges from 90 days to 56 days.²³⁰

Legal tests

6.158 We have considered our duties under section 3 of the Act. We consider that the proposed condition furthers the interests of consumers in relevant markets by the promotion of competition.

6.159 We consider that the proposed condition meets the Community requirements set out in section 4 of the Act. In particular, the condition promotes competition and secures efficient and sustainable competition for the maximum benefit of consumers by ensuring that providers have the necessary information to allow them to make informed pricing decisions for their retail offers.

6.160 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:

²³⁰ During an initial two-month period, BT will not be subject to such a requirement in order to ensure that it is able to adjust its charges to take account of the new charge control.

- objectively justifiable in that it gives sufficient notice of wholesale pricing changes to competing providers, which is necessary to ensure CPs can adjust their own offerings in a timely manner;
- not unduly discriminatory as it reflects the scale of BT's access network and thus its important role as a provider of fixed geographic call termination services to other providers;
- proportionate in that only information that other network providers would need to know in order to adjust for any changes would have to be notified; and
- transparent as it is clear that the intention is to ensure that BT notifies those who purchase wholesale call termination of changes to charges, which helps to ensure stability in the market.

Requirement to notify technical information

6.161 Ofcom proposes to impose a condition on BT to notify technical information in advance of providing new wholesale services or amending existing technical terms and conditions.

Aim of regulation

6.162 The aim of the obligation to provide advance notification of technical characteristics is to ensure that competing providers have sufficient time to respond to changes that may affect them. For example, a competing provider may need to introduce new equipment or modify existing equipment or systems to support a new or changed technical interface.

6.163 Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of network access and technical standards (including any usage restrictions and other security issues). Relevant information about network configuration is likely to include information about the function and connectivity of points of access, for example, the connectivity of exchanges to end users and other exchanges.

Proposed condition

6.164 The existing condition requires the notification of new technical information 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. We continue to believe that 90 days is the minimum time that competing providers would need to make modifications to their network to support changes.

Legal tests

6.165 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. It is:

- objectively justifiable as it enables competing operators to make full and effective use of network access. The period allows CPs time to react to proposed changes without imposing an unnecessarily long notification period on BT that may restrict their ability to develop and deploy new features or products;

- not unduly discriminatory as it reflects the scale of BT's access network and thus its important role as a provider of fixed geographic call termination services to other providers;
- proportionate in that 90 days is considered the minimum period necessary to allow competing providers to modify their networks; and
- transparent in that it is clear in its intention that BT notifies technical information.

6.166 We have also considered our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

6.167 We consider that, by ensuring that other CPs are given sufficient time to make any changes to technical specifications that might affect their businesses, the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

6.168 Further, we consider that, in line with section 4 of the Act, the proposed condition in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access and service interoperability for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

Cost accounting

6.169 We propose to retain the condition on BT to provide cost accounting data which is necessary for Ofcom to set, monitor and review charge control obligations for BT. Under sections 87(9) to 87(11) and 88 of the Act, appropriate cost accounting obligations may be imposed on dominant providers in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities.

Aim of regulation

6.170 We believe it is appropriate to retain cost accounting obligations for the following reasons:

- Cost accounting ensures we have the necessary information to support the monitoring of effectiveness of remedies, in particular to ensure that the price control remedies we propose in this consultation continue to address the competition problems identified, and to enable our timely intervention should such intervention ultimately be needed;
- Cost accounting also ensures we have the necessary information to support our market reviews. Our market reviews involve a forward-looking, structural evaluation of the relevant markets, based on existing market conditions. The information deriving from cost accounting obligations assists us in this evaluation, in particular, at the remedies stage in determining whether a form of price control (if any) should be imposed and, if so, what the appropriate price control should be;
- Cost accounting obligations further ensure that BT records all information necessary for the purposes listed above at the time that relevant transactions occur, on an ongoing basis. Absent such a requirement, there is a strong

possibility that the necessary information would not be available when it is required, and in the necessary form and manner;

- The imposition of cost accounting obligations ensure that wholesale costs are attributed across the wholesale markets (and the individual services within them) in a consistent manner. This mitigates, in particular, against the risk of double recovery of costs or that costs might be loaded onto particular products or markets; and
- Publication of cost accounting information aids transparency, providing reassurance to stakeholders about compliance with SMP obligations, allowing stakeholders to monitor compliance and more generally enabling stakeholders to make better informed contributions to the development of the regulatory framework.

Proposed conditions

6.171 BT is required to comply with obligations governing cost accounting systems and processes as set out in an Ofcom statement published in 2004.²³¹ The outputs, relevant to this review, include:

- Preparation of a variety of financial statements;
- Preparation of extensive supporting documentation explaining how the financial statements have been put together;
- Provision of an independent assurance statement;
- Publication of most of the information; and
- Preparation of reconciliation statements.

We have set out in our Business Connectivity Market Review consultation of 15 November 2012 that we believe that where we no longer require cost orientation, BT should no longer publish DLRIC and DSAC figures (while continuing to provide such figures to Ofcom). We propose we follow the same approach in relation to cost accounting for wholesale call termination. We propose to implement this amendment in the directions which implement the cost accounting conditions in our annual update of BT and KCOM's regulatory financial reporting obligations.

Legal tests

6.172 We have considered our duties under section 3 of the Act. We consider that the proposed condition furthers the interests of consumers in relevant markets by the promotion of competition.

6.173 We consider that the proposed condition meets the Community requirements set out in section 4 of the Act. Specifically, section 4(8) where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic

²³¹ Ofcom, *The regulatory financial reporting obligations on BT and Kingston Communications, Final Statement and notification: Accounting separation and cost accounting*, July 2004, http://stakeholders.ofcom.org.uk/binaries/consultations/fin_reporting/statement/finance_report.pdf. Ofcom, *Changes to BT's regulatory financial reporting and audit requirements*, May 2007, <http://stakeholders.ofcom.org.uk/binaries/consultations/obligations/statement/statement.pdf>.

communication networks and services, by ensuring dominant providers comply with charge control remedies implemented to promote competition.

6.174 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:

- objectively justifiable because without such an obligation Ofcom and other CPs would not have access to the information needed to monitor the effectiveness of remedies and Ofcom would not have access to the necessary data to support our market reviews, for the reasons explained in paragraph 6.164 above;
- non-discriminatory as BT is the only CP on which we propose to impose a specific charge control requirement;
- proportionate since only information that is necessary to ensure the continuing effectiveness of price control remedies, and also that is necessary to support our market reviews, is required to be provided; and
- transparent in that it seeks to ensure we have the necessary information to support the monitoring of the effectiveness of charge control remedies and that which is necessary to support our market reviews.

6.175 Ofcom is also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act.

6.176 Section 88(1)(b) of the Act states that Ofcom are not to set an SMP condition falling within section 87(9) except where it appears from the market analysis that there is a relevant risk of adverse pricing effects arising from price distortion and it also appears that the setting of the condition is appropriate for the purposes of:

- i) promoting efficiency;
- ii) promoting sustainable competition; and
- iii) conferring the greatest possible benefits on the end users of public electronic communications services.

6.177 Section 88(2) also requires us to take account of the extent of the investment when setting this type of condition.

6.178 We have identified the risk of excessive pricing by BT in the wholesale call termination market and consider that, by supporting transparency and reassuring stakeholders, cost accounting obligations will encourage market entry. In this way, the obligations help to promote efficiency and sustainable competition. We have also taken account of the extent of the investment of BT in the matters to which the cost accounting obligations relate.

Accounting separation

6.179 We propose to retain the accounting separation obligation on BT in relation to the wholesale call termination market. Under section 87(7) and 87(8) of the Act, appropriate accounting separation obligations may be imposed on the dominant provider in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities.

Aim of regulation

6.180 The proposed accounting separation condition will require BT to account separately for internal and external 'sales'. This will allow Ofcom, and third parties, to monitor BT's activities to ensure that it does not discriminate in favour of its downstream business.

Legal tests

6.181 We have considered our duties under section 3 of the Act. We consider that the proposed condition furthers the interests of consumers in the relevant markets by the promotion of competition.

6.182 We consider that the condition meets the Community requirements set out in section 4 of the Act. Specifically, section 4(8), where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by ensuring dominant providers do not favour their own downstream businesses, thereby disadvantaging third party CPs.

6.183 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:

- objectively justifiable as it relates to the need to ensure competition develops fairly, to the benefit of consumers;
- non-discriminatory as BT holds a unique position where it has large market shares in the provision of both retail and wholesale voice services;
- proportionate as it is a necessary mechanism to allow us and third parties to monitor potentially discriminatory behaviour by dominant providers; and
- transparent as it is clear the intention is to monitor compliance with specific remedies and the particular accounting separation requirements of BT are clearly documented.

Conditions we propose for all other CPs (including KCOM)

6.184 We now set out the specific remedies we are proposing to impose on non-BT CPs (including KCOM) and the relevant legal tests associated with them.

Requirement to provide network access on reasonable request

6.185 We propose to impose a condition which requires fixed CPs (other than BT) to provide network access and to do so on fair and reasonable terms, conditions, and charges. It also requires relevant fixed CPs to provide such network access as we may from time to time direct, and allows us to make a direction under this condition.

6.186 Our 2011 statement on fair and reasonable charges²³² provides guidance on what constitutes fair and reasonable charges and sets out our view that termination rates set at a higher level than BT's rates are unlikely to be fair and reasonable (regardless of technology). We concluded that termination rates set above BT's rates (which we

²³² Ofcom, "Fair and Reasonable Charges for Fixed Geographic Call Termination", 27 April 2011, <http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

called the Benchmark FTR) are only likely to be reasonable if they meet the three stage test outlined in the guidance (see Section 8). We have updated the guidance in Annex 15 to reflect that it now also applies to KCOM, following our decision to treat KCOM in the same manner as all other CPs (other than BT), however, the guidance remains substantively the same.

Aim of regulation

6.187 This remedy is designed to promote competition in downstream markets by requiring providers with SMP to provide wholesale access to their network facilities. Ofcom considers that in the absence of such a requirement, the dominant provider may have an incentive not to provide wholesale call termination services.

Proposed condition

6.188 The proposed condition will only require CPs to provide wholesale call termination where requests are 'reasonable'. The condition will also require CPs to provide network access in response to such a reasonable request and that access should be provided on fair and reasonable terms, conditions and charges.

Legal tests

6.189 We have considered our duties under section 3 of the Act. We consider that this proposed condition furthers the interests of consumers in relevant markets by the promotion of competition.

6.190 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. The proposed condition would promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficient and sustainable competition in markets for electronic communication services.

6.191 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:

- objectively justifiable in that it relates to the need to ensure that competition develops to the benefit of consumers. Without this obligation, CPs would be able to restrict consumers on other CPs' networks from calling consumers on their own network, and this is likely to mean that the services provided by these other CPs may not be viable;
- not unduly discriminatory as it is imposed on all fixed CPs, except BT, who have SMP in fixed geographic call termination. A similar condition is imposed on BT, except that the condition on BT does not require its charges to be fair and reasonable. This difference reflects the fact that we also propose a charge control on BT. We have set out in paragraphs 6.76 – 9.89 why we consider that a charge control is appropriate for BT but not for other CPs;
- proportionate, in that it is the least restrictive means of ensuring that CPs are unable to refuse to provide access to wholesale fixed geographic call termination services to other CPs and distort competition at the downstream level; and
- transparent as it is clear in its intention to ensure that CPs provides termination services to facilitate competition.

- 6.192 In addition to the tests set out in Section 47(2) of the Act, Ofcom is also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act as the requirement places controls on network access pricing, insofar as charges are required to be fair and reasonable.
- 6.193 Section 88(1)(a) of the Act requires that Ofcom must not impose price control conditions unless it appears to them from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. We have discussed above that we consider that in the absence of price controls CPs may price excessively, and therefore propose that there is such a risk.
- 6.194 Section 88(1)(b) of the Act requires that the charge control condition should be appropriate for the purposes of:
- i) promoting efficiency;
 - ii) promoting sustainable competition; and
 - iii) conferring the greatest possible benefits on the end users of public electronic communications services.
- 6.195 We consider that fair and reasonable charges will prevent CPs from passing on any inefficiently incurred costs to other wholesale providers through excessively high prices. In this way, this condition supports the aim of improved efficiency.
- 6.196 We also consider that the provision of network access on fair and reasonable terms will promote sustainable competition by ensuring that other CPs can effectively compete at the retail level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end users of the services.
- 6.197 We are also required, under Section 88(2) of the Act, to consider the extent of CPs investment in the matters to which the condition relates (in this case, the networks assets associated with wholesale fixed geographic call termination). We explained at paragraph 6.131 that, in BT's case, we believe that BT will continue to have the ability and incentive to invest, following the imposition of a charge control even though we propose that such charge be based on LRIC. We consider that, for the same reasons, fair and reasonable charges as interpreted by Ofcom, will also provide to other CPs with the ability and incentive to invest.

Requirement to notify charges

- 6.198 We propose to impose a condition on CPs that requires them to make their charges publicly available and that any changes to these charges must be made publicly available on or before the amendment comes into effect.

Aim of regulation

- 6.199 We consider this proposed condition promotes transparency in the market because it allows us to determine whether firms are setting their charges on a fair and reasonable basis. Notification of changes therefore helps to ensure stability in markets, without which incentives to invest might be undermined and market entry made less likely.

Legal tests

- 6.200 We have considered our duties under section 3 of the Act. We consider that the proposed condition furthers the interests of consumers in relevant markets by the promotion of competition.
- 6.201 We consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. We consider that the obligation promotes competition, secures efficient and sustainable competition and secures the maximum benefit for consumers.
- 6.202 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act because it is:
- objectively justifiable in that it is necessary to ensure that CPs are setting charges on fair and reasonable terms;
 - not unduly discriminatory in that it applies to all CPs that hold SMP in the termination of fixed voice calls to their number range(s). While we do not impose this condition on BT, this is because BT is subject to a charge control;
 - proportionate in that only information that other network providers would need to know in order to adjust for any changes would have to be notified; and
 - transparent as it is clear that the intention is to ensure that CPs notify those who purchase wholesale call termination of changes to charges, which helps to ensure stability in the market.

Removal of additional regulation on KCOM

- 6.203 In the 2009 review, we imposed on KCOM a basis of charges, a requirement not to unduly discriminate and a requirement to publish a reference offer, along with cost accounting and accounting separation obligations.
- 6.204 Because we propose to treat KCOM in the same way as all other CPs (other than BT) in the market for wholesale fixed geographic call termination, for the reasons set out in paragraph 6.93, we do not propose to retain these conditions in this review.

Question 6.1: *Do you agree with our assessment that the relevant service market is “termination services that are provided by [named fixed communications provider] (CP) to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which that CP has been allocated by Ofcom in the area served by that CP”? If not, please explain why.*

Question 6.2: *Do you agree with our assessment that the relevant geographic market is determined by reference to the area in which the CP provides termination services and is not wider than the United Kingdom? If not, please explain why.*

Question 6.3: *Do you agree with our assessment that each CP has SMP in the market for fixed geographic call termination to their number range? If not, please explain why.*

Question 6.4: *Do you agree with the remedies imposed on BT in the market for fixed geographic call termination to its number range? If not, please explain why.*

Question 6.5: *Do you agree with the remedies imposed on other CPs (excluding BT) in the market for fixed geographic call termination to their number range? If not, please explain why.*

Section 7

Transit and conveyance services

Summary

- 7.1 This section contains our analysis in relation to transit and conveyance services. These services are purchased by CPs to supplement wholesale call origination and wholesale call termination for the purpose of completing end-to-end telephone calls. In particular, this section covers the transit and conveyance services that are currently regulated (single transit or ST), and the local-tandem conveyance (LTC) and transit (LTT) services that were deregulated in the 2009 wholesale review.
- 7.2 In relation to LTC/LTT services, we find that there have been no material changes to the competitive conditions in these markets that call into question the conclusions of the previous review. We do not therefore propose to conduct a market analysis in relation to these markets.
- 7.3 In relation to ST, we propose that this market should not be subject to *ex ante* regulation. In particular, we believe that the market for ST is no longer one in which the imposition of *ex ante* regulation is appropriate as we consider that *ex post* competition law would be sufficient to address potential competition concerns in this market.

Transit and conveyance services overview

- 7.4 Transit and conveyance services are wholesale services that constitute part of the end-to-end call path needed to enable originating CPs to offer retail calls. Typically, transit and conveyance services are purchased by CPs to complete calls in instances where CPs do not have their own infrastructure to complete the call (i.e. where they do not have direct interconnection in place), or when they face capacity constraints on their own network.
- 7.5 Conveyance refers to services that transport a call from one physical location to another on the same network or between two directly connected networks. This includes conveyance between the local exchange and the tandem exchange (local-tandem conveyance or LTC) and between two tandem exchanges (inter-tandem conveyance or ITC).
- 7.6 Transit services provide termination to a different network where an intermediate (transit) network is involved. The BT ST product provides termination where both the originating network and terminating network are connected to the same tandem switch in BT's network. ST therefore provides a switching connection, allowing termination on a different network without a transmission component. BT also provides inter-tandem transit (ITT) – which contains a component of conveyance in addition to termination on a different network.
- 7.7 Other CPs that offer transit products may not offer direct equivalents of BT's ITC/ITT, LTC/LTT and ST products, because they define their transit services in other ways. For example, a single rate may be offered for calls to all United Kingdom fixed geographic numbers, whilst a single rate per number range per terminating provider may be used for non-geographic traffic.

- 7.8 Given that transit services provide termination on different networks, a provider of these services must have a direct connection with a range of different networks in order to provide a comprehensive transit service to a third party. Accordingly, if a CP has a limited number of direct connections in place, it would not be able to provide a comprehensive transit service to another CP (without potentially relying on the interconnection networks of a larger CP, which would therefore amount in some sense to 'reselling' transit).

Regulatory background

- 7.9 In previous reviews, we have identified three markets for transit and conveyance services, corresponding to the provision of ITC/ITT, LTC/LTT and ST.
- 7.10 In 2003 we reviewed these three markets, concluded that BT had SMP in all of them, and imposed SMP remedies in relation to these services. In 2005, however, we re-reviewed the ITC/ITT market and found it to be competitive, with all SMP conditions being revoked in accordance with Section 84 of the Act.
- 7.11 We last reviewed the market for LTC/LTT services in 2009.²³³ We found that the LTC/LTT market was effectively competitive and removed SMP remedies from LTC/LTT services.
- 7.12 We last reviewed the market for ST in 2009²³⁴ (though our final decisions were published in 2010²³⁵). We found a single market for ST in the United Kingdom, observing that:
- alternative routes to avoid purchasing BT ST would require other CPs to either interconnect directly to the terminating CP or purchase conveyance (for example, by purchasing BT's ITT service), which is significantly more expensive than simply absorbing a 5-10% increase in the price of ST; and
 - in the case of some traffic types such as non-geographic traffic, even where a direct route may be in place, re-routing to make use of existing direct interconnection would also involve significant one-off costs, such as updating routing data.
- 7.13 Although we acknowledged that competitive conditions varied between different routes, we concluded that *ex ante* regulation on a 'route-by-route basis' would not be appropriate, as:

'a SSNIP may be only unprofitable if applied to very large traffic streams where CPs either have interconnection in place already or can use a transit provider to which they are both already connected, or can easily deploy interconnection. On the other hand, where a SSNIP is applied to the transit price across a number of different

²³³ Ofcom, *Review of the fixed narrowband services wholesale markets: Statement on the markets, market power determinations and remedies including further consultation*, September 2009, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf,

²³⁴ Ibid

²³⁵ Ofcom, *Review of the fixed narrowband services wholesale markets: Further statement on wholesale transit markets and remedies in the wholesale call termination market*, February 2010, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/statement/statement.pdf

routes each with a smaller volume of traffic, the price increase is more likely to be profitable.²³⁶

- 7.14 We also found that BT had SMP in the ST market, noting that, due to the nature of the ST service, it had a market share of 100% as the sole supplier of ST in the United Kingdom. We imposed SMP remedies for BT's supply of ST, including requirements to provide network access on reasonable request and not to unduly discriminate. We did not, however, consider it appropriate to also maintain price controls or to impose a cost orientation obligation.
- 7.15 We did not define ST or ITC/ITT markets in Hull due to the small scale of the KCOM network, and the lack of other CPs operating networks in the Hull area, and therefore the lack of provision of – and demand for – transit services in the Hull area.

Regulatory framework

- 7.16 Under the European Framework, and in particular Article 15 of the Framework Directive, in considering whether or not it is appropriate to impose regulation in electronic communications markets, Ofcom must begin by defining markets whose characteristics may be such as to justify the imposition of regulatory obligations. In doing so, Ofcom must apply competition law principles to the definition of the relevant market and take utmost account of the 2007 EC Recommendation.
- 7.17 The 2007 EC Recommendation identifies a set of product and service markets within the electronic communications sector in which *ex ante* regulation may be warranted. The markets for conveyance and transit services are not markets which are listed in the 2007 EC Recommendation as markets in which regulatory obligations may be appropriate. However, NRAs may impose regulation in markets different from those identified in the 2007 EC Recommendation where this is justified by national circumstances.
- 7.18 The 2003 EC Recommendation on relevant markets included '*transit services in the fixed public telephone network*' in the list of markets in which regulatory obligations may be appropriate. This market was removed from the scope of the Recommendation when it was updated in 2007.
- 7.19 As the 2009 market review concluded that it was appropriate to review the markets for transit and conveyance services, we have considered the extent to which the conditions of competition within those markets remain such as to warrant the imposition of regulatory remedies. In doing so, we have had regard to the test set out in the 2007 EC Recommendation for the identification of markets in which regulatory obligations may be appropriate. In particular, we have considered the extent to which *ex post* competition law may be sufficient to deal with any competition concerns or whether regulatory obligations ought to be imposed in order to ensure intervention where those concerns become manifest.

²³⁶ See the September 2009 consultation, paragraph 19.25, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf.

Single transit (ST)

Introduction

- 7.20 The 2007 EC Recommendation seeks to “*identify those product and service markets within the electronic communications sector the characteristics of which may be such as to justify the imposition of regulatory obligations set out in the Specific Directives, without prejudice to markets that may be defined in specific cases under competition law.*”²³⁷ It therefore lists a number of markets in which the European Commission considers that regulatory obligations are appropriate, taking into account the particular features of those markets.
- 7.21 The 2007 EC Recommendation also recognises that there may be other markets, aside from those identified, in which it is appropriate to impose regulatory obligations. However, where national regulatory authorities seek to identify such markets, the 2007 EC Recommendation sets out the following three criteria which must be cumulatively met:
- the presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature;
 - a market structure which does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry; and
 - the insufficiency of competition law alone to adequately address the market failure(s) concerned.²³⁸
- 7.22 The market for ST services is not one identified by the European Commission in the 2007 EC Recommendation. We have therefore considered whether the criteria in the 2007 EC Recommendation are met in relation to ST services.

Single transit services

Product market

- 7.23 In the 2009 review, we concluded that there was a single market for ST services for all routes.
- 7.24 In reaching that conclusion, we noted that instead of purchasing BT’s ST, CPs might have the option to choose to buy other transit products (e.g. ITT from BT, or other products that include transit services from other CPs), increase their use of direct interconnection, or invest in establishing additional direct interconnection arrangements.
- 7.25 The substitutability of other BT transit services is limited by the price relationship between ST and ITT. The price of ST is significantly lower than the price of ITT.²³⁹ This means that the price of ST could increase substantially from the competitive level before it would be economic for CPs to use ITT instead. We therefore did not consider that ITT provided an effective constraint on ST.

²³⁷ Article 15(1) Framework Directive.

²³⁸ Paragraph 2 of the 2007 EC Recommendation.

²³⁹ Depending on the time of day and the length of conveyance included in the ITT service, the ITT prices listed in BT’s carrier price list are approximately 5 to 30 times higher than the listed ST prices.

- 7.26 We also did not believe that, in the 2009 review and during the period considered in that review, other CPs' transit services would provide an effective constraint for all ST traffic. This was because other CPs are not able to provide termination to as wide a range of CPs as BT. We considered that this limited the ability of other providers of transit services to offer comprehensive termination services to the full range of CPs in the United Kingdom, and therefore that the transit services offered by other CPs were unlikely to provide an effective constraint on many routes in the United Kingdom.
- 7.27 Direct interconnection was considered similarly unlikely to provide an effective constraint for some routes in the United Kingdom. Replacing the use of ST with direct interconnection would be likely to require further investment for CPs, either to increase the capacity of current direct interconnection routes, or to invest in new routes to CPs where direct interconnection was not in place. Due to the expense of such investment, and the relatively low cost of BT's ST, we considered that it would be unlikely to be economical for CPs to invest in further direct interconnection for some routes.
- 7.28 We considered that BT was likely to remain the largest provider of fixed line services during the period of the review, and would therefore be the obvious choice for smaller CPs when seeking to establish interconnection. Due to BT's position as the incumbent network, BT was interconnected with the largest number of CPs and is also subject to an end-to-end connectivity obligation (E2E obligation).²⁴⁰ The E2E obligation means that BT must purchase termination from other CPs (provided the terms and conditions proposed are not unreasonable) and so BT was considered likely to continue to act as a 'hub' for voice call interconnection for the foreseeable future. Given that – on small routes – multiple interconnections are unlikely to be efficient, BT's presence as a 'hub' operator might act as a barrier to entry by other transit providers that could also connect to these smaller players.
- 7.29 For some smaller CPs, the costs of establishing and maintaining interconnection meant that their interests were generally served by interconnecting with BT, since this was the only choice that would provide a 'one stop shop' for their need to pass and receive calls. Therefore direct interconnection between CPs would be unlikely to be an effective substitute for termination to smaller CPs.
- 7.30 The market was comprised of 'thick' (more competitive) routes, and 'thin' (less competitive) routes. We found that, although alternatives to ST existed, such alternatives were not necessarily attractive, in particular as far as the 'thin' routes were concerned.
- 7.31 However, we found that in the light of the small size of the ST market it would not be practical or appropriate to analyse every route in the market and assess the competitive conditions that exist in each of them. Further, we also believed that it would be likely that such an approach could lead to uncertainty in the market. The market analysis would need to be updated regularly to take account of changes in interconnection and traffic volumes and this would place a high administrative burden on CPs to retain traffic data and provide this data to Ofcom. Consequently, we did not propose to further narrow the definition of the relevant market.

²⁴⁰ "BT's position in the provision of transit whereby BT buys termination on behalf of a large part of the industry in addition to buying termination for itself" (paragraph 3.24 of the E2E statement, September 2006, http://stakeholders.ofcom.org.uk/binaries/consultations/end_to_end/statement/statement.pdf).

- 7.32 We have gathered some evidence and engaged in further analysis of these markets as part of this market review. In summary, we have not been provided with any evidence to suggest that there have been changes in the market since 2009 which would call into question the definition of the relevant product market set out in the 2009 review. Nor have we seen any evidence that changes in the market are likely during the period under review which would impact the market definition set out in 2009. In the 2009 review, CWW estimated that BT may be the only CP with direct interconnection to 70 or more of the CPs in the United Kingdom.²⁴¹ In this review we have received information showing that BT remains the CP with the largest number of direct interconnections – approximately 200. CWW is the CP with the next highest number of direction interconnections, with nearly [X] such interconnection arrangements in place.

Geographic market

- 7.33 In both the 2003 and 2009 review, we concluded that the relevant geographic market was one which encompassed the United Kingdom excluding the Hull area. We have not identified any evidence of changes in the relevant market which would call into question those conclusions either at the present time or during the period of the review.

Market developments since 2009

Pricing and volume developments

- 7.34 Since the 2009 review, BT has maintained a constant price for ST despite the absence of a charge control or cost orientation obligation.²⁴² Although the price has remained constant, total ST traffic volumes have continued to decline since the 2009 review (see Figure 7.1), falling from 23 billion to 18.1 billion minutes per annum.

Figure 7.1: ST traffic by type (2003 – 2012)

[X]

Source: Ofcom

- 7.35 The decline in traffic volume has led to a fall in revenues in the ST market, with total external revenues (i.e. revenues from non-BT CPs) declining from £5m in BT's financial year ending March 2009 to £4m in the year ending March 2012.²⁴³ As the price has not changed this simply reflects the declining traffic volumes.
- 7.36 [X]. With the data available we have been able to further break this down into general traffic between mobile operators and traffic related to mobile number portability (MNP).

²⁴¹ See the 2009 consultation, paragraph 19.61, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf.

²⁴² BT publishes ST prices on the BT Carrier Price List. There have been no changes to the Daytime, Evening, and Weekend prices since 01/04/2008. We have not adjusted these prices for inflation.

²⁴³ The revenues for ST are reported in BT's annual regulatory financial statements (RFS) (<http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/index.htm>).

7.37 [X]. [X].²⁴⁴[X]. We do not consider there are any material barriers that would stop mobile operators increasing the capacity on these routes if it were more cost effective to do so (for example in response to a significant price increase for ST).

7.38 [X]. ST is used by other CPs, but not by BT Retail.

NTS regulatory developments

7.39 For both geographic and non-geographic calls, the routing path of a call is determined by the network on which the call originates. However, for calls to some non-geographic number ranges (including 080, 0845 and 09), the terminating party pays for transit services. This differs from geographic calls in which the originating party always pays for transiting the call.

7.40 When the terminating CP pays for call transit, there is no immediate incentive on the call originating CP to minimise the cost of routing the call by, for example, sending the call by direct interconnection to the terminating CP. Instead, the call originating CP has the incentive to send the traffic via the route that does not require further investment. In the United Kingdom, most CPs directly interconnect with BT. This means that the default routing path for CPs is to send the call to BT's network, who then uses ST to send the call to the terminating CP. We note that terminating CPs may create an indirect incentive for originating CPs to implement efficient routing even when it is the terminating CP who pays for transit by offering the originating CP a suitable share in any transit cost savings resulting from direct routing. It is our understanding that direct routing has been agreed and is in place between some CPs for calls to non-geographic numbers where the terminating CP would otherwise pay for transit, although we recognise such agreements may not be possible where the transit cost savings are not sufficiently large.

7.41 In our 2012 consultation *Simplifying Non-geographic Numbers*²⁴⁵ we proposed a number of changes to the non-geographic calls regime. One of our proposals would mean that, in all cases, the terminating party pays transit for all non-geographic calls. This would mean that calls to those non-geographic number ranges where the originating CP currently pays for transit (i.e. 0870, 0871/2/3 and 0844/3) could become less sensitive to price changes in BT ST. However, we note that the terminating operator retains an incentive to minimise transit costs through the use of direct routing, where those costs are lower than transit costs. As with the existing position on non-geographic calls, if those cost savings are shared with the originating operator, the originating CP has an incentive to ensure efficient routing. For those routes where direct routing is a cost effective alternative to ST, the constraint exercised by such a possibility remains important. Overall we therefore expect the impact of our non-geographic calls proposals, if implemented, on the market for ST to be limited.

CFI responses

7.42 In the CFI we asked, 'To what extent has competition in the Single Transit market changed since the 2009 Review'?

²⁴⁴ [X]

²⁴⁵ Ofcom, *Simplifying Non-geographic Numbers*, April 2012, <http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geographic-no/summary>.

- 7.43 Respondents to this question largely focused on whether regulation was still appropriate for ST. CWW, UKCTA, TalkTalk, ITSPA, Virgin, EE and Verizon were opposed to deregulation in this market, citing the following reasons:
- There are many routes where it would not be profitable for CPs to directly interconnect (thin routes);
 - Purchasing ST is unavoidable for some services (such as those routed via BT's network due to number porting);
 - The ST market, although small, acts as a 'gatekeeper' to other markets;
 - The price of ST forms a visible component in the calculation of other BT prices, such as the price for number porting; and
 - If this market is deregulated, BT might increase the price of ST.
- 7.44 BT argued that there is considerable diversity in the transit wholesale market, citing the fact that there are around 450 CPs to whom BT sends traffic, but for 250 of these, BT interconnects via a third party. BT sees this as evidence that CPs have choice regarding who to purchase ST from, and that the ST market has become more competitive.

Our response

- 7.45 ST remains a useful service for many CPs, allowing the interconnection of traffic to and from smaller CPs. As discussed in the 2009 review, the current ST market is comprised of both 'thick' and 'thin' routes. Thick routes are those which are more competitive, price sensitive routes for which alternative means of routing the traffic exist. Thin routes are those that are used to terminate traffic to small CPs, for which alternative interconnection would be too costly.
- 7.46 We have considered BT's argument that it uses third party interconnection for the termination of calls. In response to an information request, BT provided further details of the names of the approximately 450 CPs to whom BT sends traffic, including both fixed and mobile number range holders. Of the CPs where BT used a transit provider rather than having a direct route, only a few of these transit providers offer transit services that might compete with BT's ST service. The largest of these, CWW, has just above [X] of the number of interconnections to other CPs that BT has (as discussed above). Regarding the other transit providers which BT identified, in many instances the terminating number range was hosted on the company's network (via hosting arrangements or due to mergers/acquisitions activity), and some of the companies were no longer active in the United Kingdom.
- 7.47 Furthermore, BT remains by far the most interconnected CP, with significantly more direct interconnections in place than any other CP in the United Kingdom.²⁴⁶ We therefore do not consider that there are alternative CPs that could offer comprehensive transit services for the purpose of terminating narrowband traffic in the United Kingdom even if there are alternative providers (such as CWW) for a significant proportion of the overall transit traffic.

²⁴⁶ BT has nearly 200 direct interconnections, compared to the next most interconnected CP (CWW) who has nearly [X] direct interconnections.

Appropriateness of Regulation

- 7.48 We have not therefore identified any significant changes in the market for ST services which would have an effect on the competitive conditions within that market. However, in order to impose regulatory obligations on operators within the market, the 2007 EC Recommendation sets out that national regulatory authorities should ensure that the following three criteria are cumulatively met in relation to the market:
- the presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature;
 - a market structure which does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry; and
 - the insufficiency of competition law alone to adequately address the market failure(s) concerned.
- 7.49 We have therefore considered each of these criteria in order to determine whether the ST market is one in which regulatory obligations may be appropriate or whether the market is one whose characteristics do not justify the imposition of regulatory obligations.

Barriers to entry

- 7.50 The United Kingdom telecommunications markets are comprised of a few large CPs and a large number of smaller CPs that use transit services for terminating traffic (see Annex 6).
- 7.51 In the 2009 review, we said that BT faces competitive pressure on routes that carry large volumes of traffic, with routes to and from MNOs being among these routes. We mentioned evidence (presented by BT) indicating that alternatives to the ST service offered by BT exist for MNOs, in particular direct interconnection.
- 7.52 On certain other routes however – particularly for calls terminating to smaller CPs – we considered that it is not economically viable for CPs to establish direct interconnection with each other, reflecting the inefficiency of doing so to pass relatively small volumes of calls (compared with the traffic passed to or from BT), and in the context of the relatively low price of ST. Since direct interconnection is a pre-requisite to providing a transit service for traffic to a terminating CP, this forms a structural barrier to entry. While CPs may choose to interconnect with each other on a case-by-case basis, they are still likely to depend on BT to terminate traffic to a significant number of other (smaller) CPs. This position still reflects the different conditions that exist across the market.
- 7.53 In consequence, we continue to consider that there are high and non-transitory barriers to entry in the market for ST services.

Dynamic aspects

- 7.54 Dynamic aspects of a market can suggest that it may be tending towards increased competition. The potential for the ST market to become competitive derives from the large number of CPs in the United Kingdom, many of which terminate very small volumes of traffic. In 2009, we noted (at paragraph 19.47) that *‘evidence of a high degree of consolidation among these CPs could indicate a move towards a market*

*with fewer, larger CPs in which a smaller number of larger routes would be needed to replicate or replace transit provided by BT.*²⁴⁷ However, in that review we found that there was no evidence to suggest that such a consolidation was likely to occur over the relevant forward looking period.

- 7.55 We note that there has not been evidence of consolidation since the last review. There are currently approximately 180 CPs that provide fixed termination services in the United Kingdom on fixed geographic ranges (see Annex 6, Schedule 3). In the 2009 review we found that there were in excess of 140 CPs terminating calls on United Kingdom fixed geographic, non-geographic and mobile numbers. We therefore do not see any signs of significant consolidation in the markets for fixed termination services, and have not seen evidence that suggests such a consolidation is likely to occur in the period considered in this review. We therefore consider that the complex route and CP structure that we have described in relation to the provision of ST services will continue for the period of this review.
- 7.56 In the 2009 review we also noted that the deployment of new technology could provide opportunities that lead to greater competition. We described how NGN deployments might make competition more effective to the extent that they provide greater flexibility in call routing and greater economies of scale due to the ability to provide multiple services over a single interconnect link. We consider this remains the case today. However, as in 2009, NGN deployment is unlikely to affect the majority of routes that currently use ST services over the period of this review. Therefore, we do not believe that these developments are likely to address the main issue that providing infrastructure to connect two networks is currently uneconomic on many routes.
- 7.57 In light of the above, we continue to consider that the market for ST services exhibits a market structure which does not tend towards effective competition over the period of this review.

Sufficiency of competition law

- 7.58 A competition concern identified in the 2009 review was that BT could increase its profits by raising prices on thin routes, as the CPs purchasing ST for these routes would not be able to effectively substitute alternative services and would have to pay the increased price in order to provide connectivity for their customers. Even if it were not practical for BT to target thin routes for price increases directly, BT could theoretically increase prices for these routes by increasing the price of ST for all routes but offer selective discounts for larger CPs or for thick routes (if its billing systems allowed this). This would allow BT to increase its revenues in relation to thin routes.
- 7.59 A second competition concern identified in the 2009 review was that BT might have a strategic incentive to refuse access to some CPs. This action would limit the ability of other CPs to provide an end-to-end connectivity service at competitive prices. This might create a competitive advantage for BT's retail services, since BT would still be able to provide full end-to-end connectivity to the full range of CPs with whom it is interconnected.

²⁴⁷ See the 2009 consultation, paragraph 19.47, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf.

- 7.60 The recent empirical evidence shows that BT does not have a strong incentive to increase the price of ST across all routes. BT has been subject to an obligation not to unduly discriminate between purchasers of ST since the 2009 review, but has not been subject to a charge control or cost orientation obligation during that time. However, prices for ST have not increased during this time.
- 7.61 We further consider that BT's incentives to seek to increase profits on thin routes are low as BT would have a limited ability to make significant profits from raising the price of thin routes where traffic volumes are small. In 2011-12, BT's total revenue from all ST services was only around £4m per annum. The analysis in paragraphs 7.56 to 7.58 above shows that it is likely that a significant proportion of this traffic corresponds to thick routes and therefore revenues for thin routes would represent significantly less than this £4 million figure. An increase in prices for thin routes would therefore be unlikely to generate significant revenues or profits.
- 7.62 We also do not believe that there would be a significant retail advantage for BT to refuse to provide access to thin routes via ST because they do not represent a significant proportion of termination demand. The number of customers served by affected CPs would be very small compared to the United Kingdom market for retail narrowband services overall and therefore any retail advantage experienced by BT due to engaging in this conduct would be minimal, thus the strategic incentive is likely to be very limited.
- 7.63 If, nevertheless, BT did engage in conduct amounting to an abuse of a dominant position (such as refusal to supply access or abusive price discrimination), the competition law tools at our disposal provide a means of addressing this at that time. Depending on the particular circumstances of the case, this could include ordering BT to resume supplying a former customer (in case of an unlawful refusal to supply) or to supply on non-discriminatory terms (in case of unlawful discrimination between customers).
- 7.64 In deciding whether *ex ante* regulation is appropriate, we have had regard to the roles *ex ante* and *ex post* rules serve in the Framework, and the Commission's guidance that, where the operation of competition law is sufficient, then it should be relied on, to the exclusion of regulation:
- “... recital 27 of the Framework Directive indicates that ... *ex ante* regulatory obligations (with respect to electronic communications networks and services) should only be imposed where Community competition law remedies are not sufficient to address the problem. *Ex ante* regulation and competition law serve as complementary instruments in achieving their respective policy objectives in the electronic communications sector and in dealing with any lack of effective competition. At the same time, a principle underlying the regulatory framework is that *ex ante* regulation should only be imposed where competition law remedies are insufficient and should be rolled back when it is no longer needed.”²⁴⁸
- 7.65 In the last review we found that *ex post* competition law would not be sufficient to address our competition concerns in relation to this market. We see two relevant differences today, compared to the situation identified in the 2009 review:

²⁴⁸ Explanatory Note to the Recommendation on relevant product and service markets, section 2.2.

- First, we now have some indication of BT's pricing behaviour after the removal of a charge control. Despite having no regulatory restraint on doing so, BT has not uniformly increased prices in this market; and
- Second, we have also observed that the total demand for ST has continued to decline, driven by the increasing trend in CPs using direct interconnection for 'thick' routes (this is mainly traffic involving calls to and from mobile with the MNOs moving onto direct interconnection between themselves). We have also received evidence from information requests that suggests that this trend is likely to continue over the review period.

- 7.66 In the case of this market, our preliminary view is that competition law is likely to be sufficient to address potential competition concerns we have identified in the ST market. In the case of, for example, a refusal to supply ST, the most significant impact of BT refusing to supply ST would be that certain other CPs would not be able to offer termination to all other CPs. Over time, retail customers of those originating CPs might choose to switch to a BT service in order to have access to a wider range of terminating services. However, due to the small number of geographic numbers that would be likely to be affected, it is likely that many customers would not notice a difference in their services and, for those that did, it may take some time before they noticed a number was no longer obtainable via their supplier. Any material effect would therefore take some time to occur and the total impact on competition at the retail level would be small. In our view, competition law intervention would be able to ensure that no lasting structural damage occurred in the market.
- 7.67 Consequently, for the reasons set out above, our provisional view is that *ex post* competition law remedies would now be sufficient to address the concerns identified during the period covered by this review.

Conclusions

- 7.68 In the light of market developments and, in particular the stability of BT's price in the market despite the removal of pricing controls, and the reduction in volumes of traffic carried, we no longer consider it appropriate to maintain *ex ante* regulation in the ST market.
- 7.69 For the avoidance of doubt, this proposal means that we are proposing that the existing remedies imposed on BT and listed below will be revoked in relation to the provision of ST in the United Kingdom area (excluding Hull).
- Requirement to provide network access on reasonable request;
 - Requirement not to unduly *discriminate*;
 - Requirement to publish a reference offer;
 - Requirement to notify technical information;
 - Requirement to notify charges, terms *and conditions*; and
 - Accounting separation.

LTC/LTT products

Background

- 7.70 The LTC/LTT market was found to be effectively competitive in the 2009 review. This decision was based on the observation that the volume of LTC/LTT purchased from BT was in steady decline, despite no corresponding decline in the volume of wholesale call origination, wholesale call termination and wholesale calls products purchased from BT. We found that this indicated that alternative CPs were increasingly using alternative networks to deliver traffic to/from BT DLEs.
- 7.71 In the CFI, we asked respondents, 'Do you consider that conditions in the LTC/LTT market have changed materially since the 2009 Review? Please explain why.'
- 7.72 BT responded to this question, arguing that the supply of LTC/LTT products is competitive, as found in 2009. We did not receive comment on this market from other CPs. We have also not received any comments or complaints regarding the LTC/LTT market since it was deregulated in 2009.²⁴⁹

Our proposed approach in this review

- 7.73 The supply of LTC/LTT does not fall within the list of markets in the 2007 EC Recommendation, and, since our 2009 review, it has not been subject to *ex ante* regulation. We have looked at the key factors which led us to conclude in 2009 that this service market was competitive, in particular, LTC traffic carried by BT for other CPs and DLE interconnection by non-BT CPs.
- 7.74 We also note that stakeholders have not raised concerns in relation to the supply of these products. Our preliminary conclusion is therefore that it is neither necessary nor appropriate to conduct a detailed analysis of this market in this review in the absence of any material changes which might call into question our previous findings.

CPs continue to use alternatives to LTC/LTT

- 7.75 The market for LTC/LTT services is comprised of CPs who purchase wholesale call origination and/or wholesale call termination from BT but do not interconnect directly themselves to BT's DLEs. The total volume of LTC traffic carried by BT for external CPs has declined by [X] since the last review, from [X] million minutes in 2008/09 to [X] million minutes in 2011/12. This decline has occurred in the context of increasing usage by CPs of BT's wholesale calls product.
- 7.76 This information indicates that the level of competition in the market for LTC/LTT has not decreased since the last review, and that CPs are able to use alternatives to these products to terminate their calls economically.

CPs are increasingly able to use alternatives to LTC/LTT

- 7.77 In 2009 we found that CPs were able to use a variety of alternatives to LTC/LTT. This included interconnection at the DLE. The evidence indicates that CPs continue to find effective alternatives to using LTC/LTT services, in particular through interconnection

²⁴⁹ The 2009 review concluded that remedies existing prior to 2009 should be retained for a 12 month period after the publication of the Statement in October 2009. See 2009 consultation, paragraph 8.4, http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf.

at the DLE. We are not aware of any decrease in the extent of DLE interconnection since 2009.

- 7.78 We also note that BT's published LTC/LTT prices have not risen since the last review, with all prices for these services remaining at the same nominal level for each year since 2008/09. In combination with our evidence regarding the availability of alternatives for CPs wishing to transport calls from the local to tandem exchanges, this pricing evidence suggests that the price for BT's LTC/LTT product is effectively constrained by competing products and services.

Conclusions

- 7.79 We consider that there have been no changes in the LTC/LTT product markets that would call into question our previous conclusion that the markets were effectively competitive. We note that this view is supported by those stakeholders who commented on the state of competition for the provision of LTC/LTT services in response to our CFI. We therefore propose no findings in relation to these products, nor any regulatory action.

Question 7.1: *Do you agree with our assessment that there have been no material changes in the ST market since the 2009 review? If not, please explain why.*

Question 7.2: *Do you agree with our assessment that ex post competition law remedies would now be sufficient to address the competition concerns identified during the period covered by this review in the ST market and that it would no longer be appropriate to maintain regulation in this market? If not, please explain why.*

Question 7.3: *Do you agree with our assessment that the LTC/LTT market in the United Kingdom has remained competitive since 2009 and that we expect the same competitive conditions to continue during the period of this review? If not, please explain why.*

Section 8

Price regulation of termination and origination markets: LRIC, common cost recovery, symmetry and APCCs

Introduction

- 8.1 Section 5 (wholesale call origination) and Section 6 (wholesale call termination) consider appropriate charge controls in the markets for wholesale call origination and wholesale call termination provided by BT, in the light of the proposal that BT has SMP in those markets. This section considers what cost standard is appropriate to apply in those markets in relation to the proposed charge controls.
- 8.2 This section also considers regulation of wholesale call termination provided by CPs other than BT – in particular how we propose to apply the network access obligation proposed for wholesale call termination services provided by non-BT CPs.
- 8.3 The regulation of wholesale call origination provided by KCOM is also discussed in this section, in particular how we propose to apply the network access obligation.
- 8.4 For the ancillary services of interconnection circuits and product management, policy and planning (PPP), associated with the above call conveyance services, we propose to regulate them differently from previous charge controls. Our proposals for PPP are covered in this section and in the Section 9 and Annex 12. For our proposals on interconnection circuits see Section 10 and Annex 12.
- 8.5 In summary, we propose that:
 - BT's FTR is set on a long-run incremental cost (LRIC) basis²⁵⁰;
 - the charge control on BT's wholesale call origination rate is set on a LRIC+ basis, the "+" including an additional mark-up for common costs (including those no longer recovered via FTRs once they are set at LRIC) and also a contribution to administrative costs previously recovered via a separate PPP charge;
 - the regulation of FTRs set by CPs other than BT is on the basis of "fair and reasonable" network access. We propose guidance that FTRs would be presumed fair and reasonable when they do not exceed the Benchmark FTR (i.e. the charge controlled rate), unless a higher rate can be justified by objective cost differences;
 - the regulation of wholesale call origination rates set by KCOM is on the basis of "fair and reasonable" network access. We propose guidance that KCOM's wholesale call origination rates would be presumed fair and reasonable where they are no higher than the wholesale call origination rate determined by the

²⁵⁰ By "LRIC" we mean "pure LRIC" in the sense that the LRIC of fixed call termination is calculated as the final traffic increment. A fuller description of how we have modelled pure LRIC is set out in Annex 12. Hereafter, when we refer to "LRIC" we mean pure LRIC, unless the circumstances require otherwise.

charge control on BT, unless a higher rate can be justified by objective cost differences;

- the basis on which we set regulated FTRs is not adjusted for the fact that calls to certain numbers will incur porting conveyance charges (so-called APCCs) levied on the terminating CP, which could in some cases be greater than the LRIC-based FTR.

Choice of cost standard: LRIC+ vs LRIC for termination

2009 EC Recommendation

- 8.6 The 2009 EC Recommendation stated that NRAs should adopt a long-run incremental cost (LRIC) standard, which allows only the recovery of the fixed and variable costs incremental to the provision of the wholesale call termination service to third parties. This is as opposed to an approach based on “LRIC+” which involves a contribution to costs common between wholesale call termination and other services.
- 8.7 When we last consulted on NCC proposals in March 2009²⁵¹, the 2009 EC Recommendation was not yet finalised. We consulted on and finally determined that the controls on wholesale fixed call termination would be set by reference to fully allocated costs (FAC, a form of LRIC+) until 30 September 2013.
- 8.8 In the September 2009 NCC Statement²⁵², we noted that the end of the control period fell only nine months after the date for transition to LRIC set out in the 2009 EC Recommendation (31 December 2012). We also explained that we had taken utmost account of the 2009 EC Recommendation and weighed this nine month overrun very carefully against the benefits of a four year control to FAC. We also considered the problems associated with dealing with the regulation of wholesale call termination separately from the broader NCC package.
- 8.9 Nevertheless, the 2009 NCC Statement identified that more work would be required in assessing how we regulate termination markets and explained that we would continue to engage positively with stakeholders – both nationally and at the European level – through the wholesale mobile voice call termination market review.
- 8.10 The MCT market review was completed in March 2011 and after extensive analysis and consultation we concluded in favour of regulating mobile termination rates (MTRs) on the basis of LRIC in the 2011 MCT Statement. That decision was subsequently appealed to the Competition Appeal Tribunal (CAT). During 2012 both the Competition Commission (CC) and the CAT concluded in favour of LRIC as the

²⁵¹ *Review of BT network charge controls: Consultation on proposed charge controls in wholesale narrowband markets (19 March 2009)*

http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/summary/reviewbntncc.pdf

²⁵² See paragraphs 1.13-1.15 and 4.94-4.106 of *Review of BT's Network Charge Controls:*

Explanatory Statement and Notification of decisions on

charge controls in wholesale narrowband markets (15 September 2009):

http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf

cost standard to regulate MTRs.²⁵³ EE has since challenged the CAT Judgement on appeal to the Court of Appeal and judgment on the case is pending.²⁵⁴

NRA experience with implementing the 2009 EC Recommendation

- 8.11 In preparing our May 2012 CFI, we commissioned research on the experience of European NRAs in taking utmost account of the 2009 EC Recommendation, as applied to FTRs. We published a report on that research, prepared by Analysys Mason, alongside our May 2012 CFI.²⁵⁵
- 8.12 Among the main European NRAs which started reviews of the wholesale fixed call termination market after the 2009 EC Recommendation was published, most have adopted, or will soon adopt, LRIC-based FTRs.²⁵⁶
- 8.13 Since our May 2012 review, other NRAs have implemented LRIC FTRs or have stated their intention to do so. Therefore, the countries that we expect to have LRIC FTRs in 2013 are France, Denmark, Ireland²⁵⁷, the Czech Republic²⁵⁸ and Belgium.²⁵⁹ In addition, Sweden is expected to have LRIC FTRs by 2014 and Italy has consulted on proposals to get to LRIC FTRs by January 2015.

²⁵³ Determination by the CC, 9th February 2012 http://www.competition-commission.org.uk/assets/competitioncommission/docs/appeals/telecommunications-price-control/appeals/final_determination.pdf. CAT judgment [2012] CAT 11 of 3rd May 2012 <http://www.catribunal.org.uk/238-7586/Judgment.html>

²⁵⁴ Permission to appeal given by order of the chairman of the CAT dated 6 June 2012; [2012] CAT 16. A hearing was held in January 2013 and judgment is pending.

²⁵⁵ Analysys Mason, 14th May 2012, *Study of approaches to fixed call origination and termination charge controls* http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/annexes/analysys_mason.pdf

²⁵⁶ Of those NRAs not adopting LRIC based FTRs, the reasons have been primarily down to domestic legislation, judgments by national courts or, in the case of Norway, a desire for FTR regulation to be consistent with the cost standard applied for MTRs (which until 2013 is long run average incremental cost, or LRAIC - a form of LRIC but for a broader increment – e.g. all traffic services rather than, for example, a traffic subset such as voice call termination traffic). However, Norway has stated it will consider LRIC for FTRs in the next market analysis (i.e. after 2014). Cullen International Cross-Country Analysis December 2012. Table 13 – Fixed termination rates moving towards pure LRIC? http://www.cullen-international.com/report/7180/t7464#Table_13

²⁵⁷ See ComReg Statement *Mobile and Fixed Voice Call Termination Rates in Ireland*, 21 November 2012. <http://www.comreg.ie/fileupload/publications/ComReg12125.pdf>

²⁵⁸ The Czech regulator (CTU) has issued a draft measure (to the EC) that FTRs should be reduced to LRIC by 1 July 2013. The Czech decision is currently subject to an Article 7a Phase II investigation by the EC. This investigation relates to: asymmetric regulation of CPs with SMP in fixed termination; the period by which termination rates are set at LRIC (whether that should be 1 January 2013, rather than 1 July 2013); segmentation of termination rates applicable for local exchange and “transit exchange” interconnection; and the cost model is not fully based on an NGN. See https://circabc.europa.eu/sd/d/591e4d39-3582-48f8-993a-0fc71f1029fc/CZ-2012-1392-1393%20Adopted_EN.pdf

²⁵⁹ Cullen International Cross-Country Analysis October 2012. Table 13 – Fixed termination rates moving towards pure LRIC? http://www.cullen-international.com/report/7180/t7464#Table_13 and Analysys Mason, 14 May 2012, *Study of approaches to fixed call origination and termination charge controls* http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/annexes/analysys_mason.pdf.

- 8.14 Whilst we understand that Portugal and Spain intend to develop a bottom up LRIC model to be effective by December 2012, no details of their respective models are currently available.²⁶⁰

Responses to the May 2012 CFI and the September 2012 consultation

- 8.15 In the CFI issued in May 2012²⁶¹ we signalled that we expected to follow the 2009 EC Recommendation and adopt LRIC as the cost base for FTRs in the next regulatory period.
- 8.16 Overall, responses to the May 2012 CFI were in favour of LRIC, or at least did not oppose it. The main exceptions were BT and Virgin Media.
- 8.17 Since the May 2012 CFI we also published a consultation on cost model design in September 2012.²⁶² That consultation was also used by Sky to challenge LRIC as the basis for setting regulated FTRs.
- 8.18 BT argued that there were not sufficient benefits to justify changing from the methodology used in the previous control.²⁶³
- 8.19 Virgin Media believed that the current approach to setting FTRs on an FAC CCA basis continued to have merit. In its view, FAC CCA allowed for more reliable numbers than BT's LRIC data.²⁶⁴ Virgin Media noted that a duty to take utmost account of the 2009 EC Recommendation was not a duty to accept it and that a full review of the benefits of different methodologies was important.
- 8.20 Sky argued that it was impossible that no mark-up was efficient. It considered that for no mark-up to be efficient, retail demand for call termination would have to be very elastic, which Sky considered it was not, and significantly more elastic than other services sharing common costs. Sky argued that LRIC for FTRs would result in other services making greater contributions to common costs than may be economically efficient. Whereas in mobile the other services from which common costs were recovered were subject to strong competition, Sky considered that this was not the case in all fixed line markets. Finally, marking up wholesale call origination for the additional common cost recovery could distort competition in downstream retail markets and may not lead to a reduction in overall retail prices.
- 8.21 EE continued to believe that LRIC was not the right basis on which to set MTRs for the reasons argued in front of the CAT/CC (currently on appeal to the Court of Appeal). However, if LRIC is applied to MTRs EE considered that it should also be applied to FTRs to ensure technology neutrality.

²⁶⁰ Cullen International Cross-Country Analysis October 2012. Table 13 – Fixed termination rates moving towards pure LRIC? http://www.cullen-international.com/report/7180/t7464#Table_13

²⁶¹ Paragraph 6.17 of the May 2012 CFI, <http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/>

²⁶² September 2012 Consultation, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review/summary/condoc.pdf>

²⁶³ BT response to May 2012 CFI, p.14, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/BT.pdf>

²⁶⁴ Virgin Media response to May 2012 CFI, p.12, http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/Virgin_Media.pdf

- 8.22 CWW saw no compelling reasons to deviate from the 2009 EC Recommendation and argued that if FTRs were not based on LRIC, other than for a transitional period, there would be market distortions given that MTRs were regulated at LRIC.²⁶⁵
- 8.23 TalkTalk emphasised the concern that FTRs above LRIC have the potential to distort competition since they increase the expected marginal cost to a CP for off-net calls. TalkTalk also stated that FTRs at LRIC would remove distortions between fixed and mobile networks, since MTRs are now regulated at LRIC.²⁶⁶
- 8.24 H3G emphasised its concern that high termination rates dampen retail price competition between CPs, establish a retail floor for off-net calls and distort competition between mobile and fixed CPs.²⁶⁷
- 8.25 ITSPA²⁶⁸ pointed out that it had been supportive of LRIC for MTRs during that market review and noted that there was a substantial body of jurisprudence for its adoption in the United Kingdom and building up across Europe.
- 8.26 KCOM's primary concern was that any change in the basis of calculation did not impose a disproportionate burden on its business and enabled it to recover its costs.²⁶⁹

Ofcom's analysis and assessment of responses

- 8.27 In the May 2012 CFI we indicated that we expected consideration of competitive impacts was likely to be the most decisive economic factor in determining the appropriate cost base and reiterated the position set out in the 2011 MCT Statement around the importance of avoiding competitive distortions.
- 8.28 The importance of maintaining a consistent regulatory treatment between MTRs and FTRs was raised by CWW, TalkTalk and H3G (and, implicitly, by ITSPA). Similarly, EE's concerns around the choice of cost standard were primarily focussed on technology neutrality and avoiding distortions (between fixed and mobile termination rate regulation).
- 8.29 BT did not provide specific analysis to support its view that there was a lack of benefits to justify changing the basis for setting FTRs. In light of this it is difficult to be more specific in addressing BT's arguments. By contrast, we note that BT was actively involved in the "terminate the rate" campaign²⁷⁰ and responded to Ofcom's

²⁶⁵ CWW response to May 2012 CFI, p.21,
<http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/CWW.pdf>

²⁶⁶ TalkTalk response to May 2012 CFI, p.10,
<http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/TalkTalk.pdf>

²⁶⁷ H3G response to May 2012 CFI, p.7,
<http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/Three.pdf>

²⁶⁸ ITSPA response to May 2012 CFI, p.2,
<http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/ITSPA.pdf>

²⁶⁹ KCOM response to May 2012 CFI, p.3,
<http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/KCOM.pdf>

²⁷⁰ See, for example, <http://www.btlife.bt.com/btcustomers/we%E2%80%99re-cutting-the-cost-of-calling-mobiles-by-up-to-24/>, and <http://www.telecompaper.com/news/bt-3-uk-start-terminate-the-rate-campaign>

MCT consultation in favour of LRIC for MTRs.²⁷¹ BT also appealed Ofcom's 2011 MCT Statement on the grounds that it did not get MTRs down to LRIC quickly enough.²⁷²

- 8.30 In response to Sky's concerns over the rationale for LRIC for FTRs, it is only from a narrow Ramsey pricing perspective that the rationale for a mark-up on wholesale call termination is warranted by reference to the elasticity of retail demand for call termination.²⁷³ However, this is not the only consideration.
- 8.31 As we explained in our analysis in the 2011 MCT Statement, there are factors such as price discrimination at the retail level (e.g. non-linear pricing with upfront subscription fees and different usage charges) which mean that it is more efficient for common costs to be recovered on the retail-side of the market. The CC agreed that common costs can be recovered most efficiently where price discrimination is possible, but noted (as we had) that there were limitations to this.²⁷⁴ In considering the extensive analysis undertaken by Ofcom, the appellants and the interveners in the MCT appeals, the CC ultimately concluded that: "...we agree with Ofcom that allocative efficiency grounds alone do not provide a clear answer as to whether a LRIC or LRIC+ cost standard should be preferred."²⁷⁵
- 8.32 Our choice of LRIC for MTRs was driven primarily by consideration of competition effects. On this the CC agreed: *"We note that at its core the results of our analysis of arguments in relation to the competition assessment is that, though the scale of effect may not be large, our conclusion is that the effect favours the adoption of LRIC. We believe that Ofcom was correct to consider there to be scope for their measures to make the market more competitive and that this is consistent with the entirety of the statutory scheme including the basis for imposing remedies in the first place."*²⁷⁶

²⁷¹ BT response to MCT consultation, p.12,

<http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf>. BT therefore supports Ofcom's implementation of the Recommendation because it will provide fair competition between fixed and mobile suppliers, something the European Commission consistently promotes as an important objective:

"A common approach to call termination markets based on efficient costing principles should help foster a stable and effective regulatory environment for future investments and contribute to a more level playing field and enhanced competition between different operators and networks (e.g. fixed and mobile networks)."

²⁷² CAT judgment [2012] CAT 11 of 3 May 2012, p.61. In its notice of appeal, BT supported OFCOM's decision to fix the maximum permissible MTRs by reference to LRIC. BT nevertheless challenged the Statement on the following limited grounds:

(1) OFCOM erred in fixing the glide path for the reduction of MTRs to pure LRIC-level at four years, rather than three; and

(2) OFCOM erred in failing to make a one-off adjustment to MTRs at the outset of the price control cycle to strip out allegedly unjustified windfall profits made by the MCPs.

<http://www.catribunal.org.uk/238-7586/Judgment.html>

²⁷³ Under the simplest Ramsey pricing framework, common costs are recovered via linear prices above marginal costs. These mark-ups are set to achieve full cost recovery (across marginal and common costs) and are determined by reference to the inverse of the elasticity of demand for the services in question. That is, the more elastic the demand for a service, the lower the mark-up and hence the lower the proportionate contribution to common costs. The intuition behind Ramsey pricing is to minimise distortions from pricing based on marginal costs – and so prices are raised above marginal cost the least for those services where demand is most responsive to price.

²⁷⁴ 2012 CC Determination, paragraph 2.577.

²⁷⁵ 2012 CC Determination, paragraph 2.823 and also in summary at paragraph 2.929(b).

²⁷⁶ 2012 CC Determination, paragraph 2.929(a).

- 8.33 Sky was also concerned that in contrast to mobile call termination, the fixed line services that might make up the common cost contribution were not subject to strong competition. In response, it should be noted that while certain wholesale markets remain subject to SMP findings, we have previously found (and maintain in this review) that fixed retail markets are effectively competitive. Where wholesale markets have not been found competitive, ex-ante regulation will be in place (including in many cases charge controls). Indeed, the presence of some of this SMP regulation raises further complications in relation to cost recovery, for example, due to obligations to provide carrier pre-selection (CPS). We deal with these complications (and the consequence of marking up wholesale call origination relative to other services) later in this section.
- 8.34 While we recognise the extent of the (absolute) margin between LRIC+ and LRIC termination rates is materially lower with FTRs than was the case for MTRs (0.149ppm in 2013/14 in the case of FTRs and 0.92ppm in 2014/15 in the case of MTRs²⁷⁷), we consider that the competition arguments in favour of LRIC remain the same. FTRs act as a floor to call prices, the exact effect of which on individual CPs is affected by calling patterns and market shares. In particular, we recognise the arguments raised by TalkTalk and H3G, and note that FTRs above incremental costs drive a wedge between the marginal costs of off-net and on-net calls. This effect is likely to be more pronounced for CPs with a smaller share of subscribers – since other things equal this raises the proportion of calls expected to go off-net. This can act as a disincentive to lowering call prices; since this is likely to stimulate more calls, and for a CP with a small market share, the majority of these calls will go off-net (and incur an FTR above incremental cost).
- 8.35 As well as the relative balance of off-net and on-net calls, the competition effects also depend on the balance of inbound and outbound traffic. Even though a small CP would be expected to see a larger share of inbound traffic coming from off-net (e.g. from other fixed CPs, mobiles, and international numbers) and hence earn higher revenues from FTRs at LRIC+, such an offset will not occur in customer segments where there are more outbound than inbound calls. While we recognise that for those segments where outbound calls are less than inbound calls, the effects are reversed, our preference would be for there to be as much of a level playing field across the market as possible – i.e. that particular CPs were not unduly constrained in retail pricing by virtue of the combination of calling patterns, market shares and FTRs above LRIC.
- 8.36 In order to consider the scale of the effects of FTRs at LRIC+, we have considered the net per line effect relative to FTRs at LRIC.²⁷⁸ In particular, even though the ppm difference between LRIC+ and LRIC is quite small, the difference on a per line basis is not insignificant. With a net volume across all fixed CPs of off-net terminated traffic (i.e. excluding all fixed to fixed traffic) of 37 billion minutes, the difference between

²⁷⁷ In 2008/9 prices, the MTR for 2014/15 was estimated at 1.61ppm at LRIC+ and 0.69ppm at LRIC. See paragraph 7.21 and 7.135 of the 2011 MCT Statement.

²⁷⁸ By net effect, we mean excluding fixed-to-fixed (F2F) call volumes, as these would net off in revenue and outpayments between fixed CPs when FTRs are symmetric (i.e. 1 minute of termination sold to another fixed CP is worth the same as a minute of termination purchased from a competing CP). However, for individual CPs the balance of traffic will matter. For a CP which originates more (less) traffic than it terminates, FTRs at LRIC+ are a greater competitive disadvantage (advantage) relative to FTRs at LRIC. We have considered the net revenue effect because it provides: (i) a simplification to indicate the net importance of FTRs per line on average; and (ii) it allows comparison with the per subscriber effects reported in the 2011 MCT Statement.

FTRs at LRIC+ and LRIC would amount to approximately £1.68 p.a. per fixed line.²⁷⁹ In the 2011 MCT Statement, the net effect per subscription from the move to LRIC (from LRIC+) was reported as £2.50 p.a.²⁸⁰ This serves to illustrate that if FTRs continued to be regulated at LRIC+ there would be an enduring advantage to fixed CPs (on average) of a similar magnitude from the per subscriber difference between MTRs at LRIC+ and LRIC.

- 8.37 With regard to Virgin Media's position, we recognise that there have been concerns with BT's data used to calculate LRIC in the past.²⁸¹ However, in setting the NCC for the period 2013-2016, we propose to use a bottom-up (BU) model, which would not be so closely dependent on BT's top-down (TD) cost information, from which BT's FAC and (D)LRIC figures reported in its Regulatory Finance Statements (RFS) are based.²⁸² Therefore, we do not see the provenance of the cost data as a reason for rejecting LRIC for FTRs.

Proposals on the cost standard for regulating termination rates

- 8.38 In light of the above, we see no reason to deviate from the approach we took on MTRs and therefore propose to cap FTRs by reference to LRIC, rather than LRIC+. This would also be consistent with the 2009 EC Recommendation.

Wholesale call origination

- 8.39 In setting controls for wholesale call origination, the 2009 NCC used CCA FAC, a particular form of LRIC+.
- 8.40 We propose to keep LRIC+ as the appropriate cost standard for wholesale call origination, but the basis on which we set the "+" (i.e. the contribution to common costs) needs re-examination for the reasons explained in the next sub-section.

How common cost recovery affects our NCC proposals

- 8.41 FTRs at LRIC will no longer provide a contribution to the recovery of common costs. This issue is not unique to the regulation of FTRs; it also arose in the case of regulating mobile termination rates (MTRs).
- 8.42 In the 2011 MCT Statement we envisaged that MCPs would recover common costs from competitive (and thus unregulated) services i.e. mainly retail services. As the CC noted in its 2012 Determination (2012 CC Determination), *"...in general it is preferable for costs to be recovered where there is competition, so that regulated*

²⁷⁹ This is made up of approximately 31bn minutes of mobile-to-fixed geographic calls (Ofcom Quarterly Data, Q2 2012, Mobile telecoms tables and 6.9bn minutes of international calls to United Kingdom fixed CPs (Ofcom Quarterly Data, Q2 2012, Fixed telecoms tables – we have assumed that the number of minutes of international calls received by fixed CPs is equal to those dialled by United Kingdom fixed line consumers). Also based on 33 million exchange lines in Q3 2012. See Ofcom Quarterly Data.

²⁸⁰ Paragraph 7.135, fn 432, of the 2011 MCT Statement.

²⁸¹ See for example, paragraph 4.59 et seq. of the Review of BT's Network Charge Controls Statement, 15th September 2009, where we stated that we then preferred the use of CCA FAC for, among other reasons), *"the greater transparency and reliability of CCA FAC data than available LRIC data"*.

http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf

²⁸² BT's RFS report D(LRIC) for call termination, i.e. "distributed" LRIC in which intra-core common costs are allocated across all services in the core network, including termination, on the basis of equi-proportionate mark-ups. Therefore, the (D)LRIC reported in the BT RFS is greater than LRIC.

*firms have the appropriate incentives to minimize their costs and behave efficiently.*²⁸³

- 8.43 However, an important distinction in the mobile sector is that asymmetric regulation outside the termination market did not constrain the scope for MCPs to re-optimize their retail packages.²⁸⁴ In particular, MCPs do not compete against CPs to whom they are required to offer wholesale access and call origination services at regulated rates.²⁸⁵
- 8.44 By contrast, in fixed access and origination markets, there are a number of retail CPs which supply some of their end customers using wholesale access provided by BT (at regulated rates) but do not supply wholesale call termination to those same customers, meaning they do not receive FTR revenues for those calls. As a result, for those customers they supply using CPS or IA, such CPs will benefit from FTRs at LRIC (compared with LRIC+). This is because not only will they pay out lower FTRs, but they will not face a reduced revenue stream since they do not provide wholesale call termination for these customers themselves. As such, they will not have to rebalance their own prices for those customers to continue recovering common costs.²⁸⁶
- 8.45 Therefore, for those CPs which provide wholesale call termination to at least some customers (i.e. those with direct access networks), reducing FTRs to LRIC will incentivise them to increase prices for other services (or to not reduce them as quickly) in order to recover common costs. However, CPs which have at least some customers they do not provide wholesale call termination to (e.g. CPs that use CPS/WLR to supply some or all customers), may be in a position to undercut CPs which provide direct access for their end customers. For example:
- a) If direct access CPs were to raise retail call prices, the availability of regulated wholesale call origination would allow CPs using CPS to undercut such call price increases (unless the wholesale call origination rate were increased accordingly).
 - b) If direct access CPs were to raise retail line rental prices, the availability of regulated WLR would allow CPs without a direct access network to undercut any line rental increases (unless the WLR charge were increased accordingly).

Options for addressing common cost recovery

- 8.46 In the May 2012 CFI we identified three alternative approaches to the recovery of common costs no longer recovered from FTRs.²⁸⁷ Specifically common costs could be recovered from:
- a) unregulated services only;

²⁸³ Paragraph 2.577, 2012 CC Determination.

²⁸⁴ While some price regulation does exist in respect of mobile services other than MCT, it relates to international roaming and is applicable to all MCPs.

²⁸⁵ While the four national MCPs offer wholesale mobile access to mobile virtual network operators (MVNOs), such access is commercially provided and is not subject to ex-ante regulation – on either the terms or charges for access.

²⁸⁶ We note that many CPS operators will actually provide services to end customers using not only CPS but also using their own direct access networks. As a result, the net impact for these CPs will be affected by the overall balance of outbound and inbound traffic across both directly and indirectly connected end customers.

²⁸⁷ Paragraph 6.30, May 2012 CFI, <http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/>

- b) regulated services only; or
- c) both regulated and unregulated services.

- 8.47 As noted previously, in May 2012 we published a report on the experiences of other European NRAs in implementing the 2009 EC Recommendation. That report also included a summary of approaches to recovering common costs previously recovered through FTRs.²⁸⁸ At this stage, there does not appear to be a consensus of approach. For example, the French regulator, Arcep, opted for an increase in the WLR charge, in Sweden PTS indicated that recovery should be across un-regulated services (although this is still subject to consultation), as did BIPT in Belgium, and in Norway NPT indicated an increase in fixed wholesale call origination rates. While having not yet concluded on whether to adopt LRIC (consultation is now ongoing²⁸⁹), Austria previously indicated common cost recovery from unregulated services and regulated wholesale origination services.
- 8.48 Since then, the Irish regulator, Comreg, and the German regulator, BNetzA, have issued final decisions on FTRs. In its consultation, Comreg proposed that Eircom be allowed to mark-up wholesale call origination.²⁹⁰ However, in its final statement, Comreg found (from examination of the cost models available to it) that no particular service required an increase in charges.²⁹¹ By implication this decision seems to be driven by the judgment that there was not a sufficiently material impact on the charges for other services, rather than being based on rejecting the principle that charges for wholesale call origination or other regulated services could increase.
- 8.49 In Denmark, DBA has notified pure LRIC for FTRs, and as a consequence, determined that a proportion of the uncovered costs related to interconnection should be attributed to WLR customers, and therefore should be recovered by means of an increased WLR charge.²⁹²
- 8.50 BNetzA recently concluded in favour of setting FTRs at LRIC+ (although this is still subject to national consultation²⁹³), so the recovery of common costs from other services does not appear to arise.²⁹⁴

Responses to the May 2012 CFI

- 8.51 One respondent considered that it may be appropriate to allow common cost recovery from other regulated services for transparency as to where efficiently incurred costs were being recovered.²⁹⁵ Related to this, TalkTalk stated that there were strong arguments for CPS and IA CPs to bear the recovery of common costs to

²⁸⁸ Analysys Mason, Report for Ofcom, "Study of approaches to fixed call origination and termination charge controls", 14 May 2012.

²⁸⁹ https://www.rtr.at/en/komp/Konsult_M_1_8_12

²⁹⁰ See summary contained at paragraph 7.167 of *Mobile and Fixed Voice Call Termination Rates in Ireland*, 21 November 2012 <http://www.comreg.ie/fileupload/publications/ComReg12125.pdf>

²⁹¹ See paragraph 7.177 of *Mobile and Fixed Voice Call Termination Rates in Ireland*, 21 November 2012 <http://www.comreg.ie/fileupload/publications/ComReg12125.pdf>

²⁹² Cullen International Cross-Country Analysis December 2012. *Table 13 – Fixed termination rates moving towards pure LRIC?* http://www.cullen-international.com/report/7180/t7464#Table_13

²⁹³ BNetzA press release, *New fixed interconnection rates published*, 30th November 2012 http://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2012/121130_ICratespublished.html

²⁹⁴ Cullen International Cross-Country Analysis December 2012. *Table 13 – Fixed termination rates moving towards pure LRIC?* http://www.cullen-international.com/report/7180/t7464#Table_13

²⁹⁵ Virgin Media, Response to Q28 of May 2012 CFI

avoid competitive distortions in the retail call market.²⁹⁶ One respondent [X] also argued that it was important to avoid the recovery of common costs through average porting conveyance charges (APCCs) because this would introduce competitive distortions between CPs with ported numbers and BT, as well as between CPs with ported numbers and CPS/IA CPs.

- 8.52 CWW argued that recovery of common costs from other sources, notably outbound call charges, are fundamental for pure LRIC-based termination rates. Of these call charges, many are at a retail level where there is no regulation and so it argued that it was a matter for each CP subject to FTR regulation how it recovered common costs in retail tariffs. However, CWW noted that there are some outbound calls which do not have costs recovered by retail tariffs (e.g. CPS). As a result, CWW acknowledged that the common costs removed from wholesale call termination will need to be spread equally across all origination minutes, and this will result in an increase to certain regulated wholesale call origination charges. If appropriate, other services could also bear a share of the displaced common costs.²⁹⁷
- 8.53 However, some respondents did not consider it appropriate to recover common costs from regulated services. One respondent [X] argued that SMP CPs have a broad portfolio of unregulated services from which to recover common costs, and noted that such CPs could also seek to make efficiency savings to compensate.²⁹⁸
- 8.54 Similarly, EE suggested that evidence of retail price increases indicated how relatively easy it was for BT and other direct access CPs to adjust their retail prices for additional common cost recovery. EE also noted that an increase in regulated charges could have an impact on competition and this needed to be weighed against the impact on those who received fixed termination revenue. Finally, EE argued that if Ofcom decided to allow recovery of common costs through regulated services, Ofcom should ensure that no over-recovery of costs was possible.²⁹⁹
- 8.55 H3G referred to the 2009 EC Recommendation and claimed that common costs should be recovered from the competitive side of the market, which it saw as consistent with the approach adopted in the 2011 MCT Statement.³⁰⁰
- 8.56 BT argued that common costs should be recovered from both regulated and unregulated services sharing the same common infrastructure. In BT's view this would avoid distorting incentives to invest – both by BT and others – as all common costs that contribute to the provision of a voice service are recovered from customers purchasing those services.³⁰¹

Ofcom's analysis and assessment of responses

- 8.57 In theory, the extent of contribution to common costs by individual services could be in line with general Ramsey principles, which would suggest the recovery of common costs across all relevant services based on inverse demand elasticities. Therefore, of the three options for common cost recovery set out in the May 2012 CFI we might, in theory, prefer the last, i.e. cost recovery from both unregulated and regulated relevant services.

²⁹⁶ TalkTalk, Response to Q28 of May 2012 CFI

²⁹⁷ CWW, non-confidential response to Q28 of May 2012 CFI

²⁹⁸ [X] response to Q28 of May 2012 CFI

²⁹⁹ EE response to May 2012 CFI, p.5

³⁰⁰ H3G response to Q28 of May 2012 CFI

³⁰¹ BT response to Q28 of May 2012 CFI

- 8.58 However, despite the views of H3G and one other respondent [X] to the contrary, we do not consider it appropriate to recover common costs from unregulated services only. This is because, as explained earlier, the presence of ex-ante wholesale regulation in fixed voice markets makes such an approach difficult. In particular, the presence of CPS and WLR CPs which do not provide wholesale call termination (and therefore do not lose revenue associated with a move to LRIC for FTRs) means that attempts to rebalance common cost recovery by direct access CPs can be undercut. This could lead to a competitive distortion in retail markets, as suggested by TalkTalk.
- 8.59 With regard to H3G's reference to the 2009 EC Recommendation, we are not persuaded that the 2009 EC Recommendation favours one approach to common cost recovery over another. We recognise that the Explanatory Note accompanying the 2009 EC Recommendation makes a passing reference to cost recovery from non-regulated retail services, but it does not present this as a recommendation on how common cost recovery should be addressed. Rather, it does so to illustrate how even with FTRs at zero, there is scope for CPs to recover costs.³⁰²
- 8.60 To a large extent we agree with BT's view that common costs should be borne by services that use the infrastructure in question. Any service for which the common costs in question form part of the stand-alone cost (SAC)³⁰³ might reasonably contribute to the recovery of those common costs. If one service is priced at LRIC, contestable markets theory would therefore point to prices for other services being between LRIC and SAC, such that across the combination of services total costs (and no more) were recovered. However, this theory alone does not get to a more specific solution as to how common costs no longer recovered via FTRs should be made up, other than the recovery being across services sharing that infrastructure.
- 8.61 We also agree with the respondent that APCCs should not be used to recover common costs no longer recovered from FTRs. This is because such an approach would need to also be compliant with General Condition 18.³⁰⁴ Further, it would involve a potentially large amount of common costs spread across a smaller subset of call volumes, which could lead to a significant increase in the APCC (which could have knock-on implications on competition at the retail level, particularly with low FTRs). Additionally, such an approach would favour those with a large volume of ported-out numbers, in particular BT.
- 8.62 The risk of distortion between those that provide wholesale call termination and those that do not, suggests that it is not likely to be competitively neutral to rely on common cost recovery from unregulated services. Instead, we consider that wholesale charges for regulated voice services should increase, as failure to do so would

³⁰² Commission Staff Working Document accompanying the 2009 EC Recommendation, p. 17: *"Given the two-sided nature of call termination, not all related termination costs must necessarily be recovered from the wholesale charge levied on the originating operator. Even if wholesale termination rates were set at zero, terminating operators would still have the ability to recover their costs from non-regulated retail services. Rather it is a question of how the financial transfers are distributed across operators in a way that best promotes economic efficiency to the benefit of consumers."*

³⁰³ Stand alone cost is an economic concept and represents the cost of producing the service in isolation, i.e. on a stand-alone basis. The stand alone cost will include all costs incremental to that service as well as any costs which, if there were production of other services, would be joint or common with those other services.

³⁰⁴ Any charges for the provision of portability shall be made in accordance with several principles, as set out in section 18.5 of *Consolidated Version of General Conditions as at 22nd November 2012 (including annotations)*. <http://stakeholders.ofcom.org.uk/binaries/telecoms/ga/general-conditions22nov12.pdf>

undermine the scope for BT and other direct access CPs to recover common costs. This would also ensure transparency about where common costs were being recovered – a concern raised by one respondent.

- 8.63 Before we discuss common cost recovery from regulated voice services further, it is important to note that the additional recovery should not be solely via charges to competitors – a concern raised by EE. Specifically, where common cost recovery is allowed via regulated charges, this should involve the same amount per unit of external and internal sales by BT – a point made by CWW.
- 8.64 With regard to the concern around efficiency made by [X], we consider that it is desirable to recognise cost-efficiencies in any forward looking assessment of common cost recovery. Therefore, where any wholesale charges are marked up for common cost recovery, we consider that this should reflect only the efficient level of common costs.
- 8.65 We also consider that it is important to ensure that there is not over-recovery of common costs – a point raised by EE. For example, if all common cost recovery were made up for on wholesale call origination, there would be no need to mark-up other services.
- 8.66 We now consider the potential approaches to marking-up regulated wholesale services, namely WLR and wholesale call origination.

Mark-up on WLR

- 8.67 In considering the choice between recovering additional common costs from WLR or wholesale call origination, we might at first glance apply Ramsey pricing principles which point towards more common cost recovery from relatively more inelastic services. For example, if demand for access lines were more inelastic to price changes than the demand for calls, we should look to recover common costs more from access than from calls.
- 8.68 Typically, demand for access has been estimated to be more inelastic than demand for calls.³⁰⁵ This is suggested by past estimates as well as the fact that demand for access is essentially a subscription decision (i.e. access or no access at all), whereas demand for calls can be more readily substituted (e.g. on a call by call basis) if the user has both a fixed and a mobile connection.³⁰⁶
- 8.69 Our own consumer research suggests similar consumer attitudes to access and calls. For example, consumers show generally high levels of attachment to landline services, with comparatively low proportions of respondents suggesting that they might consider giving up their access or calls packages (19% and 23% respectively).³⁰⁷ Similarly, the proportions that agreed with the statements “I would never give up my [landline access/landline calls package]” were relatively high for both (72% for access and 60% for calls). This could be driven by the fact that most consumers (95%) buy access and calls from the same supplier in a bundle, and 68%

³⁰⁵ As summarised in a recent literature review by Vogelsang, I, 2010. *The relationship between mobile and fixed line communications: A survey*, Information Economics and Policy, vol. 22(1), p4-17.

³⁰⁶ Briglauer, W., Schwarz, A., Zulehner, C., 2010. *Is fixed-mobile substitution strong enough to de-regulate fixed voice telephony? Evidence from the Austrian markets*. The authors also note that the complementarities between demands for access and calls imply that access substitution also triggers complete substitution of calls.

³⁰⁷ Narrowband Market Review Consumer Research, December 2012. Q6c(a/b)

consider of the cost of their particular bundle rather than the cost of individual components.³⁰⁸

- 8.70 So if we were to consider Ramsey pricing principles alone, the available evidence might point towards slightly more additional common cost recovery from line rental than from calls.
- 8.71 However, when there are cross-service demand relationships (i.e. cross-elastic effects) and when the empirical evidence on the full set of relevant elasticities is likely to be difficult to obtain robustly, applying Ramsey pricing can be very difficult. In previous regulatory reviews both we and the CC have rejected applying Ramsey pricing.³⁰⁹ More importantly, for the reasons set out below, Ramsey pricing principles are not the only relevant (or indeed most important) factor to consider in the present case.
- 8.72 Our concerns with applying an additional mark-up to WLR are as follows:
- a) The allocation of intra-traffic common costs to access services would result in costs which are not part of the stand alone cost of the access network being recovered from access service charges.³¹⁰
 - b) An additional WLR mark-up would increase the difference in price between substitutable wholesale access services, i.e. WLR and LLU, which are ultimately used in the provision of retail voice and broadband. This could further move the difference in price away from the difference in the underlying costs for the respective wholesale access services, and in particular from the difference in the absolute LRICs (the 'LRIC differential') for those services.³¹¹ Indeed, the desire to more closely align the difference in charges with the respective LRIC differentials for metallic path facility (MPF), WLR and WLR+SMPF, was an important aspect of the economic regulation of LLU and WLR in the last review of those services.³¹² If WLR charges were to increase relative to MPF charges due to the

³⁰⁸ Narrowband Market Review Consumer Research, December 2012. Q4 and Q15

³⁰⁹ For example, see the CC inquiry decision for Vodafone, O2, Orange and T-Mobile: Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Vodafone, O2, Orange and T-Mobile for terminating calls from fixed and mobile networks, 2003 http://webarchive.nationalarchives.gov.uk/+/http://www.competition-commission.org.uk/rep_pub/reports/2003/475mobilephones.htm#full; the Mobile Call Termination Statement, 27th March 2007, http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_term/statement/statement.pdf; and the charge control review for LLU and WLR services, February 2012 http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc/statement/LLU_WLR_CC_statement.pdf;

³¹⁰ Intra-traffic common costs relate to those costs shared between traffic increments (e.g. between termination, origination, and core network conveyance and transit services), but which are not shared between the traffic increment taken as a whole and other increments (such as the increment relating to the access network).

³¹¹ Broadly reflecting the LRIC differential in the wholesale charges for substitutable wholesale services can be desirable, particularly as it ensures that the choice between alternative wholesale inputs (or the 'build/buy' decision) is not distorted. See Section 7 of the *Charge control review for LLU and WLR services statement*, 7 March 2012, for a discussion of the potential efficiency benefits of LRIC differentials. <http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/statement/statementMarch12.pdf>

³¹² Using MPF, CPs can invest in voice and broadband equipment at BT exchanges in such a way as to gain greater control of services provided to end customers. Using WLR and SMPF, CPs can also provide voice and broadband to end customers, but with less control of the services provided. In the March 2012 *Charge control review for LLU and WLR services* (LLU/WLR statement 2012), paragraph

contribution of common costs no longer recovered via FTRs, this would further shift the differential between WLR and MPF charges away from the underlying LRIC differential³¹³ which is against our previously stated preference for LLU and WLR regulation.

- c) Distributional issues could arise as an increase in the access price may have a greater effect on vulnerable customers, for whom line rental may make up a large proportion of their fixed telephony expenditure.³¹⁴ WLR makes up approximately 37% of average monthly fixed telephony spend³¹⁵, but could be reasonably assumed to represent a greater proportion for lower income groups, who are likely to spend less than average on calls and be on lower priced subscription packages.
- d) For the period while CPS is used to support calls only offers, the ability of these CPs to undercut direct access CPs on calls would remain (given they do not purchase WLR and do not provide wholesale call termination). However, as discussed in Section 5, we propose that our regulation should focus on access plus calls provision. This, together with the modest extent of such calls-only CPs means we do not consider the potential distortion working in favour of calls-only CPs to be material.³¹⁶

Mark-up on wholesale call origination

8.73 The alternative is to mark-up wholesale call origination charges. For example, marking up wholesale call origination was favoured by the Dutch NRA, OPTA, and the Norwegian NRA, NPT.³¹⁷ It was also raised by CWW and TalkTalk.

8.74 Other NRAs such as Arcep, PTS and Comreg have rejected this option.

8.75 The advantage of marking up wholesale call origination is that it minimises the distortions that could occur in the access market if WLR is marked-up. More specifically, marking up wholesale call origination:

- a) ensures that intra-traffic common costs continue to be recovered from call services (rather than from access as would be the case with marking-up WLR);

7.65, we concluded that *“the price differentials resulting from relevant CCA FAC are reasonable from the point of view of efficiency for the LLU / WLR charge controls. Longer term, we expect to continue to reduce the price differentials to the differences in absolute LRICs.”*

³¹³ Since WLR + SMPF charges are currently above MPF charges by more than the LRIC differential.

³¹⁴ The importance of fixed line access for vulnerable customers and the resulting need for a universal service is discussed further in Ofcom’s Review of the Universal Service Obligation, 2005.

<http://stakeholders.ofcom.org.uk/binaries/consultations/uso/statement/statementreview.pdf> For example, paragraph 2.1 sets out *“Universal Service provides a safety net that ensures basic fixed line services are available at an affordable price to all citizens and consumers across the United Kingdom. There are both social equity and economic grounds for USO. It provides services to help vulnerable customers and those in remote and rural areas, whom the market might not otherwise choose to serve, allowing them to take their full part in the economy and society. In addition, all citizens benefit by having a larger telephone network; they can contact and be contacted by more people.”*

³¹⁵ Based on 2012 WLR prices (£98.21 p.a.) and estimated average household spend on fixed voice of £22.06 per month (Figure 5.52, Ofcom CMR 2012)).

³¹⁶ Pure CPS/IA operators are currently very small and declining (less than approximately 1% of all retail lines)

³¹⁷ It should be noted, however, that in the Netherlands the pure LRIC decision (from which followed the choice of wholesale call origination charges for the recovery of common costs) was itself overturned on appeal.

- b) does not distort the prices of WLR and LLU determined in the 2012 LLU/WLR Statement, and thus protects the move towards more efficient relative prices between substitutable inputs for the same (or similar) downstream access services; and
- c) may also avoid potential distributional concerns arising from WLR charge increases (if passed on to low spending vulnerable consumers).

8.76 As noted above, a potential concern with marking up wholesale call origination is that it could have a disproportionate harmful impact on calls-only CPs. This is because BT and all other direct access CPs could still recover common costs via a mark-up on retail line rental (without this cost recovery being undermined since calls-only CPs do not offer retail lines). Therefore marking up wholesale call origination may disadvantage calls-only CPs. However, as previously noted in Section 5, we propose a sunset clause on the existing CPS remedy which effectively removes the regulatory obligation for calls-only CPS. Moreover, we note that the number of current BT retail lines which are calls only CPS (or IA) is small and diminishing – i.e. the overwhelming majority of CPS CPs today provide both retail calls and access (the latter via WLR). As such, we do not consider the potential distortion against calls-only CPs to be material.

Administrative costs

8.77 Administrative costs have previously been recovered via BT's separate Product Management, Policy and Planning (PPP) charge. However, as set out in Annex 12, we now propose to include a contribution to these costs in calculating wholesale call origination rates.

Proposal on common cost recovery

8.78 For the reasons set out above (and in Annex 12 for administration costs), we propose to regulate wholesale call origination on the basis of LRIC+, but where the "+" will include an additional contribution to common costs no longer recovered from FTRs at LRIC, and administration costs no longer separately recovered through a PPP charge.

Regulating the FTRs of other CPs

- 8.79 As explained in Section 6, we propose to set a condition requiring all other CPs with SMP in fixed call termination to provide network access on reasonable request and to notify charges. This continues the regulatory remedies set out in the 2009 NMR Statement.
- 8.80 In the 2011 final guidance for fair and reasonable termination rates (2011 F&R Guidance)³¹⁸, we set out our regulatory position that FTRs for wholesale fixed call termination would be presumed fair and reasonable where they were symmetric – i.e. no higher than the Benchmark FTR (as determined by the charge control based on our estimate of efficient costs of providing wholesale fixed call termination) unless justified in individual cases.

³¹⁸ *Fair and reasonable charges for fixed geographic call termination, Statement and Final Guidance.* Published 27 April 2011.

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

- 8.81 This position of symmetry as a basis for setting fair and reasonable FTRs was presumed, irrespective of the scale, topology or technology of a CP's network. Central to this decision was our conclusion, confirmed by several respondents to the consultation on that guidance, that differences in network topology between BT and other fixed CPs were not necessarily reliable indicators of efficiently incurred costs of wholesale call termination.
- 8.82 In the 2011 F&R Guidance we set out that FTRs above the Benchmark FTR were only likely to be fair and reasonable where a CP was able to demonstrate that it meets the following three-stage test, all stages of which a CP would need to satisfy to support its claim:
- a) charging an FTR equal to the Benchmark FTR would deny the CP recovery of its actual costs of providing wholesale call termination;
 - b) its actual costs of providing wholesale call termination were efficiently incurred; and
 - c) charging a higher FTR than the Benchmark FTR would be offset by demonstrable consumer benefit.
- 8.83 We also set out our view of what symmetry meant for the time of day profile, whereby CPs charge different rates at different times of the day (e.g. between daytime and evenings) or week.³¹⁹ The 2011 F&R Guidance stated that it would be presumed to be fair and reasonable where a CP sets rates equal to BT's Local Exchange (LE) rates for the different time periods. Where a CP sets a rate higher than the corresponding BT rate in a particular time period, we would expect that CP to demonstrate that this rate was reasonable, for example by considering whether its average FTR across all of its traffic exceeded BT's 24 hour rate. Where a CP sets particular ToD rates higher than the corresponding BT rates and its 24 hour average exceeds the Benchmark FTR, we identified that the three-stage test may be appropriate in assessing whether the overall rates should be considered fair and reasonable.
- 8.84 Other aspects of the 2011 F&R Guidance related to identification of the nodes in the network from which the symmetric FTR would apply and in the case of interworking costs (for TDM to IP traffic – and vice versa) which CP should incur those costs. These other aspects of the network access obligation for the provision of wholesale call termination, whether provided by BT or by other CPs, are dealt with in Annex 11.
- 8.85 Also in April 2011 we issued guidance on how we proposed to apply the similar network access obligation imposed on mobile CPs (MCPs) with SMP in wholesale call termination – in particular, the smaller MCPs not also subject to the MTR charge control.³²⁰ In the MTR guidance we proposed that we would take the benchmark MTR (i.e. the MTR charge control level as applied to the four national MCPs) as the starting point for establishing a fair and reasonable MTR for smaller MCPs. The

³¹⁹ See paragraph 5.21 et seq. of the 2011 F&R Guidance for a full discussion of this issue, *Fair and reasonable charges for fixed geographic call termination, Statement and Final Guidance*. Published 27 April 2011. <http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

³²⁰ *Wholesale mobile call termination: Guidance on dispute resolution in relation to fair and reasonable charges*, Statement, 5 April 2011. See <http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/statement/guidance.pdf>

same three-stage test as that set out above was proposed in the event that a smaller MCP sought to justify a higher MTR than the benchmark.³²¹

Proposal on regulating the FTRs of other CPs

- 8.86 For the period to September 2016, we propose to continue with the principle of symmetry as described in our 2011 F&R Guidance. Therefore, for the period to September 2016, we propose to issue guidance to the effect that FTRs above the Benchmark FTR would need to be justified by reference to the three-stage test set out in our 2011 F&R Guidance. As set out in Section 6, this position should ensure that FTRs for all CPs are based on LRIC in the absence of objective cost differences.
- 8.87 We continue to recognise that CPs may wish to vary their rates across different charging periods in a different way to BT. Where a CP wishes to do this, but can show that its 24 hour average FTR across all its traffic does not exceed the Benchmark FTR, we propose that its rates should be considered fair and reasonable.

KCOM

Wholesale fixed call termination

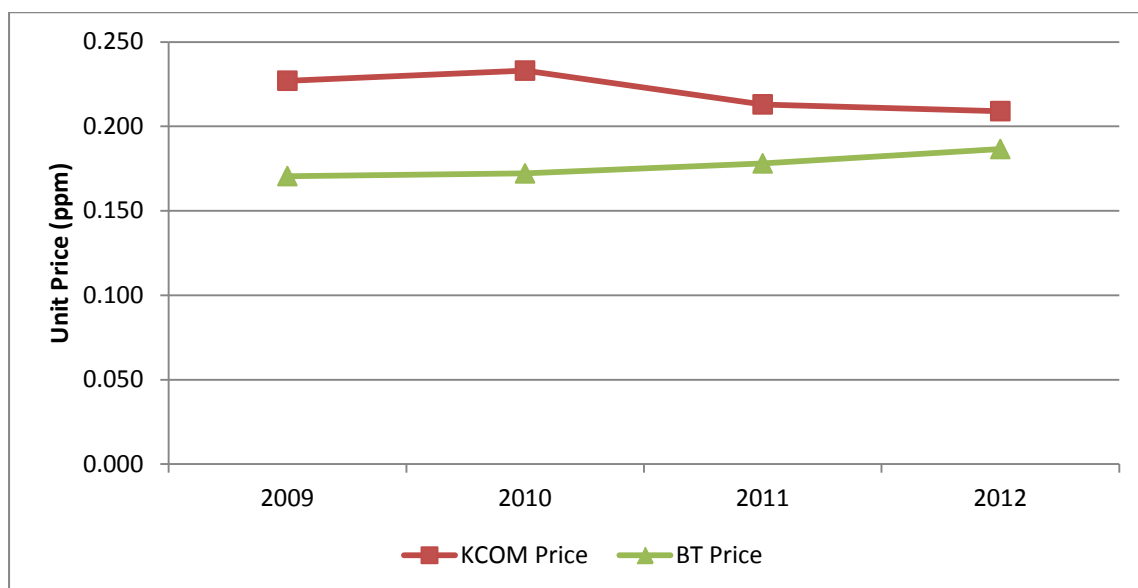
- 8.88 In the 2009 Wholesale Review, we found that for the period to September 2013, KCOM had SMP in wholesale call termination in the Hull Area and we imposed specific regulation in that market.
- 8.89 We indicated in the 2011 F&R Guidance that we would consider the regulation of termination provided by KCOM at the next narrowband market review. We also stated that the same principles (as set out in that guidance) may be applicable to any future consideration of KCOM's FTR, taking into careful consideration any specific circumstances of wholesale call termination in the Hull area.³²²
- 8.90 As set out in Section 6, we continue to consider that KCOM has SMP in wholesale fixed call termination. However, we no longer propose to regulate KCOM's SMP in a different manner to the approach adopted for CPs other than BT. For the period from 1 October 2013, we propose that KCOM is subject to the same regulation as CPs other than BT in the provision of wholesale call termination – in particular, (i) an obligation to publish prices; and (ii) an obligation to provide network access on fair and reasonable terms and conditions.
- 8.91 For this reason, we propose that the guidance set out earlier on the interpretation of fair and reasonable network access would now apply to the regulation of the FTR set by KCOM in the Hull area. Therefore, once subject to the guidance, KCOM's FTR will be presumed fair and reasonable providing it is no higher than the Benchmark FTR, unless it is able to demonstrate that a higher FTR meets the three-stage test (outlined above).

³²¹ Also in the case of MCPs providing voice call termination as an over the top (OTT) service we considered that the benchmark MTR was unlikely to be a suitable starting point and the regulated FTR was identified as a potentially suitable starting point. See paragraph A1.17.

³²² See paragraph 5.31-5.32 of the 2011 F&R Guidance, *Fair and reasonable charges for fixed geographic call termination*, *Statement and Final Guidance*. Published 27 April 2011. <http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

- 8.92 In the application of the F&R 2011 Guidance to all other CPs, we allowed a 17 month transition period (from 27 April 2011 to 1 October 2012) before they were subject to the guidance.
- 8.93 On this basis it might be argued that KCOM should be subject to a similar transition period before its FTR is subject to the F&R Guidance. However, any transition period needs to be balanced against the delayed benefits from achieving FTRs at no higher than the Benchmark FTR, which from 1 October 2013 we propose is LRIC (see Section 11). Therefore, we consider below how significant a change this may represent for KCOM, to help inform our preliminary view of any appropriate transition period.
- 8.94 Figure 8.1 shows that KCOM's FTR in 2011/12 was relatively close to BT's external rate (0.21ppm and 0.19ppm respectively, each on a weighted average basis over the year and over the day/evening/weekend periods and excluding PPP). Since BT currently has an RPI+X control and KCOM's FTR has been relatively flat in the last year (with a decline the year before), we do not consider there to be a strong reason to expect the two cost-based rates to diverge in the final year of the control. Therefore by 30 September 2013 we consider that any difference is likely to be negligible.

Figure 8.1: BT and KCOM³²³ external FTRs



Note: FTR for KCOM excludes PPP, in order to reflect BTs external reported wholesale call termination local exchange segment services. BTs prices exclude Stick and ISDN.

- 8.95 In Section 11 we propose that from 1 October 2013, the charge controlled rate applied to BT's FTR will move from its 2012/13 level to be based on LRIC. Therefore, we propose that the Benchmark FTR is also reduced to LRIC from 1 October 2013, which will affect all CPs currently subject to the F&R Guidance (unless they are able to justify higher FTRs on the basis of the three-stage test as set out in our F&R Guidance). Given we do not see any compelling reason for why we would expect KCOM's costs to diverge significantly in this period, we do not consider there to be a strong reason for KCOM to have a different trajectory to LRIC-based FTRs (unless

³²³ KCOM's rates are currently subject to cost-orientation, which in the specific instance of KCOM's pricing means that its rates are aligned to FAC.

higher FTRs are justifiable according to the three-stage test) to the other CPs affected by this change.

- 8.96 Therefore, we do not see a reason to delay KCOM's FTRs being subject to the F&R Guidance, and so propose that KCOM would be subject to the same F&R Guidance as other CPs with SMP in wholesale call termination from 1 October 2013.

Proposal on regulating KCOM's FTR

- 8.97 In summary, we propose KCOM's FTR should become subject to the F&R Guidance (and thus would be expected to be no higher than the Benchmark FTR unless it is able to justify otherwise according to the three-stage test) from 1 October 2013. In Annex 15, we have proposed a revised version of the 2011 F&R Guidance to reflect this.

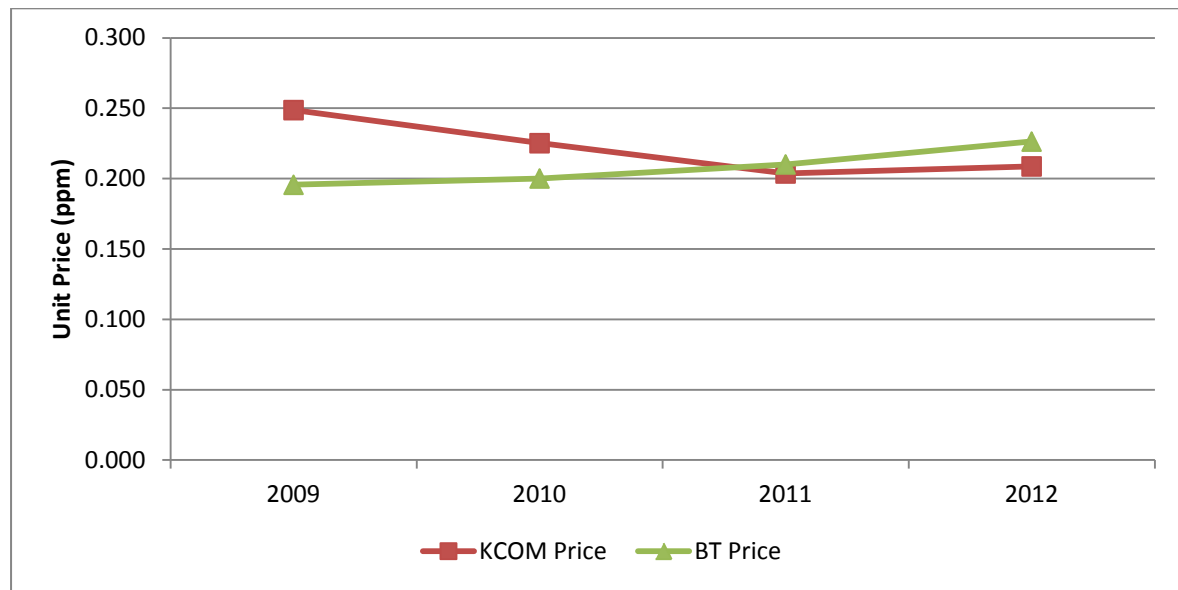
Wholesale fixed call origination

- 8.98 As for BT, and other CPs which provide wholesale fixed call termination, the move to symmetric and LRIC-based FTRs for KCOM means that there will be some common costs previously recovered from FTRs that will need to be recovered on other services.
- 8.99 As set out in Section 5, we propose to remove the specific CPS and IA obligations for KCOM in the Hull Area and instead rely exclusively on the general requirement to provide network access on reasonable request. We are also proposing a 12 month sunset clause on each of these existing obligations. Although CPS is not currently widely used in the Hull area, IA is in use (as discussed in Sections 3 and 5). As a result, there are CPs which compete with KCOM using IA, but which do not themselves lose termination revenues when FTRs are reduced to LRIC (as they do not supply wholesale call termination themselves), but do gain from reduced FTR payments to KCOM (and other terminating CPs such as BT). Therefore, as with CPS and IA via the BT network, there is a risk of distortion, but this effect is much less material than for BT given the limited retail competition we observe in Hull.³²⁴
- 8.100 As explained above in the case of BT, we propose that common costs no longer recovered from LRIC-based FTRs can be recovered through a mark-up on regulated wholesale call origination rates.
- 8.101 In relation to KCOM, we do not propose a charge control on regulated wholesale call origination. We also do not propose a cost-orientation obligation on KCOM, which to date has formed part of the SMP obligations on KCOM in the provision of wholesale call origination.
- 8.102 Instead, we propose that the requirement to provide network access for wholesale call origination should be accompanied by guidance on what would amount to fair and reasonable terms and charges. In order to consider what might constitute fair and reasonable charges, it is useful to consider the current level of KCOM's wholesale call origination rate.
- 8.103 KCOM's wholesale call origination rates have been historically slightly higher than BT's, but have been converging with BT's over recent years and fell below BT's in 2011/12, as can be seen in Figure 8.2 below. We do not consider there to be a

³²⁴ See Sections 3 and 4 for a discussion of the retail markets in the United Kingdom excluding Hull and the Hull area respectively.

strong reason to expect these rates to be far apart in the final year of the current control, and so are likely to remain comparable.

Figure 8.2: BT and KCOM external wholesale call origination rates



Proposal on regulating KCOM's wholesale call origination rates

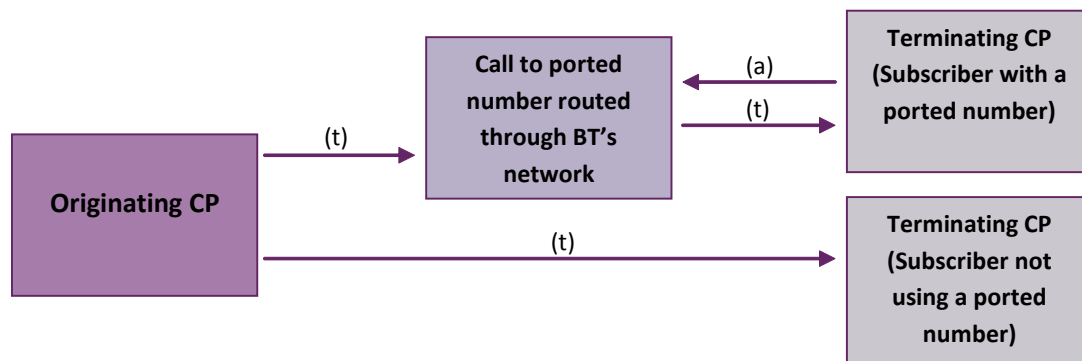
- 8.104 As a first-order test we propose that KCOM's wholesale call origination rates would be presumed fair and reasonable where they are no higher than BT's wholesale call origination rate. This seems reasonable given that KCOM's current wholesale call origination rate is comparable to the BT rate, and going forward, we do not consider there to be strong reasons to expect their costs to significantly diverge.
- 8.105 However, this would not preclude KCOM from charging more than BT's wholesale call origination rate. If KCOM wanted to charge higher rates we would expect KCOM to provide compelling evidence that the cap applied to BT for wholesale call origination would deny KCOM the opportunity to recover its efficiently incurred costs.
- 8.106 We consider this to be an effective yet proportionate approach to regulating KCOM. It links KCOM's wholesale call origination rates with the costs of an efficient CP (without the added burden of a charge control). We consider that this approach should also provide regulatory certainty: both to KCOM and to other CPs (such as those that purchase – or might wish to purchase – wholesale call origination from KCOM).
- 8.107 We propose that any increase in KCOM's wholesale call origination rates, if this were necessary for reasons of common cost recovery, should be on the same timescale as for the move to LRIC-based FTRs – i.e. from 1 October 2013. This is because the two changes are linked, i.e. any increase in the wholesale call origination rate would be to compensate for the reduced revenue (and therefore common cost recovery) from an FTR at LRIC (unless higher FTRs were justified on the basis of the three-stage test).

Porting conveyance charges

Nature of the issue

- 8.108 In response to the September 2012 Consultation, TalkTalk³²⁵ and Sky³²⁶ expressed concerns over the relationship between LRIC-based FTRs and average porting conveyance charges (APCCs).
- 8.109 When a customer ports their fixed line telephone number from one fixed CP (the “donor CP” (DCP)) to another fixed CP (the “recipient CP” (RCP)), calls to the telephone number will still be routed across the DCP’s network before terminating on the RCP’s network. This is known as “onward routing”.
- 8.110 Figure 8.3 shows a stylised example of how the APCC and FTRs interact. For illustration only, this example shows BT as the DCP. When making a call to a ported number, the originating CP routes the call to BT’s network and pays BT the FTR (denoted as (t) in Figure 8.3). BT onward routes the call to the recipient/terminating CP and pays it (t).³²⁷ The terminating CP pays BT the APCC denoted as (a) for onward routing the call. The terminating CP receives $= t - a$ when it terminates the call. When the number has not been ported, the originating CP directly routes the call to the terminating CP and pays it (t).

Figure 8.3: Stylised example of the APCC



- 8.111 The provision of porting conveyance and charges for onward routing are governed by General Condition 18 (GC18). GC18 requires, in short, that any charges by the DCP for the provision of portability must, subject always to the requirement of reasonableness, be cost orientated and, unless agreed otherwise between the DCP and the RCP or directed by Ofcom, be based on the incremental costs of providing portability.³²⁸
- 8.112 Sky and TalkTalk were concerned that if the APCC was not calculated on a LRIC basis using an NGN model, the APCC would be inconsistent with the FTR. This could mean that the APCC is greater than the FTR, meaning that an RCP will make a net loss for every minute of traffic it terminates for a ported-in number.

³²⁵ TalkTalk’s response to the 2012 September Consultation. Page 2 and 4.

³²⁶ Sky’s response to the 2012 September Consultation. Section 15 to 17.

³²⁷ This example assumes symmetric FTRs at the level of t ppm.

³²⁸ See section 18.5 of Consolidated Version of General Conditions as at 22 November 2012 (including annotations). <http://stakeholders.ofcom.org.uk/binaries/telecoms/ga/general-conditions22nov12.pdf>

Ofcom's analysis and assessment of responses

- 8.113 As FTRs fall, for a given level of APCC, the profit on termination will reduce. With FTRs at LRIC, APCCs will likely result in a loss, at least in the long-run, in the provision of termination for calls to subscribers which have ported their number. However, where subscribers have not ported their number, APCCs will not affect the revenue received per minute of terminated traffic. The overall position of a terminating CP will therefore depend on the volume of calls to ported-in numbers relative to the volume of calls to non-ported in numbers.
- 8.114 However, the fact that an RCP will face reduced revenues from FTRs at LRIC arises from our regulation of termination, not the separate regulation in relation to porting arrangements. The decision to cap FTRs at LRIC reflects our view of the appropriate remedy to address SMP in wholesale fixed call termination (for the reason set out earlier in this section). Indeed, current FTRs are not adjusted (revised upwards) for actual or expected APCCs. Instead, the setting of porting conveyance charges is governed by the General Conditions and not SMP regulation. Irrespective of the basis of charges in the NCC, the APCC should be set on a cost orientated basis in accordance with GC18.
- 8.115 Therefore, the regulation of APCCs is not related to the regulation of FTRs, and the change in cost standard to LRIC (and the resulting reduction in the absolute FTR) for wholesale call termination does not alter this.

Ofcom's proposal on average porting conveyance charges

- 8.116 We do not propose to alter the basis on which we set regulated FTRs for the fact that calls to certain numbers will incur an APCC levied on the terminating CP.
- 8.117 APCCs are currently commercially negotiated between CPs, but must be set on terms compliant with GC18. We consider that this remains the most appropriate way for CPs to set APCCs, including from the point when FTRs will be regulated at LRIC.

Question 8.1: *Do you agree that we should cap FTRs at LRIC? Please explain your reasons.*

Question 8.2: *Do you agree that wholesale call origination should be regulated on a LRIC+ basis where the "+" includes a mark-up to off-set the common cost recovery foregone from externally provided wholesale call termination on a LRIC basis? If not, please explain why.*

Question 8.3: *Should the FTRs of CPs other than BT be presumed fair and reasonable where they are no higher than the Benchmark FTR? If not, please explain why.*

Question 8.4: *Should the FTR set by KCOM in the Hull Area be presumed fair and reasonable where it is no higher than the Benchmark FTR? If not, please explain why.*

Question 8.5: *Do you agree with our proposed approach to the regulation of wholesale call origination rates in the Hull Area? If not, please explain why.*

Question 8.6: *Do you agree that LRIC-based FTRs should not be adjusted for APCCs?*

Section 9

Cost modelling for the charge control on wholesale call termination and wholesale call origination

Section Summary

- 9.1 In sections 5 and 6 we concluded that it was appropriate to set cost-based charge controls for wholesale call origination and wholesale call termination (we deal with the price regulation of interconnection circuits in Section 10). In section 8 we provisionally concluded that the appropriate cost standard for regulating FTRs was LRIC and that wholesale call origination rates should be regulated on a LRIC+ basis, including the contribution to common costs previously recovered from FTRs.
- 9.2 In this section we first summarise the high-level decisions for the cost modelling (e.g. technology choice), and, second, the key modelling assumptions (e.g. traffic forecasts, market shares, cost of capital and treatment of passive network elements).
- 9.3 This section is intended as an over-view of the key modelling decisions. The more detailed aspects of the model design, assumptions, and implementation are contained in Annexes 12-14.

Conceptual choices for 2013 NCC Cost model

Assessment of the technology to model³²⁹

- 9.4 In the 2009 NCC we modelled a hypothetical ongoing TDM network as the basis for setting cost based charges. In the September 2012 Consultation³³⁰ we identified two approaches to setting cost-based charges during a period of significant technology change:
 - i) the anchor pricing approach; or
 - ii) the Modern Equivalent Asset (MEA) approach.
- 9.5 We considered that an NGN could reasonably be considered as the MEA for voice services³³¹ and so could be used as the basis for setting the NCC. In the September 2012 Consultation we sought stakeholders' views on this approach.
- 9.6 There was general agreement from respondents that NGN technology could be an appropriate basis for setting cost-based rates (subject to some specific concerns discussed in Annex 11). However, there were different views on whether NGNs should be considered the MEA. Some respondents raised concerns over the extent

³²⁹ A detailed assessment of our modelling technology choice and response to the September 2012 Consultation can be found in Annex 11.

³³⁰ Ofcom, *Consultation on possible approaches to cost modelling for the Network Charge Control for the period 2013-2016*, September 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

³³¹ See paragraph 3.25 et seq. of the September 2012 Consultation for the full analysis.

to which an NGN is the MEA for all voice services considered on an end-to-end basis.

- 9.7 In light of the responses and after further consideration of the issues as set out in Annex 11, we do not propose to identify NGNs as the MEA for voice wholesale call termination, origination and interconnection. However, we do consider that a hypothetical NGN forms a reasonable basis on which to set regulated charges, for wholesale call termination and wholesale call origination³³² (interconnection is discussed in Section 10, Annex 11 and Annex 12).

Bottom-up and top-down modelling³³³

- 9.8 In the 2009 NCC we built a top-down cost model that started with BT's accounting data.³³⁴ In the May 2012 CFI and September 2012 Consultation, we proposed to build a bottom-up cost model as recommended in the 2009 EC Recommendation.
- 9.9 Responses to both consultations generally supported this proposal (subject to some specific implementation concerns discussed in Annex 12). We have therefore continued with a bottom-up approach for this consultation and propose to set charges based on the outputs from this model.

Calculating (pure) LRIC³³⁵

- 9.10 In the September 2012 consultation, we consulted on a cost model that will enable us to estimate the unit costs of fixed wholesale call termination on a LRIC and a LRIC+ basis. We proposed a decremental approach to calculate LRIC, similar to that applied in our 2011 MCT model. The decremental approach involves calculating the difference in cost produced by the network model when it is run with and without call termination.³³⁶
- 9.11 Some respondents to the September 2012 consultation raised concerns about the detailed application of the decremental approach and identification of incremental assets, but in general, stakeholders agreed with our use of this approach.
- 9.12 We continue to believe that it is appropriate to use the decremental approach when calculating LRIC. However, we have given careful consideration to whether other assets should be considered incremental to wholesale call termination that are not immediately captured by the decremental approach. In light of this assessment, we have adapted the model to include some of the cost of call server software licences in the incremental cost of wholesale call termination.³³⁷

³³² Our full justification for why we believe NGN is the most appropriate technology to model can be found in Annex 11.

³³³ Our assessment of the type of model to build can be found in Annex 12.

³³⁴ We made adjustments to this accounting data so it better reflected a hypothetical ongoing network.

³³⁵ Our approach to calculating LRIC is described in Annex 12.

³³⁶ A full explanation of the decremental approach can be found in Annex 12.

³³⁷ Our reasoning on this is set out in Annex 12.

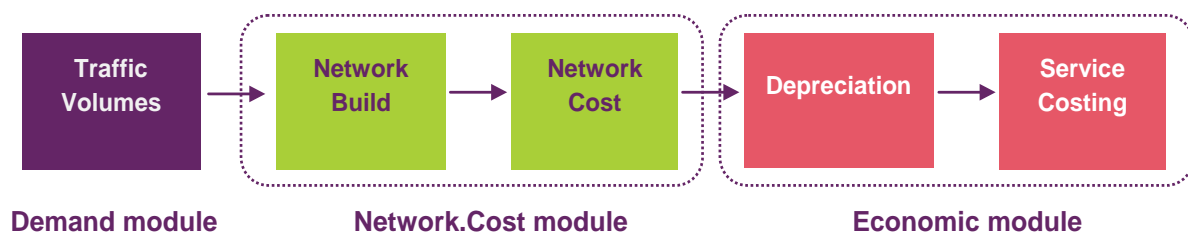
Design and implementation of the 2013 NCC cost model

Model design³³⁸

- 9.13 Our high level model design is very similar to that which we laid out in the 2012 September 2012 consultation. The model calculates unit costs in 5 steps:
- Step 1: Calculate the network traffic that is carried by the modelled NGN;
 - Step 2: Dimension a network capable of carrying this traffic;
 - Step 3: Calculate the cost of the assets in the dimensioned network;
 - Step 4: Recover the costs of the network over time using an economic depreciation algorithm; and
 - Step 5: Recover the cost of the network across services based on the routing factors used to dimension the network.

9.14 Figure 9.1 below shows how the Excel model is structured.

Figure 9.1: NCC model structure

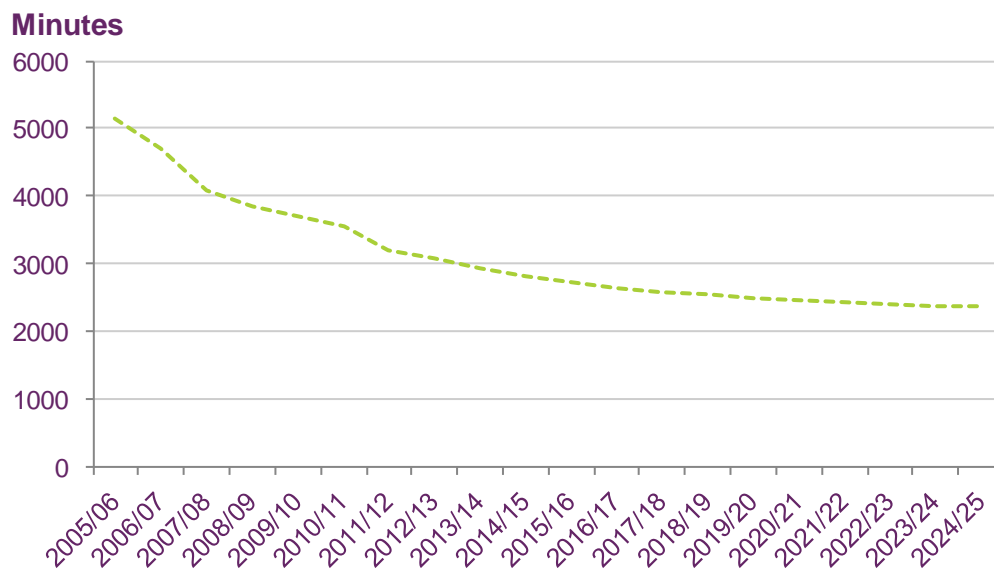
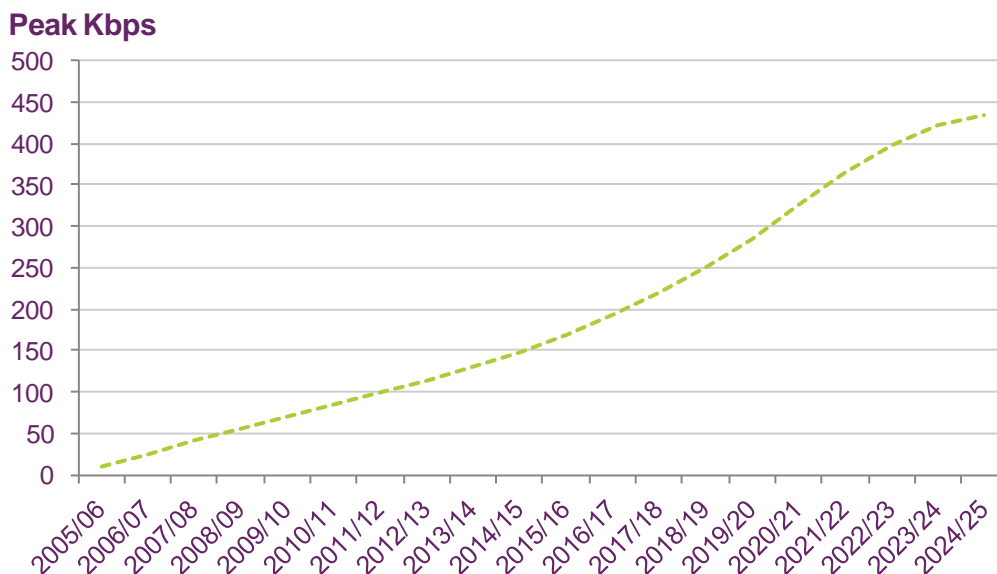


Traffic volume forecasts

- 9.15 It is necessary to calculate traffic forecasts for the hypothetical NGN in order to calculate how much network infrastructure will be required. As part of the September 2012 consultation, we explained that it is necessary to produce forecasts for data services as well as voice services in an NGN due to the economies of scope in NGN network equipment. We created and published a range of preliminary traffic forecasts in the September 2012 Consultation, based on extrapolated trends in the number of active voice/broadband lines and the usage per line of different traffic types.
- 9.16 In light of responses to the 2012 September consultation, and the availability of more recent data, we have updated our voice and data forecasts. The base case for these is shown in Figures 9.2³³⁹ and 9.3 respectively.

³³⁸ Detail of the network demand forecasts and cost recovery can be found in Annex 12. Detail of the modelled network design can be found in Annex 13.

³³⁹ The breakdown of residential and business outgoing minutes per line can be found in Annex 12.

Figure 9.2: Originating voice minutes per line per year³⁴⁰**Figure 9.3: Data usage in peak kbps per line³⁴¹**

Market share and NGN deployment assumptions

- 9.17 Having projected industry-wide traffic volumes, it is necessary to consider the quantity of traffic carried by the modelled network. This is determined by the market share of voice and broadband lines for the hypothetical CP over time. In the September 2012 Consultation, we presented three market share scenarios, but proposed to use a base case 25% market share for the modelled operator. This was based on an even split of the market between the largest direct access operators in

³⁴⁰ Weighted average of residential and business average usage.

³⁴¹ Peak kbps per line relates to the average traffic generated by each line in the network busy hour.

recent years³⁴² and because we attached more weight to the desire to mimic a competitive market outcome.

- 9.18 Respondents to the September 2012 Consultation gave a range of views regarding the appropriate market share. In light of the responses received and for the reasons set out in Annex 12, we have now decided that a 50% market share assumption is the most appropriate to use. However, as part of our sensitivity analysis we have examined the impact of different market shares on the model outputs (shown in Annex 14).

Network costs: Scorched node assumption

- 9.19 In the September 2012 Consultation we proposed basing our bottom-up network model on a 'scorched node' approach (which takes account of a network's existing topology), and therefore using the location and serving area of BT's existing exchanges. This was because we believe that BT's existing local exchange topology provides an acceptable proxy for an efficient network, and our cost model is predicated on competitive entry using LLU and NGN deployment at BT's local exchanges.
- 9.20 We received limited responses to the consultation on the scorched node approach. These responses did not lead us to rethink our approach and so we propose to continue basing the 2013 NCC model on a scorched node approach.

Network costs: "passive" network elements

- 9.21 In addition to NGN specific assets, an NGN will contain assets that could be used by either a TDM network or an NGN. In the September 2012 Consultation, we proposed not to model these shared assets on a bottom-up basis, but rather use the cost of the assets that are currently allocated to NCC services on a top-down basis as a proxy. We have identified 3 types of asset that fall into this category:
- ducts (the conduits through which underground cables are passed);
 - land and buildings (both corporate offices and network buildings); and
 - core transmission used to link exchanges (e.g. Fibre).
- 9.22 There was some support for our approach to passive assets and we do not believe a superior alternative was suggested. Consequently, we propose to maintain our approach to passive network assets.

Non-network costs

- 9.23 In addition to network costs, other non-network costs are included in the 2013 NCC model (known as 'administration costs'). In previous NCCs, administration costs have been charged as a separate service, i.e. PPP³⁴³ recovered from any wholesale calls using the BT network. In the September 2012 consultation, we proposed to model administration costs as a cost item within the cost stack for the modelled conveyance services rather than as a separate charge controlled service. However, we did not propose to include administration costs within the LRIC wholesale call termination

³⁴² BT, Virgin Media, Sky, and TalkTalk.

³⁴³ Product management, policy and planning.

cost stack as there did not appear to be a clear link between termination traffic volumes and the cost of administration services.

- 9.24 While some respondents raised questions about the exact details of administration costs and how they are included within the relevant cost stack (see Annex [12]), the majority of respondents supported our proposed approach. We have undertaken further analysis on the relationship between PPP costs and the call termination increment but could not find a causal link between them. Consequently, we do not propose to include any administration costs in the LRIC of fixed call termination.

Cost of capital

- 9.25 In the September 2012 consultation we outlined our approach to estimating the weighted average cost of capital (WACC), based on a disaggregated WACC for the different parts of BT (specifically a disaggregated WACC for BT's copper access business and another rate for the 'rest of BT') in order to reflect variation in systematic risk. We proposed that the 'rest of BT' rate is appropriate for services considered in this market review. The 'rest of BT' rate has also been used in previous NCC reviews. In light of responses received, we continue to believe this approach is appropriate.
- 9.26 Ofcom is currently reviewing the calculation of the WACC for BT as part of the leased lines charge control. Our 2013 NCC statement will reflect Ofcom's latest calculation for the BT WACC.

Figure 9.4: Real pre-tax WACC series³⁴⁴

| | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Real WACC | 8.7% | 8.7% | 8.7% | 8.7% | 8.3% | 8.3% | 8.3% | 6.5% |

Cost recovery: Over time

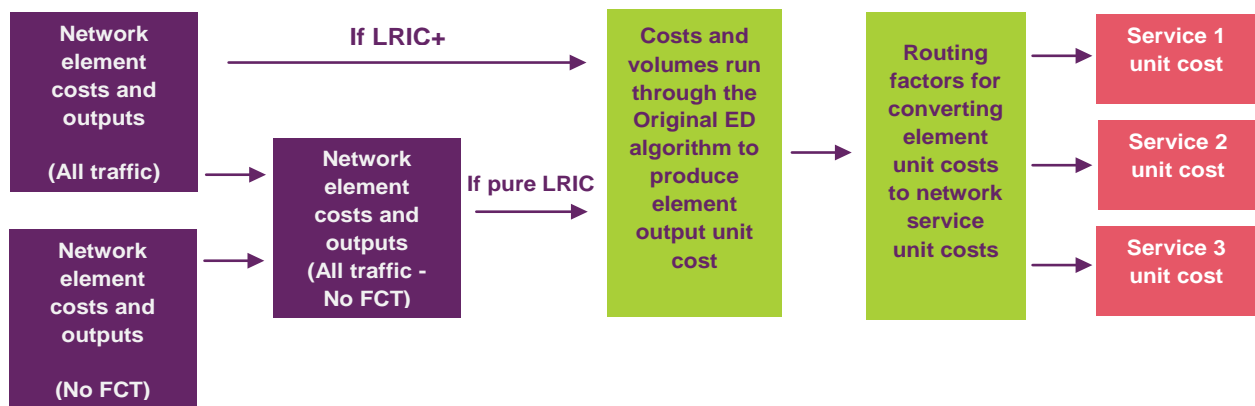
- 9.27 Once the total costs of the hypothetical NGN have been calculated, we must determine how these costs are recovered over time. In the September 2012 consultation, we proposed to adopt economic depreciation rather than accounting depreciation as it better mimics the outcome of a competitive market. In particular, we proposed to use a form of economic depreciation known as Original ED.³⁴⁵
- 9.28 Although we received some concerns about the exact details of economic depreciation in the model and the Original ED algorithm (addressed in Annex 12), we did not receive any responses that lead us to change our view that this is the appropriate approach to depreciation. Therefore we propose to continue to adopt economic depreciation.

Cost recovery: Between assets

- 9.29 In the September 2012 consultation we described how the costs of a particular network element should be recovered over time from different network services, according to adjusted routing factors (linked to the costs that are driven by that network service). Figure 9.5 below shows the flow of calculations when costs are being allocated across time and between services.

³⁴⁴ From 2012/13, the WACC is held constant at 6.5% in pre-tax real terms in perpetuity.

³⁴⁵ Original ED is a form of economic depreciation that seeks to match the cost of equipment to its actual and forecast usage over the long term. A detail description of Original ED can be found in Annex 12.

Figure 9.5: Cost recovery over time and across services^{346 347}

9.30 As discussed in Annex 12, there were some specific issues raised by respondents to the September 2012 consultation regarding the way we recover costs across assets. We have made some minor changes to our calculations, but we have not changed the overall approach.

Verification of model outputs³⁴⁸

9.31 When we have built bottom-up cost models for other charge controls, in particular the for mobile call termination, we have sought to calibrate the model outputs against network operator data. We are not able to calibrate the 2013 NCC model because there are currently no fully national NGN operators.

9.32 Although we cannot perform a standard calibration, we still believe that it is desirable to perform verification of the model outputs. In order to do this we have sought to satisfy the following conditions which amount to historic and forward looking cost recovery checks:

- i) The model should not recover more costs in historic periods³⁴⁹ than was possible given the regulated charges prevailing at the time; and
- ii) The model unit cost estimates for the regulated services combined should be no lower over the next charge control period than the unit costs of a heavily depreciated TDM network.³⁵⁰

9.33 Our model forecasts higher costs in the early years of network deployment, which in our base case starts in 2007/08. Therefore in order to meet the first of these conditions, in the base case we have adjusted cost recovery to reduce unit costs in historic periods. To allow cost recovery over the entire modelling period, more costs must be recovered in the future periods. This has the effect of adding a “mark-up” shown diagrammatically in Figure A12.11. We did not need to make any adjustment to satisfy the second condition.

³⁴⁶ For illustration only, the figure shows a 3 service model.

³⁴⁷ Fixed Call Termination (FCT).

³⁴⁸ The model verification process is described in Annex 14.

³⁴⁹ In our base case our model does not start to recover costs until 2008/09 and so the relevant period is 2008/09 to 2013/14.

³⁵⁰ As discussed in Annex 12, this model verification exercise is different from a comparison against a hypothetical ongoing network (an anchor pricing check), which we do not believe would be suitable in this case.

- 9.34 In order to check the LRIC outputs of our model, we have compared them to the outputs of other NRA models. Although we do not consider it would be appropriate to try and match the outputs of other NRA's models, we believe they can nevertheless be informative as to whether our own estimates are in a reasonable "ballpark". Although our LRIC estimates appear at the bottom-end of European estimates, we believe that it is within a reasonable range.³⁵¹

Model outputs

- 9.35 The base case results for each cost standard³⁵² are outlined in Figure 9.6 below. Figure 9.6 also includes high and low cost scenarios for each cost standard. A fuller description of these scenarios, in addition to a sensitivity analysis of the effect that key variables have on the unit cost of wholesale call termination, can be found in Annex 14.
- 9.36 In the high and low cost scenarios we change the following model parameters:
- i) Network traffic volumes;
 - ii) Asset utilisation;
 - iii) Modelled operator's WACC;
 - iv) Average busy hour call length;
 - v) Whether call server software licences are incremental to call termination; and
 - vi) The per licence cost of call server software licence.

Figure 9.6: Base case and sensitivity scenarios from the 2013 NCC cost model (ppm, in 2011/12 prices)

| | | 2013/14 | 2014/15 | 2015/16 |
|--------------------------|---------------|--------------|--------------|--------------|
| LRIC termination | | | | |
| | Low | 0.002 | 0.002 | 0.002 |
| | Medium (base) | 0.040 | 0.037 | 0.034 |
| | High | 0.077 | 0.071 | 0.065 |
| LRIC+ termination | | | | |
| | Low | 0.140 | 0.127 | 0.115 |
| | Medium (base) | 0.189 | 0.173 | 0.158 |
| | High | 0.313 | 0.290 | 0.269 |
| LRIC+ origination | | | | |
| | Low | 0.240 | 0.216 | 0.193 |
| | Medium (base) | 0.297 | 0.270 | 0.244 |
| | High | 0.490 | 0.453 | 0.419 |

Question 9.1: Do you agree with our proposed approach to modelling the cost of fixed call origination and fixed call termination? If not, please explain why.

³⁵¹ We outline this information in Figure A12.12.

³⁵² The cost estimates used to calculate the glide-paths in Section 11 are highlighted in bold text.

Section 10

Interconnect Circuits

Summary of proposals

- 10.1 In this section we consider the approach to be adopted in respect of interconnect circuits. We do not consider interconnection to be a market in itself but the provision of interconnection is closely related to the provision of regulated services in the markets previously discussed.
- 10.2 We propose that we should require BT to provide interconnection circuits based on our provisional conclusions that it has SMP in the following markets:
- wholesale call origination on fixed public narrowband networks in the UK excluding the Hull Area; and
 - call termination services which are provided by BT to another communications provider for the termination of calls to United Kingdom geographic numbers which BT has been allocated by Ofcom in the area served by BT.
- 10.3 We propose that we should require KCOM to provide interconnection circuits based on our provisional conclusions that it has SMP in wholesale call origination on fixed public narrowband networks in the Hull Area.
- 10.4 We do not propose that we would impose obligations in relation to interconnect circuits on KCOM based on its SMP in call termination alone. We discuss in this section that whilst we also propose that KCOM has SMP in call termination in Section 6 of this consultation, as for all other CPs except BT, we do not propose that an obligation to provide interconnect circuits is required in order to make our proposed remedies in those markets effective..
- 10.5 In Annex 11 we explain that we consider that the point of interconnection (and hence technology used for interconnection) should be determined by the network technology (and topology) by which the end customer is physically connected. Based on this, our proposal to require BT to provide interconnect circuits relates to interconnect circuits based on TDM technology connected to the BT DLE where the end customer is connected. In addition, in Annex 11 we set out our approach to the costs of conversion between TDM networks and NGNs (and, to the extent required, between NGNs). We also propose that the provision of conversion should, in the first instance, be agreed by commercial negotiation between interconnecting parties.
- 10.6 In order to support the effectiveness of the remedies we propose in these markets, we propose the following remedies on interconnect circuits:

Figure 10.1: Proposed remedies for interconnect circuits

| BT obligations | KCOM obligations |
|--|---|
| Requirement to provide network access on reasonable request Requests for new forms of network access Requirement not to unduly discriminate Requirement to publish a reference offer Requirement to notify charges Requirement to notify technical information Cost accounting Accounting separation Transparency as to quality of service Charge control | Requirement to provide network access on reasonable request Requirement not to unduly discriminate Requirement to publish a reference offer Requirement to notify charges Requirement to notify technical information |

Introduction

- 10.7 When two CPs pass voice calls between their networks, interconnect circuits provide the physical infrastructure to allow calls to be routed between the networks of different CPs.
- 10.8 All CPs have obligations related to interconnection under General Condition 1 (GC1).³⁵³ In this section we discuss whether we should impose specific obligations requiring any CPs to provide interconnect circuits in addition to the more general obligations.
- 10.9 Interconnect circuits are not identified within the 2007 EC Recommendation as a market in itself that should be considered for ex ante regulation. However, paragraph 5 of Section 2.6 of the Explanatory Note³⁵⁴ states:

“In principle, the proposed obligations should pertain to the relevant product market in which SMP has been found. However, in dealing with lack of effective competition arising from a position of SMP in an identified market, it may be necessary to impose several obligations to remedy the competition problem relating to services both inside and outside the market. In principle, an NRA may impose obligations in an area outside but closely related to the relevant market under review, provided such imposition constitutes:

- *the most appropriate, proportionate and efficient means of remedying the lack of effective competition found on the relevant market; and*
- *an essential element in support of obligation(s) imposed on the relevant SMP market without which those obligations would be ineffective.”*

³⁵³ General Conditions of Entitlement, <http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/general-conditions/>

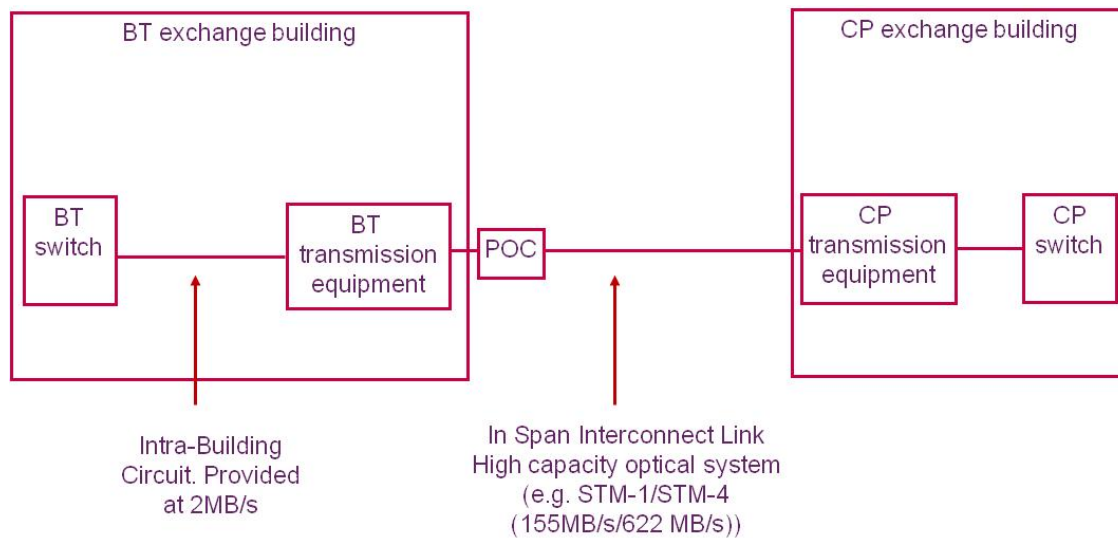
³⁵⁴ Commission Staff Working Document, “Explanatory Note accompanying Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services”, 13 November 2007, http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/eu_consultation_procedures/sec_2007_1483_2.pdf

Description of interconnect circuits currently provided by BT and KCOM

10.10 An interconnect circuit connects the exchanges (switches) of two CPs in order to allow traffic to pass between them. Some CPs may use leased lines to provide the transmission facilities between their locations although interconnect circuits differ from leased lines since they include switch ports and, where required, signalling termination.

10.11 BT currently supports four types of interconnect circuit:

- In Span Interconnection (ISI): to provide ISI, a CP builds its own network up to a Point Of Connection (POC), generally located just outside the BT exchange. BT then connects its network to the POC. Individual interconnect circuits of 2Mb/s capacity are then provided via the ISI link. An Intra Building Circuit (IBC) is required at each end of this 2Mb/s circuit to provide connection onto the interconnecting switches. The ISI configuration is shown below in Figure 10.2;
- Interconnect Extension Circuit (IEC): IECs build out from a POC provided via ISI (as above), and allow CPs to extend their interconnection network beyond the building to which they have built their own network. IECs are provided at 2Mb/s capacity and again require IBCs;
- Customer Site Interconnection (CSI): CSI does not require any infrastructure build by the CP. Instead, BT builds to the CP's site. Individual 2Mb/s interconnect circuits are then provided via this CSI link as required. Once again, IBCs are also required. The CP can use the BT-provided CSI infrastructure to interconnect to other BT exchanges; and
- Virtual Interconnect circuits (VICs): VICs require an interconnection to a tandem exchange using ISI or CSI. A "virtual" circuit is then provided. The virtual circuit provides capacity to the CP using the existing BT network to the DLE. This virtual circuit is charged for as if it were an IEC (i.e. the IEC charges apply). The CP then pays the rates for conveyance that would be charged by BT as if there was a physical interconnection at the DLE – i.e. the call origination or termination rate without a charge for LTC. VICs are essentially capacity based charges, although the capacity is restricted by the underlying BT infrastructure: i.e. the CP can only connect to DLEs that have a direct route to the tandem exchanges to which the CP is connected.

Figure 10.2: In Span Interconnect (ISI) Link Architecture

- 10.12 CPs with larger networks and larger traffic volumes are likely to provide some or all of their interconnection via ISI. This minimises ongoing payments to BT, albeit at higher initial cost for the CP. CPs can also buy Nominated ISI from BT. This is similar to an ISI connection, except that BT builds out its network some way in order to meet the CP's network. The CP pays for this extension from the BT exchange to the nominated POC.
- 10.13 Once a CP has established ISI to a particular BT exchange, it can use this, in conjunction with an IEC, to connect to other BT exchanges. The extent to which IECs can be used to extend reach is restricted based on the structure of the BT network (IECs can only be used to connect two exchange buildings if transmission links already exist in the BT network between them) and geography. IECs incur fixed installation and annual rental charges as well as distance-related rental charges.
- 10.14 CPs that have not built ISIs use CSIs to connect to BT exchanges. This reduces the up-front cost of interconnection. BT provides the CSIs to the CP's location. CSIs incur fixed installation and annual rental charges as well as distance-related rental charges.
- 10.15 VICs were agreed through commercial negotiations between BT and CPs without intervention from Ofcom, even though they involve charges referenced to regulated services (i.e. IECs). They were put in place to support migration to 21CN but have been used more widely. Whilst BT has subsequently suspended its plans to migrate voice services onto 21CN it has continued to provide new VICs.
- 10.16 KCOM provides ISI and IECs. It does not provide CSI or VICs.

The 2009 Market Review

- 10.17 We reviewed the arrangements applying to interconnect circuits in the 2009 Wholesale Market Review.³⁵⁵

³⁵⁵ Section 10 and Section 11, *Review of the Fixed Narrowband Services Wholesale Markets- statement on the markets, market power determinations and remedies including further*

- 10.18 We discussed the TDM-based interconnection products that BT and KCOM supplied at the time and set out our understanding of the interconnection products BT was proposing to supply as part of its migration of voice services onto 21CN. BT put on hold its deployment of voice services on 21CN prior to our final determination in the 2009 Wholesale Market Review.
- 10.19 We focussed our regulation on TDM interconnection services. In relation to BT, we imposed the following obligations: requirement to provide network access on reasonable request; requirement not to unduly discriminate; requirement to publish a reference offer; requirement to notify charges; requirement to provide transparency as to quality of service; requirement to notify technical information; requirement in relation to requests for new network access; a cost orientation obligation; a charge control and cost accounting and accounting separation obligations.
- 10.20 In relation to KCOM we imposed a requirement to provide network access on reasonable request; requirement not to unduly discriminate; requirement to publish a reference offer; requirement to notify charges; requirement to notify technical information; a cost orientation obligation, and cost accounting and accounting separation obligations.

Developments since the last market review

- 10.21 Since the 2009 Market Review we have considered issues that affect our approach to interconnection, in particular, in the 2011 F&R Guidance³⁵⁶, the CFI³⁵⁷ and the September 2012 Consultation.³⁵⁸ We discuss our position on interconnection issues set out in these documents, and stakeholders' responses to the latter two, in Annex 11.

Reasons for requiring the provision of interconnect circuits

- 10.22 We have discussed in Annex 11 our approach to choosing the network technology to model for the purposes of setting cost-based charge controls and our approach to interconnection. Within that discussion we explained that NGN technology provides an appropriate basis for setting charge controls for wholesale call origination and wholesale call termination and propose to include 20 Pols in the model. We also explain in Annex 11 that:
- it is uncertain that NGNs can be identified as the MEA for the provision of all voice services;
 - a history of infrastructure-based entry is likely to result in a market with competing CPs using different technologies. Where it is likely to be efficient for CPs to continue to exploit existing infrastructure rather than to invest in duplicate infrastructure when new technologies become available, and the continued use of

consultation, 15 September 2009,

http://stakeholders.ofcom.org.uk/consultations/wnmr_statement_consultation/summary.

³⁵⁶ Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>.

³⁵⁷ Ofcom, *Fixed narrowband market review and network charge control (call for inputs)*, 17 May 2012

<http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/summary/condoc.pdf>.

³⁵⁸ Ofcom, *Narrowband Market Review - Consultation on possible approaches to cost modelling*, 28 September 2012 <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>.

different technologies is not clearly inefficient, technology neutrality favours an approach in which the termination (and origination) rates set by regulation applies at the node to which the customer is actually connected; and

- where TDM networks are required to provide IP Interconnection, there is the potential for arbitrage which may lead to multiple conversions between TDM and IP, leading to inefficiency and potential service quality issues.

10.23 Therefore, for interconnection to BT, we propose that the Pol would be at the DLE to which the customer is connected. Similarly, for other terminating CPs that have deployed a TDM network the Pol would be the existing switch to which the called customer is connected. For NGNs, the locations of Pols are decided by the specific network implementation of the specific CP. We do not propose to require TDM networks to provide IP interconnection at a reduced set of Pols. In particular, we do not propose to require BT to provide IP interconnection at 20 Pols as used in our model or at the “27+2” previously agreed by NGNuk.

10.24 In addition, in Annex 11 we set out our approach to the costs of conversion between TDM networks and NGNs (and, to the extent required, between NGNs). We have excluded the costs of this conversion from the regulated charges for wholesale call origination and wholesale call termination. In our view, conversion is potentially a contestable service. We propose that the provision of conversion should, in the first instance, be agreed by commercial negotiation between interconnecting parties and so we do not propose to regulate the provision of conversion.

10.25 We now need to consider whether we need to impose specific regulation on the provision of interconnect circuits by BT and KCOM to allow access to services in the wholesale call origination and wholesale call termination markets.

BT

10.26 BT, like other CPs, has an obligation under General Condition 1 of the General Conditions of Authorisation, which states:

“The Communications Provider shall, to the extent requested by another Communications Provider in any part of the European Community, negotiate with that Communications Provider with a view to concluding an agreement (or an amendment to an existing agreement) for Interconnection within a reasonable period.”³⁵⁹

10.27 We consider that this obligation, alone, is insufficient to address the concerns we have identified in this market review. We propose that BT has SMP in both the wholesale call origination and wholesale call termination markets. Wholesale call origination is a one-way access service. A CP with SMP in this market is able to discriminate against competing providers seeking access to this service. This could be achieved through the call origination service itself or via other services that are strong complements, such as interconnection. In the case of BT, because its network footprint extends beyond that of all other CPs and, in addition, includes a large number of DLEs at which CPs would need to interconnect, in the absence of regulated interconnect circuits, CPs would need to either extend their own networks, which is unlikely to be economic, or seek to secure services provided by BT through commercial negotiations. Therefore, in the absence of regulation on the provision of

³⁵⁹ Ofcom, *General Conditions Of Entitlement*, last updated 22 November 2012, <http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/general-conditions/>

interconnect circuits, BT would have the ability and incentive to leverage its SMP from the wholesale call origination market into the provision of interconnect circuits, thus undermining the remedies imposed on BT in the wholesale call origination market.

- 10.28 Wholesale call termination is a two-way access service. Where two CPs of similar scale, both of which are subject to similar regulatory obligations (such as the regulation we have proposed on providers of fixed geographic call termination in Section 6) seek to purchase call termination from each other and so also need to interconnect, both CPs could in theory seek to leverage their SMP in wholesale call termination into the provision of interconnection. However, since they need to purchase services from each other to support their downstream products we consider that commercial negotiation is likely to be sufficient to address this concern and allow for the parties to agree terms for interconnection, including the provision of interconnection circuits. Because of BT's network scale, absent regulation, it is unlikely that another CP would be able to negotiate on this basis with BT and so BT would be able to leverage its SMP in call termination in its provision of interconnect circuits.
- 10.29 Therefore, we propose that BT should be required to provide interconnect circuits to allow other CPs to effectively compete in downstream markets when purchasing wholesale call origination or wholesale call termination provided by BT. We propose that BT should be required to provide interconnect circuits as follows:
- ISI, as this will allow larger CPs to take advantage of their own infrastructure deployments to provide interconnection;
 - IECs, as this will then allow those CPs that have deployed ISIs to maximise the utilisation of these investments; and
 - CSI as this will allow CPs that are not of sufficient size and network reach to viably deploy ISI to provide services in downstream markets based on wholesale call origination and call termination services provided by BT.

10.30 As in the 2009 Market Review, we do not propose to regulate VICs.

KCOM

- 10.31 We have proposed that KCOM has SMP in both the wholesale call origination and wholesale call termination markets in the Hull Area. For the same reasons as set out above for BT, KCOM could seek to leverage its SMP in wholesale call origination into the provision of interconnect circuits. Whilst KCOM's network does not have the same scale as BT's we consider this would still allow KCOM to discriminate against any CPs seeking to provide downstream services in the Hull Area based on wholesale call origination services provided by KCOM.
- 10.32 In relation to wholesale call termination, KCOM's much smaller network (as compared to BT and some other CPs providing wholesale call termination services in the United Kingdom) suggest it may be less likely that it could leverage SMP in wholesale call termination into the provision of interconnect circuits. In light of this, we consider that it is unnecessary to impose obligations requiring KCOM to provide specific interconnect circuits as a result of its SMP in wholesale call termination.
- 10.33 Due to the potential for KCOM to leverage its SMP in wholesale call origination, we propose that KCOM should be required to provide interconnect circuits. We propose

that KCOM should be required to provide ISI and IECs. We do not propose to require it to provide CSI. This is because it would not be reasonable to require KCOM to provide CSI circuits to CPs' locations outside of the Hull Area and, where a CP has a location within the Hull Area, we do not consider CSI would be required if ISI and IECs are available.

Other CPs

10.34 In this review we have determined that other CPs have SMP in wholesale call termination. We do not consider it is appropriate to require these CPs to provide interconnect circuits. For CPs that are found to have SMP in wholesale call termination and, as a result, are subject to an obligation to provide network access on reasonable request, interconnection would be relevant to the provision of such access in accordance with GC1. As discussed above in paragraph 10.28, as wholesale call termination is a two-way access service, commercial negotiations between CPs coupled with these regulatory obligations are, in our view, likely to be sufficient to allow CPs to gain the access they require to the wholesale call termination services offered by others. Consequently, we do not consider that CPs would be able to leverage the SMP identified in call termination into the provision of interconnect circuits and, as a result, no additional regulation is required.

Proposed approach to regulation of BT's provision of interconnect circuits

10.35 We propose to impose the following remedies on BT in relation to interconnect circuits.

Figure 10.3: Proposed remedies for interconnect circuits

| BT obligations |
|---|
| Requirement to provide network access on reasonable request |
| Requests for new forms of network access |
| Requirement not to unduly discriminate |
| Requirement to publish a reference offer |
| Requirement to notify charges |
| Requirement to notify technical information |
| Cost accounting |
| Accounting separation |
| Transparency as to quality of service |
| Charge control |

10.36 As explained above in paragraphs 10.26 to 10.30 we consider it necessary to impose regulatory obligations on BT to enable the effectiveness of the remedies we propose in the wholesale call origination and call termination markets, where we have found BT to hold SMP in the United Kingdom excluding the Hull Area.

10.37 In this section we set out our proposals for remedies to address our concerns. We start by discussing what we see as the main options for remedies as follows:

- Option 1: network access, non-discrimination and transparency obligations; and

- Option 2: price regulation (in addition to network access, non-discrimination and transparency obligations).

10.38 Having discussed the approach that we consider to be most appropriate, we then discuss each specific condition in relation to whether it meets the relevant legal tests for imposing such conditions.

Option 1 (network access, non-discrimination and transparency obligations)

10.39 As set out above, in the absence of regulatory remedies to secure the supply of interconnect circuits, BT could restrict access to other providers and this could in turn restrict competition in the provision of retail offers. Therefore, we consider it is important that BT is required to provide interconnect circuits on fair and reasonable terms to all CPs that request service.

10.40 In the wholesale call origination and call termination markets we have proposed an obligation on BT not to unduly discriminate in order to allow other CPs to compete with BT in downstream markets.

10.41 Where BT needs to interconnect to other CPs to terminate calls to these networks, interconnect circuits are required. BT is able to provide its own interconnect circuits for these calls given the scale of its network. These interconnect circuits would be provided in a similar way to interconnect circuits provided by BT to other CPs, although BT could seek to provide interconnect circuits to these CPs on different terms and conditions and/or charges than it applies to its own circuits. This would allow it to discriminate against CPs that rely on these interconnect circuits to compete with BT in downstream markets.³⁶⁰ BT could also discriminate in the provision of interconnect circuits by, for example, providing services to some CPs on less attractive terms than to others. BT may take this approach to impair the ability of specific CPs to compete with BT's own retail services. Therefore, we consider that a no undue discrimination obligation is required in relation to interconnect circuits.

10.42 In order to ensure that BT complies with the proposed obligations to provide network access and not to unduly discriminate, we propose that additional obligations related to transparency are also required. Transparency obligations provide third parties with access to the information needed in order to make informed decisions about BT's interconnection services. Without these obligations, not only would it be difficult for third parties to assess whether BT was meeting its obligations to provide network access and to not discriminate unduly, it may also be the case that third parties would not have sufficient information to decide which interconnection products to purchase. Transparency obligations would require BT to publish a reference offer, charges and technical information related to interconnection services with sufficient notice so that third parties could act on the information in a timely manner. Without this, BT could change products or pricing with insufficient (or ultimately without) notice, in such a way as to discriminate in favour of its retail divisions.

10.43 In addition, we also propose that an obligation to account separately for internal and external sales of interconnection circuits is required to allow CPs and Ofcom to monitor BT's behaviour in relation to its obligation not to unduly discriminate.

³⁶⁰ BT reports internal interconnect sales of £15m versus external sales of £34m in 2012. BT, *Regulatory financial statements – 2012*
http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2012/RFS_2012.pdf

Option 2 (Option 1 and price regulation)

- 10.44 We now consider whether the remedies set out under Option 1 above are in themselves sufficient to address the potential detriments from BT's SMP in wholesale call origination and call termination, or whether further remedies to address pricing concerns are also required.
- 10.45 We have set out in Sections 5 and 6 that we consider charge controls are required for wholesale call origination and wholesale call termination provided by BT as otherwise BT would be in a position to increase prices for these services to the detriment of its competitors and ultimately consumers. Without price regulation on interconnect circuits, it would similarly be in BT's interests to increase the price of these services to impair the ability of other CPs to compete in downstream markets. If BT increased the price, CPs would be unable to purchase interconnection to BT's network from elsewhere. As such, BT could leverage its SMP from the wholesale call origination and call termination markets by price increases in interconnection services.
- 10.46 Whilst there may be some pricing constraint flowing from the general access remedies proposed above and BT's own use of interconnect circuits, we do not consider that this would be sufficient given the importance to all other CPs of interconnection to BT given its scale and geographic reach.
- 10.47 We therefore propose that price regulation is required on interconnection services provided by BT. We consider two approaches to price regulation – cost orientation and charge controls – below.

Cost orientation

- 10.48 In previous reviews we have imposed cost orientation in addition to charge controls on interconnect circuits. In doing so, we have considered that LRIC plus an appropriate mark up for common costs is the preferred method for this type of regulation in communications markets. A requirement for charges to reflect an appropriate mark-up allows sufficient flexibility for BT to recover common costs in an efficient way whilst avoiding anti-competitively low prices or excessive prices.
- 10.49 First, we consider whether it is appropriate to impose only a cost orientation obligation on BT. If we were to do this, along with guidance as to the interpretation of this (for example, we could provide guidance that BT's prices should be between Distributed Long Run Incremental Cost (DLRIC) and Distributed Stand Alone Costs (DSAC), BT would be required to adjust its prices to comply with the obligation if its current pricing was outside this range.
- 10.50 However, we consider that the cost orientation obligation would not provide sufficient constraint on BT's pricing. The DLRIC and DSAC figures reported in BT's regulatory financial statements for 2012³⁶¹ provide a wide range for each of the interconnection services. If BT was subject to just a cost orientation obligation, this could mean it would be able to increase the prices of some or all of its interconnection services to levels well above costs (and, by implication, the competitive level). For example, even if no individual charges were in excess of DSAC, without further restriction on BT's pricing, and given its market power, it could set a combination of charges at or

³⁶¹ BT, *Regulatory financial statements* – 2012

http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2012/RFS_2012.pdf

close to DSAC in such a way that it recovered more than the incremental and common costs incurred.

Charge control

- 10.51 Since, by definition, interconnect circuits connect the BT network to another CPs' network, there may be an incentive on BT to price interconnect circuits appreciably above costs to limit competition in markets where its own downstream divisions are active.
- 10.52 We have set out above why we do not consider that other remedies would be sufficient to address this concern. Where there is a risk of a firm setting excessive prices, as we have identified in relation to interconnect circuits provided by BT, a charge control can help ensure that customers and ultimately consumers are not exploited. As well as seeking to cap price charges, our preferred method of charge control regulation (RPI+/-X) seeks to incentivise cost efficiency on the part of the dominant provider, thereby imitating the effect of a competitive market. If the firm can reduce its costs below the level expected when the cap was set, then the firm retains the increased profits, at least for the period the control is in place.
- 10.53 A charge control would also provide certainty for purchasers of BT's interconnect circuits in that the maximum price which they can be charged would be known for the period of the review.
- 10.54 Therefore, we propose that a charge control is an appropriate remedy to the concerns we have identified.
- 10.55 In previous reviews, we have also imposed cost orientation to provide protection against excessive pricing of individual services (in addition to the charge control which applied to the overall basket in aggregate). However, as explained in Section 11 and Annex 12, we propose that sub-caps on individual services are more appropriate to address this concern and so do not propose to impose cost orientation in addition to the charge control.
- 10.56 We also propose to impose a cost accounting obligation which will provide us, and CPs, with the necessary information to support the monitoring of effectiveness of the remedies we propose above.

Conditions we propose for BT

- 10.57 The rest of this section sets out the specific remedies we are proposing to impose on BT.

Requirement to provide network access on reasonable request

- 10.58 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as it may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and that conditions are complied with within the periods and at the times required.
- 10.59 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the Act, including, inter alia, the technical and

economic viability of installing other competing facilities and the feasibility of the proposed network access.

Aim of Regulation

10.60 We propose that it is appropriate to impose a requirement on BT to meet reasonable requests for network access in relation to interconnect circuits, due to its SMP in the markets for wholesale call origination and wholesale call termination. This remedy is required because, without it, BT would have an incentive not to provide interconnect circuits on a reasonable basis which would reduce the effectiveness of the remedies we have proposed in the wholesale call origination and call termination markets. The ability of competing CPs to request, and to be provided with, interconnection services will facilitate competition in downstream markets by allowing providers other than BT to offer competing end-to-end narrowband services.

Proposed condition

10.61 The proposed condition will require BT to provide network access in response to such a reasonable request and that access should be provided on fair and reasonable terms and conditions.

10.62 As we also propose to impose a charge control on BT's provision of interconnection circuits, we propose to exclude the requirement to provide services at fair and reasonable charges from this condition. This is because we consider that a charge control is sufficient to address our competition concerns so that additional pricing regulation is not required.

Legal Tests

10.63 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The proposed condition is:

- objectively justifiable as its intention is to promote downstream and ultimately retail competition by ensuring third parties are able to acquire wholesale access on fair and reasonable terms where they are unable to replicate BT's network;
- non-discriminatory as we propose to impose it on BT, which we propose has SMP in both wholesale call origination and wholesale call termination services, and for which we consider that that interconnect circuits are required to be provided by BT to allow remedies imposed in these markets to function effectively as explained in paragraphs 10.26 to 10.30 above. A similar obligation is proposed for KCOM as a result of similar concerns in relation to its SMP in wholesale call origination. We do not propose to impose such an obligation on other CPs that we propose have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34;
- proportionate since without such an obligation BT could refuse to provide access and this would mean other CPs would not be able to effectively compete in relevant downstream markets, but does not require BT to provide access where it is not technically feasible or reasonable; and
- transparent as it is clear the intention is to ensure that BT provides access to its networks in order to facilitate competition.

- 10.64 We have considered our duties under section 3 of the Act. We consider that, in ensuring Network Access is provided at the reasonable request of third parties, the proposed condition would in particular further the interests of consumers in relevant markets by the promotion of competition.
- 10.65 We have considered the Community requirements as set out in section 4 of the Act. We consider that the proposed obligation will promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficient and sustainable competition in markets for electronic communications networks and services.
- 10.66 For the reasons set out above, we consider that the proposed condition is appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

Requests for new forms of network access

- 10.67 We propose that it is appropriate to impose an obligation on BT regarding the process by which it will address requests for new forms of network access in terms of interconnect circuits.
- 10.68 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as it may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and that conditions are complied with within the periods and at the times required.
- 10.69 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the Act, including, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access.

Aim of regulation

- 10.70 The aim of this regulation is to support access seekers in understanding the process they should follow in order to make reasonable requests for access from BT. To make such a request, the CP should provide BT with a Statement of Requirements (SOR) against which the reasonableness of the request can be assessed.
- 10.71 There are certain key principles that BT's process for handling SORs should meet in order for it to be effective. Therefore, the condition we propose to impose will require BT to have in place, and follow for each SOR, an SOR process which:
- is documented end-to-end and this documentation is available to CPs;
 - has reasonable timescales for each stage of the process;
 - clearly identifies the criteria by which a SOR will be judged;
 - sets out the information that should be provided in order for an SOR to be accepted; and
 - should be agreed between BT and industry.

10.72 We consider that the SOR process as currently documented (based on the process previously set out by us in specific SMP conditions in the 2003 market review) meets these criteria. In 2009 we removed the requirement to adhere to the specific process as set out in the 2003 condition to allow for changes to the existing process to be made if agreed by industry and BT. We propose to impose a condition that again sets out the main principles but allows industry to agree the specifics of any changes to the process.

Legal Tests

10.73 Section 87(3) of the Act authorises the setting of SMP services conditions in relation to the provision of network access. We consider that that under section 87(5)(a), the proposed condition will assist in securing fairness and reasonableness in the way in which requests for new forms of network access are made and responded to. The condition provides a framework for agreeing and implementing improvements to the existing system, while retaining a 'safety-net'.

10.74 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The proposed condition is:

- objectively justifiable as it recognises that a process for handling requests for new forms of network access is needed but that the condition should be flexible to allow for process improvements;
- not unduly discriminatory as we propose to impose it on BT, which we propose has SMP in both wholesale call origination and wholesale call termination services, and for which we consider that that interconnect circuits are required to be provided by BT to allow remedies imposed in these markets to function effectively as explained in paragraphs 10.26 to 10.30 above. Whilst we also propose KCOM has SMP in wholesale call origination and therefore certain interconnection obligations are necessary, we do not propose a similar condition because of the much lower demand for interconnect circuits from KCOM compared to BT. We do not propose to impose such an obligation on other CPs proposed to have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34;
- proportionate as it continues to provide a SOR process based on the currently implemented process while allowing scope for industry to be involved in agreeing process improvements; and
- transparent as its clear that the intention is to ensure that a process exists by which CPs can request new forms of network access and that any changes to this process that BT seeks to make are reflective of industry feedback.

10.75 We have considered our duties under section 3 of the Act. We consider that, in ensuring access seekers are able to make requests for new forms of network access based on an agreed SOR process, the proposed condition would in particular further the interests of consumers in relevant markets by the promotion of competition.

10.76 We have considered the Community requirements as set out in section 4 of the Act. We consider that the proposed obligation will promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficient and sustainable competition in markets for electronic communications networks and services.

10.77 For the reasons set out above, we consider that the proposed condition is appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

Requirement not to unduly discriminate

10.78 We propose to impose a condition on BT not to unduly discriminate in relation to the provision of interconnect circuits.

10.79 Section 87(6)(a) of the Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons, or against a particular description of persons, in relation to matters connected with the provision of network access.

Aim of Regulation

10.80 Where dominant providers are vertically integrated, like BT, they may have an incentive to provide wholesale services on terms and conditions that favour their own retail activities, in a way that would have a material adverse effect on competition

10.81 As set out in paragraph 10.41 in the absence of a requirement not to unduly discriminate, BT could discriminate against CPs in favour of its own downstream business, or between different CPs, which would have the effect of restricting or distorting competition in the retail market.

Legal Tests

10.82 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. We believe the proposed condition is:

- objectively justifiable, as it provides a safeguard to prevent BT from favouring its own retail businesses, to the disadvantage of its competitors as discussed in paragraph 10.41;
- non-discriminatory as we propose to impose it on BT, which we propose has SMP in both wholesale call origination and wholesale call termination services, and for which we consider that that interconnect circuits are required to be provided by BT to allow remedies imposed in these markets to function effectively as explained in paragraphs 10.26 to 10.30 above. A similar obligation is proposed for KCOM as a result of similar concerns in relation to its SMP in wholesale call origination. We do not propose to impose such an obligation on other CPs that we propose have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34;
- proportionate as it is intended to prohibit only undue discrimination, that is discrimination that would materially affect the ability of BT's competitors to compete on equal terms; and
- transparent, as it is clear that its intention is to prevent undue discrimination.

10.83 We have also considered our statutory obligations and the Community objectives set out in sections 3 and 4 of the Act.

10.84 On the basis that we propose that BT has SMP in the provision of wholesale call origination and wholesale call termination services, we consider that BT should also

provide interconnect circuits to allow for the remedies we propose in those markets to function effectively, as such BT controls key inputs used in downstream call markets. Together with an obligation to provide network access, the proposed obligation would in particular encourage the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition.

- 10.85 Therefore, we consider that the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.
- 10.86 Further, we consider that, in line with section 4 of the Act, the proposed condition in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of Network Access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.
- 10.87 For the reasons set out above, we consider that the proposed condition is appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

Transparency

- 10.88 Ofcom considers that it is appropriate to ensure that there is transparency of charges, terms and conditions in the provision of services by a dominant provider. Without such obligations, third party providers would not be able to check that they were being provided service on fair or reasonable terms and conditions.
- 10.89 We propose to impose the following obligations to provide transparency:
- requirement to publish a reference offer;
 - requirement to notify charges;
 - requirement to notify technical information; and
 - transparency as to quality of service.
- 10.90 Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a dominant provider to publish all such information, and in such manner as Ofcom may direct, for the purpose of securing transparency. Section 87(6)(c) of the Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract. Section 87(6)(d) also permits the setting of SMP services conditions requiring the dominant provider to include specified terms and conditions in the reference offer. Finally, section 87(6)(e) permits the setting of SMP services conditions requiring the dominant provider to make such modifications to the reference offer as may be directed from time to time.

Requirement to publish a reference offer

- 10.91 Ofcom proposes to require BT to publish a reference offer (RO) for interconnect circuits.

Aim of regulation

- 10.92 The main reasons for requiring the publication of a RO are to assist with transparency in monitoring for potential anti-competitive behaviour and to give visibility to the terms and conditions on which other providers would be able to purchase interconnection services.
- 10.93 The publication of a RO would allow for speedier negotiations and might avoid possible disputes. Together with a non-discrimination requirement, the publication of a RO would give confidence to those purchasing wholesale services that they were being provided on non-discriminatory terms.

Proposed condition

10.94 Ofcom considers that it is appropriate for the published RO to include:

- a clear description of the services on offer;
- terms and conditions including charges and ordering, provisioning, billing and dispute resolution procedures. The RO should provide sufficient information to enable providers to make technical and commercial judgements such that there is no material adverse effect on competition;
- information relating to technical interfaces and points of interconnection. Such information should ensure that providers are able to make full and effective use of all the services provided;
- conditions relating to maintenance and quality (service level agreements and guarantees). The inclusion of service levels, as part of the contractual terms of the RO, that provides for a minimum acceptable level of service, will ensure that services are provided in a fair, reasonable, timely and non-discriminatory fashion; and
- terms and conditions that are fair and reasonable. This will ensure that products are offered on terms and conditions as they would in a competitive market.

Proposed changes to existing condition

- 10.95 In the 2009 market review, we required BT to include information relating to network components in the RO. In this review we propose to remove this specific obligation, on the basis that we no longer consider that this information is required in order to assist CPs in monitoring for potential anti-competitive behaviour by BT, or to provide transparency that would allow CPs to make better informed decisions regarding purchasing interconnect circuits.

Legal Tests

- 10.96 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The proposed obligation is:
- objectively justifiable in that it requires that terms and conditions are published allowing competing providers the ability to ensure they are receiving offers that are provided on fair and reasonable terms and are not unduly discriminatory, therefore encouraging competition to the benefit of consumers;

- non-discriminatory as we propose to impose it on BT, which we propose has SMP in both wholesale call origination and wholesale call termination services, and for which we consider that that interconnect circuits are required to be provided by BT to allow remedies imposed in these markets to function effectively as explained in paragraphs 10.26 to 10.30 above. A similar obligation is proposed for KCOM as a result of similar concerns in relation to its SMP in wholesale call origination. We do not propose to impose such an obligation on other CPs that we propose have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34;
- proportionate in that it requires publication of only key information that is necessary for CPs to make decisions about which interconnect circuits to purchase, and whether these are offered on fair and reasonable terms and conditions and on a non-discriminatory basis, and does not require publication of additional information that is not necessary for this purpose; and
- transparent as it is clear the obligation is designed to ensure that potential competitors have sufficient information to make entry and investment decisions and to monitor anti-competitive behaviour.

10.97 We have also considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the Act.

10.98 The requirement to publish a RO would, in combination with a requirement not to discriminate unduly, facilitate service interoperability, secure freedom of choice for wholesale customers of BT and allow CPs to make informed decisions about future entry into the relevant downstream markets. The proposed obligation would make it easier for Ofcom and other CPs in the relevant market to monitor any instances of terms and conditions which were not fair or reasonable. Therefore, we consider that the proposed condition furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

10.99 Ofcom considers that the proposed condition meets the Community requirements set out in section 4 of the Act. In particular, the proposed condition promotes competition and encourages the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition for the maximum benefit for consumers. The publication of a RO would mean that other communications providers would have the necessary information readily available to allow them to make informed investment and entry decisions.

Requirement to notify charges

10.100 We consider that it is appropriate to require BT to publish any planned changes to charges in advance of those changes taking place.

Aim of regulation

10.101 The notification of charges at the wholesale level has the joint purpose to assist transparency for the monitoring of potential anti-competitive behaviour and to give advance warning of charge changes to competing providers who purchase wholesale access services. The latter purpose ensures that competing providers have sufficient time to plan for such changes. Notification of changes therefore helps to ensure stability in markets, without which, effective downstream competition may be undermined.

Proposed condition

10.102 We consider that the notice should include:

- A description of the access service;
- The location of terms and conditions in the RO;
- The effective date or period from which the changes will have effect; and
- The current and proposed charge.

Proposed changes to existing condition

10.103 In the 2009 market review, we required BT to give 90 days' notice before any proposed changes would be effective.

10.104 In relation to wholesale call origination and wholesale call termination, where we have proposed that BT continues to hold a position of SMP, we have proposed that BT should be required to provide at least 56 days' notice of changes to prices. This is because price changes are notified electronically, so changes can be notified much more quickly. On the basis that obligations related to interconnect circuits are based on the SMP found in the wholesale call origination and wholesale call termination markets, we consider it is appropriate to also propose that BT should provide at least 56 days' notice of changes to prices for interconnect circuits.

10.105 In addition, the condition imposed in 2009 included the requirement to also include the relevant usage factors and network components in the charge notification. We propose to remove this, for the same reasons as we have removed this requirement from the obligation to publish a RO, as discussed above in paragraph 10.95.

Legal Tests

10.106 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. It is:

- objectively justifiable, because general and reliable visibility of BT's prices is necessary to enable competitors to set prices for their services that are based on purchasing the regulated inputs. It also allows Ofcom and other CPs to monitor BT's prices for possible anti-competitive behaviour;
- non-discriminatory as we propose to impose it on BT, which we propose has SMP in both wholesale call origination and wholesale call termination services, and for which we consider that that interconnect circuits are required to be provided by BT to allow remedies imposed in these markets to function effectively as explained in paragraphs 10.26 to 10.30 above. A similar obligation is proposed for KCOM as a result of similar concerns in relation to its SMP in wholesale call origination. We do not propose to impose such an obligation on other CPs that we propose have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34;
- proportionate, in that only information that other network providers would need (in order to adjust for any changes) would have to be notified. Periods are proposed to be the minimum required to allow changes to be properly reflected in downstream offers; and

- transparent as it is clear the intention is to ensure that BT notifies those CPs that purchase interconnect circuits of changes to charges.

10.107 We have also considered our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

10.108 In particular, the proposed obligation would facilitate service interoperability and secure freedom of choice for the customers of CPs. The proposed obligation would promote the interests of purchasers of interconnection services by enabling them to adjust their downstream offerings in competition with BT, in response to changes in BT's charges. Finally, the proposed obligation would make it easier for Ofcom and BT's competitors to monitor any instances of discrimination.

10.109 For the above reasons, we consider that the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

10.110 Ofcom considers that the proposed condition meets the Community requirements set out in section 4 of the Act. In particular, the proposed condition promotes competition and secures efficient and sustainable competition for the maximum benefits of consumers by ensuring that providers have the necessary information to allow them to make informed investment and entry decisions.

Requirement to notify technical information

10.111 We consider that it is appropriate to require BT to notify technical information. We have proposed above that the period for notifying changes to charges should be 56 days, reduced from 90 days as imposed in the 2009 Wholesale Review. However, changes to technical information may have greater impact on CPs that purchase services from BT because they may mean some physical network re-arrangement may need to be considered. Therefore, we consider that a minimum of 90 days in advance of providing new wholesale services or amending existing technical terms and conditions is appropriate.

Aim of regulation

10.112 The aim of an obligation to provide advance notification of technical characteristics is to ensure that competing providers have sufficient time to respond to changes that may affect them. For example, a competing provider may need to introduce new equipment or modify existing equipment or systems to support a new or changed technical interface.

10.113 Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of network access and technical standards (including any usage restrictions and other security issues). Relevant information about network configuration is likely to include information about the function and connectivity of points of access, for example, the connectivity of exchanges to end users and other exchanges.

Proposed condition

10.114 The existing condition requires the notification of new technical information 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. We continue to believe that 90 days is the minimum time that

competing providers would need to make modifications to their network to support changes.

Legal Tests

10.115 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. It is:

- objectively justifiable as it enables competing operators to make full and effective use of network access. The period allows CPs time to react to proposed changes without imposing an unnecessarily long notification period on BT that may restrict its ability to develop and deploy new features or products;
- non-discriminatory as we propose to impose it on BT, which we propose has SMP in both wholesale call origination and wholesale call termination services, and for which we consider that that interconnect circuits are required to be provided by BT to allow remedies imposed in these markets to function effectively as explained in paragraphs 10.26 to 10.30 above. A similar obligation is proposed for KCOM as a result of similar concerns in relation to its SMP in wholesale call origination. We do not propose to impose such an obligation on other CPs that we propose have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34;
- proportionate, as we consider that 90 days is the minimum period necessary to allow competing providers to modify their networks; and
- transparent in that it is clear in its intention that BT notify technical information.

10.116 We consider that, by ensuring that other CPs' systems are interoperable with any changes to technical specifications that might affect their businesses, the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

10.117 Further, we consider that, in line with section 4 of the Act, the proposed condition in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

Transparency as to quality of service

10.118 We consider that it is also appropriate to impose an obligation on BT to provide transparency as to quality of service. This obligation will require BT to publish such quality of service information as Ofcom may direct and will be accompanied by a direction setting out Key Performance Indicators (KPIs) in relation to the provision of interconnect circuits.

Aim of regulation

10.119 The intention of the transparency of quality of service remedy is to monitor whether any undue discrimination is occurring by requiring the publication of data regarding the delivery of wholesale services by BT to downstream BT businesses versus other third party CPs. In relation to interconnect circuits, BT may seek to gain competitive

advantage in downstream markets through extended provisioning or fault repair times for CPs that compete with it in these downstream markets.

Proposed regulation

10.120 We believe that service provision and fault repair are critical areas in which to maintain transparency of BT's service levels. These areas remain critical as they are where differentiated service levels could be key determinants of a positive customer experience and could cause switching away from a CP.

10.121 In previous market reviews we have imposed a requirement on BT, through an SMP Condition and associated Direction, to publish data on specified KPIs in relation to the provision of interconnect circuits to all CPs (as an aggregate figure). These are summarised in Table 10.4 below:

Table 10.4 – BT's non-discrimination KPIs in relation to Interconnect Circuits

| Proposed KPIs to be reported |
|--|
| Percentage of Completed Orders that were completed by the Contract Delivery Date during the Reporting Period. |
| Average time (in hours) during the Reporting Period for BT to achieve Restored Service after a Fault has been registered. |
| Total number of Committed Orders that became Completed Orders during the Reporting Period. |
| Number of faults where BT subsequently achieves Restored Service during the Reporting Period. |
| Percentage of Data Management Amendments for new numbers that become Completed Orders during the Reporting Period. |
| Total number of Data Management Amendments for new number ranges that became Completed Orders during the Reporting Period. |

10.122 We propose to continue with the existing quarterly KPIs for interconnect circuits as we believe they provide a useful level of transparency without being overly burdensome on BT as they are only required quarterly.

10.123 We propose to remove the requirement in the current direction that BT provides information to Ofcom in relation to the provision of interconnect circuits to individual CPs. Our view is that providing information to purchasers of interconnection services is sufficient, since they are best placed to raise concerns with BT about service provision. In the event of such concerns being raised formally with Ofcom, we are able to formally request relevant data from BT on a case-by-case basis.

10.124 This is reflected in the draft Direction in Annex 9.

Legal Tests

10.125 We consider that the proposed condition and associated direction meets the requirements in section 47(2). The proposals are:

- objectively justifiable because in the absence of a requirement to publish specific KPIs, it would not be possible to monitor if there is any undue discrimination in the quality of service provided by BT;

- not unduly discriminatory as we propose to impose it on BT, which we propose has SMP in both wholesale call origination and wholesale call termination services, and for which we consider that that interconnect circuits are required to be provided by BT to allow remedies imposed in these markets to function effectively as explained in paragraphs 10.26 to 10.30 above. Whilst we also propose KCOM has SMP in wholesale call origination and therefore certain interconnection obligations are necessary, we do not propose a similar condition because of the much lower demand for interconnect circuits from KCOM compared to BT. We do not propose to impose such an obligation on other CPs proposed to have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34;
- proportionate as BT will only be required to publish data related to key business processes; and
- transparent as it is clear that its intention is to monitor the quality of service provided by BT.

10.126 We consider that, in ensuring the network access that third party CPs receive from BT allows CPs to provide products that compete with those provided by BT in downstream markets, the proposed condition in particular furthers the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.

10.127 We have considered the Community requirements in section 4 of the Act and believe that the proposed condition promotes competition and secures efficient and sustainable competition by ensuring transparency through comparison of the service levels BT provides to itself versus third party CPs.

Charge Control

10.128 Section 87(9) of the Act authorises the setting of SMP services conditions imposing on the dominant provider price controls connected with the provision of network access.

Aim of regulation

10.129 As discussed above in paragraphs 10.44 to 10.56, CPs are dependent on the provision of interconnect circuits by BT in order to make the remedies imposed in the wholesale call origination and wholesale call termination markets effective. As such, BT has the ability and the incentive to set prices above the competitive level and we propose a charge control is necessary as a result.

Proposed condition

10.130 Our proposed charge control condition aims to ensure BT does not price excessively for interconnect circuits.

10.131 In Section 11 and Annexes 11 and 12 we explain the charge control imposed for interconnection. BT is currently subject to a charge control, which we apply to a basket of services (the interconnect circuits basket)). The basket includes the three types of interconnect circuits that BT provides – ISI, IEC and CSI – plus Intra-Building Circuits (IBCs) which are required on each interconnect circuit provided by these three interconnection types.

10.132 Based on our analysis in Annex 12, we propose that charges for the interconnect circuits basket should be subject to a control of RPI-RPI and that individual charges should be subject to a control of RPI+10% per annum.

Legal tests

10.133 We consider that a charge control obligation would meet the criteria set out in section 47(2) of the Act. It is:

- objectively justifiable because, without the proposed charge controls, BT would have the ability and incentive to price excessively to third parties which would ultimately benefit its own downstream divisions.
- not unduly discriminatory because we propose to impose the charge control on BT based on the scale of its network and the importance of interconnection to BT for all other providers. We note that we do not propose to impose a charge control on KCOM in the Hull Area even though we propose that specific interconnection regulation is required. We set out below in paragraphs 10.168 to 10.171 why we consider this would not be proportionate.
- Proportionate, as it requires BT to comply with the charge control, which we consider will support the level of competition we currently observe in the retail market, whilst allowing BT to recover its efficiently incurred costs. It also incentivises BT to improve its efficiency as it would retain any savings resulting from cost reductions for the period of the control.
- Transparent in that it is clear in its intention to control BT's charges while creating efficiency incentives and allowing BT to recover its efficiently incurred costs.

10.134 In addition to the tests set out in Section 47(2) of the Act, we also consider that the proposed condition satisfies the tests set out in section 88 of the Act.

10.135 Section 88(1)(a) of the Act requires that Ofcom must not impose price control conditions unless it appears to them from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. We explained above that we consider that in the absence of charge controls BT may price excessively, and therefore there is such a risk of adverse effects.

10.136 Section 88(1)(b) of the Act requires that the charge control condition should be appropriate for the purposes of:

- i) promoting efficiency;
- ii) promoting sustainable competition; and
- iii) conferring the greatest possible benefits on the end users of public electronic communications services.

10.137 We propose that setting the control at RPI-RPI reasonably reflects the costs incurred by BT in providing interconnect circuits to its DLEs, provides the incentive to improve cost efficiency, and provides a stable trajectory of prices for TDM interconnection whilst we consider these circuits are still required. This is because of the reasons explained in Annex 12 which are, in summary, that:

- Interconnect volumes have declined significantly since the last NCC was set in 2009;
- ROCE as reported in 2012 is nearly 40% and has increased over the last few years, but this ROCE reflects the highly depreciated nature of the assets used to provide interconnect circuits;
- We have run reported volumes through the 2009 NCC model. This removes the effects of these highly depreciated assets by adjusting asset values to those of a hypothetical ongoing TDM network. Under this modelled scenario, interconnect circuit costs are above current revenues;
- While the roll forward of the old NCC model with updated volumes implies projected cost above revenues, there is a danger that this reflects inaccuracies arising from model assumptions (i.e. AVEs and CVEs) that do not correctly account for the large volume declines seen during the last NCC period; and
- we do not believe that it would be proportionate to build a new cost control model given the difficulty in accurately assessing the costs involved in providing interconnect circuits.

10.138 We consider that this approach promotes sustainable competition based on existing levels of investment in interconnection to BT and provides a consistent and stable basis for regulation during the period of this review. We consider that this approach is appropriate for the purposes of conferring the greatest benefits on end users of the services.

10.139 We are also required, under Section 88(2) of the Act, to take into account BT's investment. We have explained in Annex 12 our rationale for the level of the control proposed. That analysis explicitly considered the costs currently incurred by BT in providing physical interconnection based on the approaches described above (i.e. ISI, IEC, CSI and IBCs).

10.140 We have considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.

10.141 In particular we have sought to propose a charge control that furthers the interests of consumers by promoting competition. We have sought through the charge control to secure efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs by imposing an obligation that will ensure the charges for interconnection services provided by BT are not set excessively, but will also allow BT to recover its efficiently incurred costs.

10.142 We have considered the Community requirements set out in Section 4 of the Act and believe that the proposed condition meets these requirements. Specifically, we believe Section 4(8) is met, where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by setting a charge control that seeks to promote competition.

Cost accounting

10.143 We propose to retain the condition on BT to provide cost accounting data which is necessary for Ofcom to set, monitor and review charge control obligations for BT. Under sections 87(9) to 87(11) and 88 of the Act, appropriate cost accounting obligations may be imposed on dominant providers in respect of the provision of

network access, the use of the relevant network and the availability of relevant facilities.

Aim of regulation

10.144 We believe it is appropriate to retain cost accounting obligations for the following reasons:

- Cost accounting ensures we have the necessary information to support the monitoring of effectiveness of remedies, in particular to ensure that the price control remedies we propose in this consultation continue to address the competition problems identified, and to enable our timely intervention should such intervention ultimately be needed;
- Cost accounting also ensures we have the necessary information to support our market reviews. Our market reviews involve a forward-looking, structural evaluation of the relevant markets, based on existing market conditions. The information deriving from cost accounting obligations assists us in this evaluation, in particular, at the remedies stage in determining whether a form of price control (if any) should be imposed and, if so, what the appropriate price control should be;
- Cost accounting obligations further ensure that BT records all information necessary for the purposes listed above at the time that relevant transactions occur, on an ongoing basis. Absent such a requirement, there is a strong possibility that the necessary information would not be available when it is required, and in the necessary form and manner;
- The imposition of cost accounting obligations ensure that wholesale costs are attributed across the wholesale markets (and the individual services within them) in a consistent manner. This mitigates, in particular, against the risk of double recovery of costs or that costs might be loaded onto particular products or markets; and
- Publication of cost accounting information aids transparency, providing reassurance to stakeholders about compliance with SMP obligations, allowing stakeholders to monitor compliance and more generally enabling stakeholders to make better informed contributions to the development of the regulatory framework.

Proposed condition

10.145 BT is required to comply with obligations governing cost accounting systems and processes as set out in an Ofcom statement published in 2004.³⁶² The outputs, relevant to this review, include:

- Preparation of a variety of financial statements;
- Preparation of extensive supporting documentation explaining how the financial statements have been put together;

³⁶² Ofcom, *The regulatory financial reporting obligations on BT and Kingston Communications, Final Statement and notification: Accounting separation and cost accounting*, July 2004, http://stakeholders.ofcom.org.uk/binaries/consultations/fin_reporting/statement/finance_report.pdf.

- Provision of an independent assurance statement;
- Publication of most of the information; and
- Preparation of reconciliation statements.

We have set out in our Business Connectivity Market Review consultation of 15 November 2012 that we believe that where we no longer require cost orientation, BT should no longer publish DLRIC and DSAC figures (while continuing to provide such figures to Ofcom). We propose we follow the same approach in relation to cost accounting for interconnect circuits. We propose to implement this amendment in the directions which implement the cost accounting conditions in our annual update of BT and KCOM's regulatory financial reporting obligations.

Legal tests

10.146 We consider the proposed condition meets the criteria set out in section 47(2) of the Act. The obligation is:

- objectively justifiable, because without such an obligation Ofcom and other CPs would not have access to the information needed to monitor the effectiveness of remedies and Ofcom would not have access to the necessary data to support our market reviews, for the reasons explained in paragraph 10.144 above;
- not unduly discriminatory. While it is not imposed on KCOM, we do not feel that it would be necessary and proportionate to do so given that they are not subject to a charge control;
- proportionate since only information that is necessary to ensure the continuing effectiveness of price control remedies and to support our market reviews is required to be provided; and
- transparent as it is clear the intention is to monitor compliance with specific remedies and the particular cost accounting requirements of BT are clearly documented.

10.147 In addition to the tests set out in Section 47(2) of the Act, Ofcom is also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act.

10.148 Section 88(1)(b) of the Act states that Ofcom are not to set an SMP condition falling within section 87(9) except where it appears from the market analysis that there is a relevant risk of adverse pricing effects arising from price distortion and it also appears that the setting of the condition is appropriate for the purposes of:

- i) promoting efficiency;
- ii) promoting sustainable competition; and
- iii) conferring the greatest possible benefits on the end users of public electronic communications services.

10.149 Section 88(2) also requires us to take account of the extent of the investment when setting this type of condition.

10.150 We have identified the risk of excessive pricing by BT in the provision of interconnect circuits and consider that, by supporting transparency and reassuring stakeholders, cost accounting obligations will encourage competition in the downstream markets. In this way, the obligations help to promote efficiency and sustainable competition. We have also taken account of the extent of the investment of BT in the matters to which the cost accounting obligations relate.

10.151 We have also considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.

10.152 We consider that the imposition of a cost accounting obligation is necessary and proportionate to promote competition in relation to the provision of electronic communications networks and services and to ensure the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation will ensure that other obligations designed to curb potentially damaging leverage of market power – in particular the setting of prices at excessive levels - can be effectively monitored and enforced.

10.153 We have considered the Community requirements set out in section 4 of the Act and believe that cost accounting obligations in particular promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

Accounting Separation

10.154 We propose to retain the accounting separation obligation on BT in relation to interconnect circuits. Under section 87(7) and 87(8) of the Act, appropriate accounting separation obligations may be imposed on the dominant provider in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities.

Aim of regulation

10.155 The accounting separation obligation will require BT to account separately for internal and external 'sales', which allows Ofcom and third party CPs to monitor the activities of BT to ensure that it does not discriminate in favour of its own downstream business.

Legal tests

10.156 We consider the proposed condition meets the criteria set out in section 47(2) of the Act. The obligation is:

- objectively justifiable as it is necessary to allow monitoring for compliance with the requirement not to unduly discriminate;
- not unduly discriminatory as we propose to impose it on BT, which we propose has SMP in both wholesale call origination and wholesale call termination services, and for which we consider that that interconnect circuits are required to be provided by BT to allow remedies imposed in these markets to function effectively as explained in paragraphs 10.26 to 10.30 above. Whilst we also

propose KCOM has SMP in wholesale call origination and therefore certain interconnection obligations are necessary, we do not propose a similar condition because of the much lower demand for interconnect circuits from KCOM compared to BT. We do not propose to impose such an obligation on other CPs proposed to have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34.

- proportionate as it is necessary as a mechanism to allow us and third parties to monitor potentially discriminatory behaviour by dominant providers; and
- transparent as it is clear the intention is to monitor compliance with specific remedies and the particular accounting separation requirements of BT are clearly documented.³⁶³

10.157 We have considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the Act.

10.158 We consider that the imposition of an accounting separation obligation is necessary and proportionate to promote competition in relation to the provision of electronic communications networks and services; to ensure the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation will ensure that other obligations designed to curb potentially damaging leverage of market power – in particular the requirement not to unduly discriminate - can be effectively monitored and enforced.

10.159 We have considered the Community requirements set out in section 4 of the Act and believe that the proposed condition meets the requirements. Specifically, we believe Section 4(8) is met, where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by ensuring dominant providers comply with charge control remedies implemented to promote competition.

Proposed approach to regulation of KCOM's provision of interconnection

10.160 We propose to impose the following remedies on KCOM in relation to interconnect circuits.

³⁶³ Ofcom, *The regulatory financial reporting obligations on BT and Kingston Communications, Final Statement and notification: Accounting separation and cost accounting*, July 2004, http://stakeholders.ofcom.org.uk/binaries/consultations/fin_reporting/statement/finance_report.pdf.

Figure 10.5 Remedies proposed for KCOM

| KCOM obligations |
|--|
| <p>Requirement to provide network access on reasonable request</p> <p>Requirement not to unduly discriminate</p> <p>Requirement to publish a reference offer</p> <p>Requirement to notify charges, terms and conditions</p> <p>Requirement to notify technical information</p> |

10.161 As explained above in paragraphs 10.31 to 10.33 we consider it necessary to impose regulatory obligations on KCOM to enable the effectiveness of the remedies we propose in the wholesale call origination market, where we have found KCOM to hold SMP in the Hull Area.

10.162 In this section we set out our proposals for remedies to address our concerns. We start by discussing general options for remedies:

- Option 1: general access and non-discrimination remedies; and
- Option 2: price controls in addition to general access and non-discrimination remedies.

10.163 Having discussed the approach that we consider to be most appropriate, we then discuss each specific condition in relation to whether it meets the relevant legal tests for imposing such conditions.

Option 1 (access and non-discrimination obligations)

10.164 We have explained in paragraphs [10.26 to 10.28] our reasons for proposing that we should impose obligations on KCOM to provide interconnect circuits.

10.165 In the absence of regulatory remedies KCOM could restrict access to other providers and this could in turn restrict competition in the provision of downstream offers by competing CPs. Therefore we consider it is important that KCOM provides interconnection on fair and reasonable terms to all CPs that request access.

10.166 As set out in paragraph 10.32, it is less clear that KCOM would be able to leverage its SMP in wholesale call termination than BT due to the much smaller scale of its network and so we have not based our proposed approach to interconnect circuits on our proposed finding of SMP in the wholesale call termination market. We recognise that in addition, KCOM provides significantly lower volumes of wholesale call origination than BT. However, as for BT (as discussed in paragraph 10.41), we consider that KCOM could seek to discriminate against other CPs through the provision of interconnect circuits in favour of its own downstream businesses. Therefore, we consider that a no undue discrimination obligation is required in relation to interconnect circuits.

10.167 In order to ensure KCOM is complying with the obligations to provide Network Access and the requirement not to unduly discriminate, we propose that additional obligations related to ensuring transparency may also be required. Transparency obligations would provide third parties with access to the information needed in order

to make informed decisions about purchasing KCOM's interconnection services. Without these obligations, not only would it be difficult for third parties to assess whether KCOM was meeting its obligations to provide network access and to not discriminate unduly, it may also be the case that third parties would not have sufficient information in order to decide which interconnection products to purchase from KCOM. Transparency obligations would require KCOM to publish a reference offer, charges and technical information related to interconnection services with sufficient notice so that third parties could act on the information in a timely manner. Without this, KCOM could change products or pricing with insufficient or no notice to its wholesale customers with the effect of discriminating in favour of its downstream divisions.

Option 2 (Option 1 and charge controls)

- 10.168 We have set out above that in order to secure supply of interconnect circuits by KCOM on terms that allow CPs to compete with it in downstream markets, we consider that network access, non-discrimination and transparency obligations are required. We now consider whether these are sufficient to address our concerns or whether further remedies to address specific pricing concerns are also required.
- 10.169 We have proposed that BT should be subject to price regulation in addition to general network access and non-discrimination obligations. Given the volume of supply of these services by KCOM we consider that imposing further price regulation would be disproportionate.
- 10.170 As we propose that it is appropriate to impose a charge control on BT for interconnect circuits, we do not consider it appropriate to impose additional requirements for charges to be fair and reasonable. However, as we propose no charge control for KCOM, we consider it is necessary to impose a requirement that charges should be fair and reasonable and we consider that this would provide sufficient protection for purchasers of interconnect circuits from KCOM.
- 10.171 We therefore do not propose to impose further price regulation in addition to the network access, non-discrimination and transparency obligations (which we consider are proportionate and sufficient to address our concerns in relation to interconnection services provided by KCOM).

Conditions we propose for KCOM

- 10.172 We now set out the specific remedies we are proposing to impose on KCOM.

Requirement to provide network access on reasonable request

- 10.173 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as it may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and that conditions are complied with within the periods and at the times required.
- 10.174 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the Act, including, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access.

Aim of Regulation

10.175 We propose that it is appropriate to impose a requirement on KCOM to meet reasonable requests for network access in relation to interconnect circuits, due to its SMP in the markets for wholesale call origination. This remedy is required because, without it, KCOM would have an incentive not to provide interconnect circuits on a reasonable basis which would reduce the effectiveness of the remedies we have proposed in the wholesale call origination. The ability of competing CPs to request, and to be provided with, interconnection services will facilitate competition in downstream markets by allowing providers other than KCOM to offer competing end-to-end narrowband services.

Proposed condition

10.176 The proposed condition will require KCOM to provide network access in response to such a reasonable request and that access should be provided on fair and reasonable terms, conditions and charges. It will not require KCOM to provide network access in cases where the request is not reasonable.

10.177 We do not propose a charge control for KCOM. Therefore, we propose that KCOM should provide interconnect circuits on fair and reasonable terms, conditions and charges.

Legal Tests

10.178 We consider that the proposed condition meets the criteria set out in section 47(2) of the Act. The proposed condition is:

- objectively justifiable as its intention is to promote downstream and ultimately retail competition by ensuring third parties are able to acquire wholesale access on fair and reasonable terms where they are unable to replicate KCOM's networks;
- non-discriminatory as we propose to impose it on KCOM, which we propose has SMP in wholesale call origination services, and for which we consider that that interconnect circuits are required to be provided by KCOM to allow remedies imposed in these markets to function effectively. A similar obligation is proposed on BT and the difference (i.e. the requirement for KCOM to supply at fair and reasonable charges) is because we do not propose a charge control for KCOM due to the low volume of supply. We do not propose to impose such an obligation on other CPs that we propose have SMP in wholesale call termination only, for the reasons set out in paragraph 10.34;
- proportionate since without such an obligation KCOM could refuse to provide access and this would mean other CPs would not be able to effectively compete in relevant downstream markets, but does not require KCOM to provide access where it is not technically feasible or reasonable; and
- transparent as it is clear the intention is to ensure that KCOM provides access to its networks in order to facilitate competition.

10.179 In addition to the tests set out in Section 47(2) of the Act, Ofcom is also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act as the requirement places controls on network access pricing, insofar as charges are required to be fair and reasonable.

10.180 Section 88(1)(a) of the Act requires that Ofcom must not impose price control conditions unless it appears to them from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. We have discussed above that we consider that in the absence of price controls BT may price excessively, and therefore propose that there is such a risk.

10.181 Section 88(1)(b) of the Act requires that the charge control condition should be appropriate for the purposes of:

- i) promoting efficiency;
- ii) promoting sustainable competition; and
- iii) conferring the greatest possible benefits on the end users of public electronic communications services.

10.182 We consider that fair and reasonable charges will prevent KCOM from passing on any inefficiently incurred costs to other wholesale providers through excessively high prices. In this way, this condition supports the aim of improved efficiency.

10.183 We also consider that the provision of network access on fair and reasonable terms will promote sustainable competition by ensuring that other CPs can effectively compete at the retail level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end users of the services.

10.184 We are also required, under Section 88(2) of the Act, to consider KCOM's investment. We believe that fair and reasonable charges will allow KCOM's costs to be taken into account and will also provide for common cost recovery. This condition is therefore an appropriate basis upon which to control KCOM's prices.

10.185 We have considered our duties under section 3 of the Act. We consider that, in ensuring Network Access is provided at the reasonable request of third parties, the proposed condition would in particular further the interests of consumers in relevant markets by the promotion of competition.

10.186 We have considered the Community requirements as set out in section 4 of the Act. We consider that the proposed obligation will promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficient and sustainable competition in markets for electronic communications networks and services.

10.187 For the reasons set out above, we consider that the proposed condition is appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

Requirement not to unduly discriminate

10.188 Ofcom proposes to impose a condition on KCOM not to unduly discriminate in relation to the provision of interconnect circuits. The proposed condition, the rationale for this regulation and the legal tests are the same as discussed above for BT in paragraphs 10.78 to 10.87.

Transparency

10.189 As for our proposals in relation to BT we consider that it is appropriate to ensure that there is transparency of charges, terms and conditions in the provision of services by a dominant provider.

10.190 We propose to impose the following obligations on KCOM to provide transparency:

- requirement to publish a reference offer;
- requirement to notify charges; and
- requirement to notify technical information.

10.191 We do not propose to impose an obligation relating to transparency as to quality of service – which we have proposed in the case of BT. This is because we believe the obligation to provide network access on reasonable request and the obligation to publish a reference offer are likely to be sufficient, and a requirement to publish quality of service information likely to be disproportionate, given the low volumes of interconnect circuits likely to be provided by KCOM.

Requirement to publish a reference offer

10.192 Ofcom proposes to require KCOM to publish a RO for interconnect circuits. The proposed conditions, the rationale for the regulation and the legal tests are the same as discussed above for BT in paragraphs 10.91 to 10.99.

Requirement to notify charges

10.193 We consider it appropriate to impose a requirement on KCOM to publish any planned changes to charges in advance of those changes taking place.

10.194 This remedy was imposed on KCOM in the 2009 market review, with a 90 day notice period before any proposed changes would be effective.

10.195 As discussed above in relation to the similar condition we propose for BT, we propose to reduce the notice period to 56 days for the same reasons as discussed in paragraphs 10.100 to 10.105.

10.196 The proposed condition, the rationale for this condition and the legal tests are the same as discussed above for BT in paragraphs 10.100 to 10.110

Requirement to notify technical information

10.197 We consider it is appropriate to retain a requirement on KCOM to notify technical information. We have proposed a similar obligation for BT and have said that we propose that a minimum of 90 days is required (see paragraph 10.111). The same is true in the case of KCOM and as such we propose that KCOM should give a minimum of 90 days' notice for changes to technical information.

10.198 The proposed condition, the rationale for this condition and the legal tests are the same as discussed above for BT in paragraphs 10.111 to 10.117

Question 10.1: *Do you agree with our assessment that BT and KCOM should be required to provide interconnect circuits? If not, please explain why.*

Question 10.2: *Do you agree with the obligations we propose to impose on BT in relation to the provision of interconnect circuits? If not, please explain why.*

Question 10.3: *Do you agree with the obligations we propose to impose on KCOM in relation to the provision of interconnect circuits? If not, please explain why.*

Section 11

Charge control specification

Introduction

- 11.1 This section explains how we propose to implement the network charge controls (NCC) and how we propose to assess compliance. The first part of this section deals with the duration of the charge control and the glide paths for charge-controlled services. The second part of this section deals with various aspects of basket design and compliance. The final part of this section summarises the controls we propose for each basket of the NCC.

NCC duration and glide paths

Charge control duration

- 11.2 In the past we have set a four-year charge control for fixed wholesale call origination, termination and interconnection services. However, we now propose a three-year duration for the next NCC.
- 11.3 The NMR has a forward-looking period of three years. Three years reflects the new market review cycle specified in the Framework Directive as amended in 2009 (effective from May 2011).³⁶⁴ We are proposing to set SMP conditions based on our analysis of potential market developments over this three year period and believe that it is appropriate to align the proposed charge control with this period. Therefore, the NCC would run from 1 October 2013 until 30 September 2016.

Glide paths

- 11.4 Having proposed the appropriate length for the NCC, we now need to decide how regulated charges should evolve from current levels to the forecast efficient level.
- 11.5 The choice over the length of the glide path typically involves a trade-off between the benefits of allocative efficiency (i.e. prices being more closely aligned with costs³⁶⁵) and dynamic efficiency (i.e. incentives to invest and innovate, for example, in cost-reducing technologies or new services). Other things being equal, a longer glide path would favour dynamic efficiency, whereas a steep glide path or an immediate adjustment to efficient costs would favour allocative efficiency.

Wholesale call origination is a one-way access service

- 11.6 In the case of wholesale call origination we are dealing with a one-way access service, where competitors seek access to a bottleneck input from an SMP provider (i.e. BT, or in the Hull Area, KCOM), but access is not sought in the other direction (e.g. by BT from other CPs). In regulating one-way access, we typically place greater

³⁶⁴ Art 16 of the Framework Directive 2002/21/EC, as amended by Directive 2009/140/EC.

³⁶⁵ Allocative efficiency requires prices to be aligned with marginal cost. However, with fixed or common costs, and where fixed costs are not recovered via a lump sum (e.g. fixed charges or taxes), then cost recovery will require charges to be marked-up over marginal costs.

emphasis on dynamic efficiency by adopting a glide-path towards the forecast efficient level of charges at the end of the control period (typically three years)³⁶⁶.

Wholesale call termination is a two-way access service

- 11.7 Wholesale call termination, on the other hand, involves two-way access, whereby competing operators purchase access to an essential input from each other. Under these circumstances, we place greater weight on competitive considerations and allocative efficiency³⁶⁷.
- 11.8 Call termination is also an example of a two-sided market in which there are two distinct sets of users. On one side there are calling parties (who purchase call termination via the CP that serves them), and on the other side there are the terminating CP's own retail customers.
- 11.9 The two-sided nature of call termination has two implications in terms of price regulation.
- First, there is more than one avenue for cost-recovery following a reduction in call termination rates. (As noted previously, costs can be recovered from the 'other side(s)' of the market). As a result, reductions in FTRs that are quicker than the rate of cost reduction in call termination should not compromise cost recovery, provided that (i) tariffs on the other side of the market can be adjusted; and (ii) competing CPs face symmetric regulation.
 - Second, by exposing certain assets or costs (e.g. common infrastructure across termination and other markets) to competition, it is possible to rely more on competition to drive dynamic efficiency (rather than rely on price-cap regulation and glide paths).
- 11.10 Having considered the distinguishing features of wholesale call origination and termination, we now explain our proposed glide paths for each market and how we have addressed stakeholders' responses to our May 2012 CFI. We will first set out our proposals for wholesale call termination, followed by our proposals for wholesale call origination. We begin with wholesale call termination because this is the market which has received the most regulatory scrutiny at a European level (given the 2009 EC Recommendation) and at a domestic level (given our 2011 MCT Statement and the subsequent appeals to the CAT/CC).

Glide path for wholesale call termination

- 11.11 We discussed the pro-competitive benefits of setting FTRs at LRIC in Section 8. In addition, the essential features of wholesale call termination described above (i.e. being a two-way access service and being part of a two-sided market) mean that we would tend to place greater weight on allocative efficiency (and competitive considerations) when considering the length of a glide path for FTRs. Both of these points suggest that FTRs should be brought to LRIC as soon as possible.

Responses to the CFI on glide paths

- 11.12 In the May 2012 CFI we asked how soon stakeholders considered it appropriate and practicable for FTRs to be aligned to LRIC.

³⁶⁶ See paragraph 10.33.3 of the MCT Statement.

³⁶⁷ See paragraphs 10.33 and 10.34 of the MCT Statement.

11.13 There was no consensus on this issue in stakeholders' responses: views ranged from setting FTRs at the target level as soon as possible, to adopting a three year glide path (i.e. matching the glide path with the proposed NCC duration).

11.14 BT argued in its main response to our May 2012 CFI that a three-year glide path, besides its merit in promoting dynamic efficiency, would be consistent with Ofcom's past approach, avoid price shocks for CPs and allow time for prices to end users to adjust.³⁶⁸ BT also submitted further material in response to our May 2012 CFI, specifically related to glide paths:³⁶⁹

- 2009 EC Recommendation – BT argued that the proposed charge control would be starting after the implementation date set by the European Commission and that we could depart from the 2009 EC Recommendation if there was good reason to do so. BT also suggested that, if we were to depart from the 2009 EC Recommendation, we would not be significantly out of line with other EU countries, many of which will not have implemented it either by 1 October 2013.
- Symmetry with mobile operators – BT compared mobile and fixed termination rates and argued that bringing FTRs down to LRIC would restore an asymmetry between FTRs and MTRs whereby fixed customers pay for their own access costs through line rental, but also contribute to the access costs of mobile operators (via MTRs).³⁷⁰ It also noted that the CC did not agree with BT in its 2012 Determination that an immediate move for MTRs to the current LRIC+ level (as an additional step on the transition to LRIC) was warranted.
- Impact on industry – BT argued that we should mitigate the disruptive effects of large price changes through gradual implementation to facilitate realignment of business models and contractual relationships. It called for a three year glide path, as adopted for the mobile industry when bringing MTRs down to LRIC. It also drew particular attention to Number Translation Services (NTS) as an example of an industry that had become optimised around the current balance between call origination and termination.³⁷¹ It pointed out that lower FTRs would reduce the costs of NTS terminating operators that terminate calls on other operators' networks and argued that this would affect competition between NTS terminating operators and investment decisions.
- Wholesale call origination – BT made specific comments on the potential impact on NTS of raising wholesale call origination rates to allow for the recovery of common costs not recovered through wholesale call termination. BT was the only CP to make specific comments on the glide path in relation to the potential for raising wholesale call origination rates. It argued that if wholesale call origination rates are increased, the amount received by NTS TCPs would go down, in turn reducing the amount that can be passed on by them to NTS SPs. BT pointed out that contracts would need to be re-negotiated to take account of the new charging structures.³⁷² BT also referred to the proposed changes set out in our

³⁶⁸ BT response to May 2012 CFI, p.15

³⁶⁹ BT response to May 2012 CFI, 'Glidepath implementation'

³⁷⁰ We explain further BT's argument on the access cost recovery issue at paragraph 11.25 below

³⁷¹ Number Translation Services enable the routing of non-geographic calls. An NTS number does not relate to a specific geographic location, but to a particular service. The NTS number dialled by a caller is "translated" to a geographic number to deliver the call to its destination.

³⁷² When an NTS call is made the caller pays the OCP for the call and the OCP then passes on an agreed termination payment to the TCP. The TCP is then able to share this revenue with the NTS service provider (SP). Therefore, if the origination payment rises, all else being equal, the amount shared between the TCP and the SP would fall.

consultation on non-geographic numbers, for which we have planned to allow 18 months to make the necessary adjustments.³⁷³ BT argued that the changes envisaged to wholesale fixed call termination and origination were even more profound and would thus require a number of gradual iterations and an even longer period of adjustment.

- 11.15 BT also provided, as a late submission, a report it commissioned from DotEcon.³⁷⁴ That report concluded that: (i) even if the dynamic efficiency effects are somewhat weaker in the case of FTRs, there are costs of adjustment which Ofcom has not fully considered; (ii) there are differences between mobile and fixed sectors, such that if anything it may well be that welfare costs of higher termination rates are more severe in mobile; and (iii) based on certain assumptions around economic welfare and the costs of adjusting to new termination rates, the optimal rate of adjustment would be constant – irrespective of how far the starting rate is from the target.
- 11.16 CWW's view was that an immediate reduction in FTRs would be detrimental both to the commercial viability of CPs and to final consumers, who could incur sudden retail price changes. CWW considered that a three year glide path to LRIC seemed appropriate and was consistent with the CC's 2012 Determination in MCT. However, CWW cautioned that until the regulated charges had been calculated, it was not possible to be definitive on whether a more rapid transition to LRIC was possible.³⁷⁵
- 11.17 [X] position was similar to CWW's. It considered that it was not possible to express a definitive position on the appropriate timing to align FTRs to LRIC without seeing the specific numbers [X] noted that, in light of non-discrimination and technology neutrality concerns, a starting point for the debate should be the MCT glide path duration (which it noted was three years).³⁷⁶
- 11.18 Virgin Media stated that Ofcom should adopt the least disruptive approach for industry and implement a glide path. Virgin Media argued that Ofcom's decision in September 2009, some four months after the EC issued its 2009 Recommendation, was to set FTRs with an allowance for common costs. In its view, any decision now should not penalise stakeholders by requiring excessive disruption by immediate (full or partial) alignment. It also believed that the concept of taking utmost account did not require us to slavishly comply with the 2009 EC Recommendation.³⁷⁷
- 11.19 EE, H3G and TalkTalk's view was that Ofcom should align FTRs to LRIC as soon as possible. EE argued that there was little a priori justification for delaying the move to LRIC for FTRs given the CC's conclusion in MCT (i.e. MTRs should be set at LRIC as soon as practicable after the 2009 EC Recommendation deadline). EE, whilst qualifying its response by saying that the glide path could only be properly assessed in the light of actual cost estimates, argued that CPs will have had time to anticipate a reduction in FTRs and the magnitude of the reduction was much smaller than in our decision on MCT in 2011.³⁷⁸

³⁷³ Simplifying Non-geographic Numbers – Detailed proposals on the unbundled tariff and Freephone, April 2012. <http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geographic-no/>

³⁷⁴ *Glide paths for fixed termination rates, A note prepared for BT*, 20 December 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/responses/bt-comments-3.pdf>

³⁷⁵ CWW response to May 2012 CFI, p. 24

³⁷⁶ [X] response to May 2012 CFI, question 29

³⁷⁷ Virgin Media response to May 2012 CFI, question 29

³⁷⁸ EE response to May 2012 CFI, p.6

- 11.20 H3G claimed that a glide path would only delay benefits to consumers. H3G argued that, in light of the 2009 EC Recommendation and the CC's 2012 Determination, there was a clear message that FTRs would fall in the short term and lower rates were likely to have been widely anticipated in business plans. Moreover, H3G claimed that there were regulatory precedents for Ofcom making immediate reductions to LRIC.³⁷⁹
- 11.21 TalkTalk argued that FTRs should be aligned with LRIC (and based on NGN costs) as quickly as possible.

Ofcom's analysis and assessment of responses

- 11.22 Several respondents were in favour of bringing FTRs into line with LRIC as soon as possible (EE, H3G, TalkTalk).
- 11.23 Others expressed some concerns over the appropriate time period to get to the new level (e.g. [X], CWW, Virgin Media). Typically these concerns related to the risk of industry disruption and the desire to be consistent with the glide path adopted for MCT.³⁸⁰ BT noted its opposition to having FTRs based on LRIC and also expressed concern about the speed of adjustment.
- 11.24 In response to BT's arguments about the adoption of the 2009 EC Recommendation across Europe, while we have sought to learn from other NRAs' experience, their progress towards adopting the 2009 EC Recommendation should not be seen as determinative in shaping our proposals. See paragraphs 8.11-8.14, where we identify other NRA's which have recently implemented the 2009 EC Recommendation. Furthermore some of these countries plan to allow retrospection, i.e., LRIC FTRs will be effective from before a final decision is taken to ensure LRIC FTRs are in place as soon as possible after 1 January 2013.
- 11.25 With regard to BT's comparisons with the mobile sector, it is important to point out that if MTRs and FTRs are both set at LRIC, they would receive a consistent regulatory treatment. The level of the rates may still differ, but this is explained by the different cost functions underlying mobile and fixed line communications. In particular, the provision of mobile call termination causes additional costs to be incurred in both the Radio Access Network (RAN) as well as the core network, whereas in the case of fixed networks, the provision of wholesale call termination drives additional costs in the core network only (not in the access network where costs are subscriber, i.e. line, driven). We consider that our approach to calculating and setting LRIC-based FTRs and MTRs is one in which only the costs causally related to the termination traffic increment are captured. We have sought to apply this approach consistently in our regulation of both mobile and fixed wholesale call termination.
- 11.26 The fact that the CC determined that a three-year glide path was appropriate to bring MTRs in line with LRIC does not necessarily mean that a similar length of glide path should be adopted for FTRs.
- 11.27 First, although the MTR glide path was typically referred to as a "three-year" glide path, it actually involved a transition to LRIC over two years (and one day), given that

³⁷⁹ H3G response to May 2012 CFI, question 29

³⁸⁰ Some responses on the appropriate period to get to LRIC were qualified and subject to the outcome of the modelled rates (e.g. CWW, [X] and EE).

the MTR cap is a flat rate cap applicable from the first day of each control year (i.e. it is not based on the average MTR over the control year).

- 11.28 Second, the scale of the change and the sums of money involved in the case of MTRs was larger than for FTRs.³⁸¹ MTRs were to be reduced by approximately 3.5ppm (in real terms) from their levels at the start of the control, which were approximately 4.2ppm (in 2008/09 prices), and net revenues received by MCPs (i.e. netting off M2M traffic) were expected to be reduced by approximately £600m as a result of the move from the prevailing level to the LRIC-level.³⁸² In the case of MCT we estimated this revenue reduction represented around 4% of MCP retail revenues – which was an upper-bound given that it assumes no waterbed effect. On a per subscriber basis, this was estimated to amount to £8 per subscriber per year.³⁸³
- 11.29 In order to be brought in line with LRIC, FTRs would have to fall from a level of approximately 0.20ppm in the final year of the current charge control to approximately 0.04ppm (in real terms based on 2011/12 prices). Net wholesale call termination revenues for fixed CPs are expected to fall by approximately £61m in moving from current FTRs to LRIC.³⁸⁴ Relative to fixed retail call and access revenues this would be approximately 0.7% and compared to all fixed telecoms revenues, this would be approximately 0.5%).³⁸⁵ On a per subscriber basis this would be approximately £1.85 per fixed line per year, assuming that the waterbed effect was complete and there were no other changes in relevant costs.³⁸⁶
- 11.30 BT is correct that the CC did not agree with BT's appeal for an immediate reduction in MTRs (in that case from the prevailing level of MTRs down to LRIC+ as an additional step on the transition to LRIC for MTRs). The CC found that while there was a good case for reaching LRIC sooner, MCPs may have had difficulties in adjusting prices in the first year of the charge control, particularly because they would not reasonably have anticipated a one-off starting adjustment, given our usual practice of adopting glide paths and given the arguments put forward in the MCT consultation process.³⁸⁷ The CC also considered that BT had not provided any valid additional reason in favour of a one-off adjustment to lower MTRs in the first year.³⁸⁸
- 11.31 The BT submission providing the DotEcon report was received at the end of December 2012. As such it represents a very late submission to the May 2012 CFI. We do not agree with DotEcon's conclusions for the following reasons:

³⁸¹ BT response to May 2012 CFI, 'Glidepath implementation'

³⁸² Paragraph 10.34.4 and fn 782, 2011 MCT Statement.

³⁸³ Footnote 433, 2011 MCT Statement.

³⁸⁴ Based on approximately 37bn minutes of net termination traffic. See the footnote accompanying paragraph 8.36 in Section 8 for details on how this volume of traffic has been estimated. Note that the analysis reported in this section relates to the effect in moving from the level of FTRs expected to prevail in 2012/13, not the new projected level of FTRs if they were set on a LRIC+ as opposed to a LRIC basis which was the focus of Section 8.

³⁸⁵ Based on fixed retail calls and access revenues of £8.7bn (Ofcom Quarterly Data, Q3 2012, Q4 2011-Q3 2012) and all fixed telecoms revenues of approximately £12bn based on Figure 5.27 of the Communications Market Report, 2012.

³⁸⁶ Based on there being 33m fixed lines. Telecoms Market Data Update Q3 2012, Fixed telecoms tables, Table 2. <http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/tables/>.

³⁸⁷ The CC noted that we had stated we have a 'strong preference for glide paths, rather than [one-off] adjustments, to align charges to costs' and that this would have given MCPs a reasonable expectation of a glide path and no one-off adjustment. In this context the CC said that the failure of any party to propose a one-off adjustment during the consultation process strengthened that expectation. See paragraph 5.96 of the 2012 Determination.

³⁸⁸ 2012 CC Determination, paragraphs 5.103-5.104.

- First, DotEcon's analysis would rule out the prospect of ever making changes to regulated charges on anything other than a glide path.
 - We have previously set out the circumstances in which we might consider departing from a glide path in our consultation (and then statement) on LLU and WLR charge controls effective from April 2012.³⁸⁹ [X].³⁹⁰ While the CC did not support a one-off reduction in the case of MTRs (a point which BT's response recognises), this reflected the fact that many of the considerations where the CC had found in BT's favour for a shorter glide path overlapped with the consideration of whether there should also be a one-off adjustment. The CC also noted some of the difficulties that MCPs might face in adjusting retail prices in a shorter period.³⁹¹
 - Applying a glide path approach to the exclusion of one-off reductions would also be at odds with other regulatory considerations which go beyond a narrow consideration of marginal changes in welfare and adjustment costs such as an EC Recommendation.
- Second, BT's analysis of adjustment costs is theoretical and would seem to overstate the extent of adjustment required to get FTRs to LRIC. For example:
 - In terms of wholesale pricing, the change to LRIC only involves setting FTRs at a new pence per minute level and does not require an overhaul to the structure of charges or interconnect arrangements; and
 - In terms of retail pricing, we do not anticipate that large changes or significant adjustment costs are likely to be necessary. Given the scale of effects in question – see potential retail bill effects analysis below – we consider the change in the revenue and cost position of CPs is unlikely to warrant any major overhaul of retail pricing billing arrangements or internal governance.

11.32 EE and H3G agree that the regulatory debate on LRIC-based termination rates (both in Europe and within the United Kingdom) is now long-standing – indeed, the 2009 EC Recommendation (published in May) pre-dates the September 2009 NCC Statement. In the 2009 NCC Statement, we recognised the implications of the 2009 EC Recommendation, but considered that at the time it was not appropriate to move to LRIC for FTRs, for example, because it would require us to re-consult, because the implementation date for LRIC (31 December 2012) was close to the end of the review period (i.e. fell in the final year of the control, 2012/13) and because regulated FTRs were at the time the lowest in Europe. However we signalled that we would

³⁸⁹ Charge control review for LLU and WLR services, Consultation, 31 March 2011, paragraph 3.90-3.98, and Charge control review for LLU and WLR services, Statement, 7 March 2012, paragraph 3.103-3.128. At paragraph 3.96 of the consultation we stated: *"In the context of the LLU and WLR charge controls, it is useful to understand the circumstances under which we might consider one-off reductions. This might include, for example, scenarios where: There are strong allocative efficiency arguments for bringing prices into line with cost sooner [...]. The previous charges were unregulated or are not subject to charge control and where [BT's] charges are high relative to costs. There is a need to align the charges for corresponding ancillary services [...] and [...] where the charges for [...] variants are materially out of line and this may have a distorting effect on the market."*

The three-factors set out therein were: (i) allocative efficiency reasons to bring charges into line with cost sooner; (ii) previous charges were unregulated and are high relative to costs; (iii) where charges for different charge controlled services were out of line and this may have a distorting effect on the market.

³⁹⁰ [X].

³⁹¹ See paragraph 5.96-5.104 of the 2012 CC Determination.

engage on the question of the future regulation of termination rates through the wholesale mobile call termination review.³⁹² In April 2010 we consulted on our proposals for LRIC-based MTRs and confirmed this in our 2011 MCT Statement, subsequently upheld in the 2012 CC Determination and CAT ruling in 2012.³⁹³

- 11.33 In response to the arguments from H3G about regulatory precedent, we recognise that there is the regulatory precedent for adopting LRIC as the basis for regulating MTRs and that in other instances we have made one-off changes to regulated charges. However, we must still consider the specific circumstances of FTRs and consider, on the merits of this case, whether a “one-off” adjustment is appropriate.
- 11.34 In response to Virgin Media we acknowledge that our decision on the appropriate evolution of charges should not be driven purely by the 2009 EC Recommendation. Indeed, this was not the case in MCT, when our decision took utmost account of the 2009 EC Recommendation, but ultimately favoured a later date (than the EC’s recommended target date of December 2012) to get to LRIC. The 2012 CC Determination, while shortening the glide path, did not implement a date for LRIC-based MTRs until after the EC’s December 2012 target date.
- 11.35 However, any decision on FTRs will now be some months after this December 2012 target date, and will also be some months after the date when MTRs will be set at LRIC, i.e. from April 2013. We also note that the CC considered that the 2009 EC Recommendation was a relevant factor that favoured adoption of a shorter glide path for MCT.³⁹⁴
- 11.36 Our view is that for the period 2013-2016 there are a number of arguments that support aligning FTRs with LRIC as quickly as possible. These include:
- As set out in Section 8, there are competition advantages with FTRs set at LRIC, both in terms of competition among fixed CPs as well as between competition between mobile and fixed CPs.
 - Implementation of LRIC-based MTRs takes effect on 1 April 2013 – following BT’s successful appeal on the MTRs glide path before the CAT/CC. Reducing FTRs to LRIC as soon as possible after the expiry of the present NCC is therefore important to ensure a consistent regulatory treatment – and level playing field – with MCPs.
 - Call termination is part of a two-sided market and so the typical arguments of improving dynamic efficiency through imposing a glide-path over a longer period are significantly less important than they are in one-sided markets. In the case of MCT, the CC agreed that, “...as the profitability of investment decisions would not be affected by, or not greatly affected by, the level of termination rates, the length of the glide path should not significantly affect investment incentives.”³⁹⁵ These arguments on dynamic efficiency apply at least as much to FTRs.
- 11.37 Capping FTRs at LRIC as quickly as possible would also be as consistent (as we could be) with the 2009 EC Recommendation, which has an implementation date of

³⁹² 2009 NCC Statement, paragraphs 4.94-4.105

³⁹³ The CC Determination, February 2012, is available at http://www.competition-commission.org.uk/assets/competitioncommission/docs/appeals/telecommunications-price-control-appeals/final_determination.pdf and the CAT Judgement, May 2012, is available at: <http://www.catribunal.org.uk/238-7586/Judgment.html>

³⁹⁴ 2012 CC Determination, paragraph 5.74.

³⁹⁵ 2012 CC Determination, paragraph 5.70.

31 December 2012 (some 9 months before the new NCC would take effect on 1 October 2013).

11.38 We have also considered whether there are any constraints or adverse consequences associated with adjusting FTRs to LRIC as soon as possible. A number of respondents referred to the potential for disruption to industry and consumers. With this in mind, we have considered the following factors:

- The effects on consumers (and the implications for the CPs that serve them);
- The effects on competition; and
- The effects on incentives to invest.

11.39 We will discuss each of these factors in turn.

Effects on consumers

11.40 As FTRs are reduced, mobile consumers who call fixed line subscribers can be expected to gain, to the extent that mobile CPs pass on the reduction in charges for calls to fixed line numbers. This effect may be felt either through retail call prices or through inclusive packages.

11.41 On the other hand, fixed line subscribers may face price increases. This is because termination is part of a two-sided market, with the other side being the retail prices paid by fixed line customers. Therefore, a reduction in wholesale call termination rates would tend to cause prices on the “other side” to rise. This process is typically referred to as the “waterbed effect”.³⁹⁶

11.42 If there is a full waterbed effect (i.e. retail prices are adjusted upwards to off-set 100% of the net revenue loss from FTRs being set at LRIC) and there are no other changes in costs, we estimate that the impact on fixed line and call spend would be around £1.85 annually for each line. This would be equivalent to less than 1% of the average retail spend per line on access and calls. Table 11.1 summarises our analysis.

³⁹⁶ The incentive on fixed CPs to increase prices on the “other”, i.e. retail, side of the market will be mitigated by the extent of wholesale call termination purchased from other fixed CPs. That is, with regulation based on symmetric FTRs for all fixed CPs, while wholesale call termination revenues will fall, so will outpayments to other fixed CPs. Therefore, what matters in terms of the waterbed effect is the net volume (and revenue) of wholesale call termination – i.e. external sales of wholesale call termination minus purchases of wholesale call termination from other fixed CPs.

Table 11.1 – Potential impact of FTR proposals on retail customers (business and residential)³⁹⁷

| | (1) Net revenue loss attributable to FTR reduction ³⁹⁸ | Impact on fixed line customers ³⁹⁹ (business and residential) | |
|----------------------|---|--|---|
| | | (2) Impact on yearly bills | 3) Relative to retail spend on fixed voice services (access and calls) ⁴⁰⁰ |
| Full waterbed effect | £61m | £1.85 | 0.70% |
| 80% waterbed | | £1.48 | 0.56% |
| 50% waterbed | | £0.93 | 0.35% |

- 11.43 There is some uncertainty around the extent of the waterbed effect in fixed markets, but our proposals are not sensitive to this.⁴⁰¹ Even if the waterbed effect is complete, we consider that the estimated impact of bringing FTRs down to the LRIC level is likely to be very small. It is also important to note that this is only a static analysis – it does not take into account the dynamic effects of our proposals, which we argue are good for competition, and thus beneficial to consumers.⁴⁰²
- 11.44 We have also carried out an Equality Impact Assessment to assess whether the impact of our proposals could fall disproportionately on particular groups of consumers. This is explained in Annex 10.
- 11.45 We are currently running a separate consultation in relation to price rises in fixed term contracts in which we have proposed changes to allow consumers to withdraw from a contract without penalty if there is any increase in prices during the term of contract.⁴⁰³ We do not believe that these developments would cause us to alter our proposals in this NCC. This is because our proposals affect all CPs and there are unlikely to be any adverse effects on consumers or competition if consumers are given the option to withdraw from their contracts early.

³⁹⁷ This assumes that the impact of lost revenue for fixed CPs leads to an increase in fixed line bills of an equal amount for both business and residential customers.

³⁹⁸ See paragraph 11.29 above.

³⁹⁹ Note that this is the estimated impact per line. Some customers, in particular businesses, may take more than one line.

⁴⁰⁰ Based on Ofcom Quarterly Data. Data excludes VAT. The estimated impact on residential consumers alone is not substantially different from the estimated impact on consumers in total.

⁴⁰¹ There has been greater research into the waterbed effect in mobile markets, as covered in our Statement on Mobile Call Termination, in which we stated that we believed the waterbed effect was likely to be strong but incomplete.

⁴⁰² See Section 8 for our assessment of the arguments for bringing FTRs into line with LRIC.

⁴⁰³ <http://stakeholders.ofcom.org.uk/consultations/price-rises-fixed-contracts/>

Effects on competition

11.46 Although we consider that setting FTRs at LRIC would be pro-competitive (see Section 8), we have also examined whether there may be any short-term adverse consequences that would deter us from implementing our proposals as soon as possible. We have examined the potential effects on the following:

- Competition between fixed CPs;
- Competition between fixed and mobile CPs; and
- Competition in Number Translation Services (NTS).

Competition between fixed CPs

11.47 FTRs contribute to the marginal cost of calls for originating CPs. The cost of terminating calls for each originating CP is the weighted average of the cost of terminating calls off-net (for which they pay FTRs) and their own cost of terminating on-net calls (where they face their own marginal network costs). Competition effects were an important part of the case for LRIC in the 2011 MCT Statement, as set out in the 2012 CC Determination⁴⁰⁴ and while we recognise that termination rate effects are less pronounced here than in MCT, we consider there to be the same pro-competitive effects from LRIC based FTRs, as explained in Section 8. Put another way, we see no reason relating to competition among fixed CPs that would warrant delay in getting to LRIC-based FTRs.

Competition between fixed and mobile

11.48 Our analysis suggests that mobile CPs may benefit from FTRs being reduced by around £50m per year.⁴⁰⁵ To put this expenditure saving in context, this would be equal to approximately 9% of the revenue generated by mobile CPs on mobile to fixed calls.⁴⁰⁶

11.49 Therefore, there is a clear benefit to MCPs in regulating fixed and mobile termination according to the same cost standard and no adverse competition effect that we can identify.

Competition in Number Translation Services

11.50 We are aware that our proposals may have an impact on Number Translation Services (NTS).

11.51 In April 2012 Ofcom published proposals to reform the regulatory regime for NTS.⁴⁰⁷ Under Ofcom's proposals the NTS charge would be unbundled into two components:

⁴⁰⁴ 2012 CC Determination, paragraphs 2.62-2.524 and 2.927-2.939.

⁴⁰⁵ This is the estimated reduction in payments for fixed termination resulting from a reduction in the FTR from 0.20ppm to 0.04ppm. It assumes that volumes of calls from mobiles to fixed geographic numbers are unchanged at 31bn minutes (see the footnote accompanying paragraph 8.36).

⁴⁰⁶ Ofcom quarterly data, Q3 2012, Mobile telecoms tables, Table 1, Q4 2011-Q3 2012, Mobile to UK fixed calls revenue of approximately £560m

⁴⁰⁷ Simplifying Non-geographic Numbers – Detailed proposals on the unbundled tariff and Freephone, April 2012. <http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geographic-no/>

- an Access Charge (for retail call origination): a set price, in pence per minute, which goes to the OCP connecting the call (this will be set out in the consumer's tariff package); and
- a Service Charge (for NTS call termination): the price, in pence per minute, paid to the TCP and the company providing the service over non-geographic numbers, i.e. the SP.

11.52 Under the proposed 'unbundled' NTS pricing structure, CPs providing NTS services would be unaffected by our proposals for setting FTRs at LRIC and fixed call origination rates at LRIC+ (with an additional mark-up for common costs no longer recovered from LRIC-based FTRs). This is because the costs of call origination will be directly recovered from the calling party via the OCP via the Access Charge.

11.53 Before implementation of the tariff unbundling for calls to non-geographic numbers, Ofcom has proposed to allow 18 months for stakeholders to make the necessary adjustments to contracts and business models.⁴⁰⁸ In the interim period we have proposed that the existing structure of regulating NTS call origination would continue. Therefore, our proposals potentially impact the value chain for both NTS call termination and NTS call origination.

NTS call termination

11.54 The provision of NTS call termination by a TCP involves receiving calls dialled to non-geographic numbers (e.g. 0845 and so on) and converting these to other numbers (which may be geographic numbers) for the physical provision of call termination to the dialled party – which is why the service is referred to as a “number translation service”.

11.55 BT has argued that because some TCPs will use their own network to provide geographic call termination (where the original non-geographic number is translated to a geographic number) whereas others will use a “host” network to provide the underlying geographic call termination, lowering FTRs could potentially affect competition between TCPs. In particular, providers of NTS termination that choose to purchase network access from another CP in order to physically provide termination to SPs, would face lower charges for doing so (i.e. based on FTRs at LRIC). BT has raised this as a concern, arguing that as contracts between TCPs and SPs expire, the SPs will seek better deals from those CPs that do not terminate calls on their own networks at the expense of those that do.⁴⁰⁹

11.56 We are not convinced that the arguments made by BT are a concern. Under the current regulation where FTRs are set above LRIC, TCPs that use hosting provided by another CP (i.e. purchase geographic call termination) will earn a lower margin than TCPs that use their own network (since the relevant marginal cost when using their own network is likely to be LRIC). Moving to LRIC-based FTRs would level the playing field between these two types of NTS TCPs (in terms of the likely margin between the NTS termination rate and the marginal or incremental cost of geographic call termination).

11.57 Therefore, our proposal to set FTRs at LRIC may facilitate competition in the provision of NTS calls during this interim period.

⁴⁰⁸ This was on the basis that Ofcom published its final statement on this issue in December 2012.

⁴⁰⁹ BT response to May 2012 CFI, “Glidepath implementation”

NTS call origination

- 11.58 Under existing regulation, when an NTS call is made the caller pays the OCP for the retail call and the OCP then passes on an agreed termination payment to the TCP. The TCP is then able to share this revenue with the NTS SP. The amount that BT, as the OCP, retains from the call comprises (1) an allowance for BT's costs of call origination (as determined by the NCC on wholesale call origination); (2) an allowance for NTS retailing costs (the NTS retail uplift); and (3) in the case of premium rate services (PRS), there is also an allowance for a bad debt surcharge.
- 11.59 In respect of call origination, our proposals give rise to two opposing forces. On the one hand, our proposal to set wholesale call origination rates at LRIC+ (with an additional mark-up) would tend to lead to increases in the level of charges, since they would cover the common costs no longer recovered under LRIC-based FTRs (see Section 8, where we discuss these cost standards and the issue of common cost recovery). On the other hand, our proposal to set charges on the basis of a hypothetical NGN would tend to lead to a decrease in the level of charges (see Section 9, where we discuss this issue of cost modelling). The implications of our proposals could be of particular pertinence to certain number ranges - e.g. for 0845 and 0843/4 numbers for which BT and other fixed CPs set relatively low retail prices.
- 11.60 Under the existing NTS call origination obligation, any change in the wholesale call origination charge would affect the margin on NTS calls earned by NTS providers. However, our initial estimates suggest that the net effect on the amount BT retains from retail prices on NTS calls may not change substantially. The estimated increase in BT's retention on NTS calls in 2013/4 if wholesale call origination is capped according to the projected LRIC+ with an additional mark-up would be less than 0.1ppm.⁴¹⁰
- 11.61 The corresponding reduction in the payment made by BT to TCPs is estimated to be 6% of the current amount received by TCPs for 0845 calls and 1-7% of the amount received for other NTS calls.
- 11.62 The way that revenues are shared between TCPs and SPs will vary depending on their contracts. Therefore the loss in termination revenue paid to the TCP as a result of the increase in wholesale call origination charges may also be shared between TCPs and SPs.
- 11.63 A number of other points should also be noted in respect of potential impacts on those in the NTS value chain:
- Even where payments to TCPs are reduced to some degree, all TCPs using wholesale call origination provided by BT are likely to be similarly affected and so we do not expect a distortion to competition.

⁴¹⁰ Calculated using BT's NTS calculator, the impact is estimated to be approximately 0.06ppm. BT's retention on these calls is equal to the rate for wholesale call origination + PPP + the NTS retail uplift. We calculate the change in BT's retention by comparing (a) the estimated retention in 2013/4 based on the proposed cap for wholesale call origination (which will now also include costs previously recovered via the separate PPP charge) and a cap of RPI for the NTS retail uplift with (b) what the retention would be if it was held constant in nominal terms from 2012/13 to 2013/14. This may be considered a conservative assumption because, if we had assumed that the current RPI+X caps on wholesale call origination (RPI+2.75%) and on the NTS retail uplift (RPI+1.25%) had continued, the estimated impact of the changes would have been smaller.

- Any effect from imposing a shorter glide path would be time limited – i.e. from the period when wholesale call origination is capped on the new LRIC+ basis and until the time when the unbundled tariff regime takes effect.
- The materiality of any call origination rate increases will be negligible for the higher rated NTS number ranges – i.e. it is only the low rated NTS number ranges where there would be a discernible effect.
- We would anticipate that commercial contracts would provide for variations subject to regulatory changes. [3X]⁴¹¹

11.64 In light of the above, we do not consider that effects in the value chain warrant further delay in bringing FTRs in line with LRIC (and call origination rates to the new LRIC+ basis).

Effects on incentives to invest

11.65 Given the potential financial impact of FTRs being set at LRIC, which we believe is small in absolute terms and significantly smaller than the impact of reducing MTRs to LRIC, we do not believe that they should have a material impact on incentives to invest. Therefore, we do not believe the estimated impacts would warrant a delay in bringing FTRs to the LRIC level (and wholesale call origination rates to the new LRIC+ basis). Moreover, the stronger the waterbed effect, the more the lost wholesale call termination revenue will be recouped such that the overall financial effect on fixed CPs will be reduced.

Proposals on the glide path for FTRs

- 11.66 We have outlined above the benefits of adjusting FTRs to LRIC levels as soon as possible and we do not believe that our assessment of the potential impacts of our proposals on consumers, competition or investment has brought to light a constraint or adverse consequence that would cause us to deviate from this principle.
- 11.67 Therefore, we propose to set FTRs to LRIC by 1 October 2013. Thereafter, LRIC will become the relevant ceiling for FTRs with FTRs evolving on an RPI-X basis to follow the path of LRIC forecast for wholesale call termination in each of the last two years of the NCC. Under this proposal there will be different values of X for each year to ensure that FTRs are aligned with the LRIC value in each year of the control.
- 11.68 We intend to publish our statement in mid-August, which would allow CPs six weeks to implement our proposals. We believe that a six-week period between our Statement and the implementation of the charge control would be sufficient to allow CPs to make the necessary changes to the levels of their charges.
- 11.69 Under the SIA, OCPs are required to provide BT with 56 days notice of changes to charges and we are proposing to reduce the notice period provided by BT on its regulated charges for the markets covered by this review to match this (see Sections 5, 6 and 10 above). In order to implement the proposed adjustments to charges on 1 October, we propose changes to the relevant conditions to allow BT to make the necessary changes in time.

⁴¹¹ [3X].

Glide path for wholesale call origination

Ofcom's analysis and assessment of responses

- 11.70 Since wholesale call origination is an example of one-way access, the typical trade-off between allocative and dynamic efficiency would point towards a smooth glide path over the control period – as we have typically followed in regulating this market in previous NCCs.
- 11.71 We believe that it is appropriate to adopt a similar approach for this NCC. However, in this case, this would involve the new wholesale call origination cap taking effect from 1 October 2013 in order to take account of the unrecovered common costs that have previously been recovered through FTRs. The wholesale call origination cap would then trend over the remainder of the charge control according to the forecast level of LRIC+ (including the additional common cost mark-up) in the final year of the control (i.e. 2016/17).
- 11.72 Having considered the responses to our May 2012 CFI, we see no reason to adopt an alternative glide path for wholesale call origination. We do not see the arguments on NTS call origination advanced by BT as providing a reason to alter either the glide path for FTRs or wholesale call origination charges, as explained earlier in this section (paragraphs 11.54-11.64).
- 11.73 We disagree with BT that our proposals for the NCC should be viewed as more profound than those proposed in the consultation on Simplifying Non-geographic Numbers in terms of changes to the regulatory structure which would affect our conclusions. Our proposals are for a change in the levels of charges, rather than a new form of regulation which fundamentally alters the structure of charging (which is the case in our proposals on the 'unbundled tariff').

Proposals on the glide path for wholesale call origination

- 11.74 In light of the above, we propose that the glide path for wholesale call origination is linked to that for wholesale call termination, with an adjustment to rates at the start of the charge control (1 October 2013) to bring them in line with the new LRIC+ rates (including the additional common cost mark-up) and then a glide path to the final year rates.

Effect of introduction of new regulation on charge notification periods

- 11.75 We are proposing to impose a condition on BT requiring it to provide 56 days notice of changes to regulated charges (reduced from 90 days under the current conditions). However, in order to implement the proposed adjustments to charges for wholesale call termination and origination on 1 October, we propose BT would not be required to give such notice for the period starting 1 October 2013 and ending 26 November 2013. In light of our proposed regulation of KCOM's wholesale call origination charges, we also propose this exception to the 56 days notice period to apply to KCOM in relation to call origination.

Interconnection circuits

- 11.76 As explained in Section 10 and Annex 12 we propose to regulate the charges for TDM interconnect circuits provided by BT by imposing an RPI-RPI cap for each charge control year. This will apply to the overall basket of interconnect circuits.

Charge control design

11.77 The remainder of this section explains how we propose to design the charge controls imposed on the following services:

- i) Wholesale call termination;
- ii) Wholesale call origination;
- iii) NTS Retail uplift; and
- iv) Interconnect circuits.

11.78 Each of the above represents the baskets for which there is a separate charge control – i.e. a distinct value of X in $RPI \pm X$. Our proposals on the operation of the charge controls cover the following areas:

- i) Basket design;
- ii) Time-of-day pricing – not relevant to interconnect circuits;
- iii) Wholesale call origination with and without operator assistance (OA) – only relevant to wholesale call origination;
- iv) Sub-caps – only proposed for the interconnect circuits basket;
- v) Prior year revenue weights;
- vi) Multiple price changes during a year;
- vii) Carry-over provisions;
- viii) Inflation index;
- ix) Rounding; and
- x) External revenues.

Separate baskets

11.79 A charge control basket is defined as the group of services that are subject to the same charge control restrictions. Combining services under a single basket means that the maximum increase in prices allowed by the cap for that basket would apply to an appropriate weighted average of prices across all services taken together.

11.80 In general, we consider that where services face different competitive constraints they should not be included in the same basket, since BT would have an incentive to concentrate price cuts on the most competitive services and offset these by price increases for the least competitive services, which could adversely affect retail competition.

11.81 However, where services are differentiated but face similar competitive conditions e.g. rental and connection charges for an interconnection circuit service, applying different charge caps on all individual services could result in a very complex set of charge control arrangements and might unduly constrain BT's ability to price

efficiently. Therefore, our default position is to combine individual services that face similar competitive conditions into wider baskets, unless there are good reasons not to do so.

- 11.82 Wholesale call termination and wholesale call origination have been placed in separate baskets in previous NCCs, although between 2001 and 2005 the same values of X were used for each basket. Although both services use similar network elements, we consider that wholesale call termination and wholesale call origination face different competitive conditions. Moreover, we now propose to regulate wholesale call termination on the basis of LRIC and wholesale call origination on the basis of LRIC+. Therefore, we propose to have separate baskets for wholesale call termination and wholesale call origination.
- 11.83 While the competitive conditions relating to wholesale call origination and wholesale call termination will shape the nature of competition for interconnect circuits (since interconnect circuits are tied to the purchase of wholesale call origination and/or termination from the supplying CP), the structure of charges for interconnect circuits is very different. Interconnect circuits are charged for on the basis of connections and rentals, whereas wholesale call origination and wholesale call termination are charged for on a per minute basis. Moreover, we propose to regulate wholesale call termination on the basis of LRIC, but wholesale call origination on the basis of LRIC+. Therefore, we propose to maintain a separate basket for interconnection circuits.
- 11.84 In respect of NTS call origination we have also proposed an RPI cap on the NTS retail uplift until the new NTS regime is implemented and we have proposed to maintain the current PRS Bad Debt surcharge at 5.2% of PRS retail revenues during the interim period (see Section 5 for further details). The proposed basket would cover all time-of-day charges and all NTS number ranges.

Time-of-day pricing

- 11.85 To date, BT has disaggregated its charges for wholesale call origination, wholesale call termination, PPP and the NTS retail uplift depending on whether the call is during the day, evening or weekend period. This is also referred to as the 'network tariff gradient'.
- 11.86 In the 2009 NCC we allowed for different time-of-day charges by setting a control on the weighted average of the charges for services within each basket
- 11.87 In our May 2012 CFI we indicated that we would consider a simpler pricing rule based on a 'flat rate cap', similar to that now used for MCT, and sought views from stakeholders regarding whether time-of-day rates are likely to be important in setting efficient wholesale call rates for call termination and call origination between 2013 and 2016.

Responses to the May 2012 CFI

- 11.88 BT recognised that although it was desirable to reduce peak-load traffic on the network, since fixed call charges had fallen over time, "time of day" pricing had less influence in managing call patterns than in the past. However, it argued that CPs had developed packages for business and residential customers based on "time of day"

charges, and the elimination of “time of day” rates could disrupt these business models unnecessarily.⁴¹²

- 11.89 [X] argued that although mobile operators do not see any benefit in differentiating charges by “time of day”, fixed CPs do, and therefore “time of day” rates at the wholesale level are likely to be needed to manage network capacity. [X] argued that fixed CPs have had to use time of day pricing to signal to end users when is best for them to use their networks. [X].
- 11.90 Although contradictory, [X] also said that it could not see a reason why adopting a maximum ceiling for wholesale call conveyance rates was not a viable approach especially as it supported the approach for MTRs.⁴¹³
- 11.91 KCOM noted that, in its view, the fixed market is likely to exhibit a wider range of time-of-day profiles than the mobile market, with clear divisions between providers focused on the residential and business markets.
- 11.92 TalkTalk believed that time of day variations were likely to become unnecessary for traffic management purposes in much the same way as for mobile termination. However, TalkTalk did not believe it was necessary to adopt the same design for capping wholesale call conveyance rates as used for MTRs and noted that ‘flip-flopping’ had not been an issue in relation to FTRs.⁴¹⁴ TalkTalk also questioned whether ‘flip-flopping’ would be commercially attractive given that FTRs were so low compared to those for MTRs in the past.⁴¹⁵
- 11.93 BT also noted that there was no evidence of ‘flip-flopping’ in fixed call conveyance rates and considered that the existing design had worked without notable problems since 1997.⁴¹⁶
- 11.94 H3G believed that time of day rates were becoming increasingly anachronistic in a world where CPs increasingly compete on the basis of retail packages offering inclusive call minutes for a fixed monthly fee across all time of day periods.⁴¹⁷
- 11.95 CWW did not believe that “time of day” pricing was important because of the increasing norm of inclusive call packages.⁴¹⁸ CWW also argued that since the wholesale “time of day” gradient was based on the mix of BT’s retail traffic (which is different to the mix of other CPs) and that FTRs are set on a reciprocal basis this allowed BT to dictate the pricing policies of competing CPs. CWW also believed there to be merit in having equivalent regulation in the mobile and fixed sectors, recognising that although they are two separate markets, there is a degree of substitutability between the two markets.⁴¹⁹

⁴¹² BT response to May 2012 CFI, p.15

⁴¹³ [X].

⁴¹⁴ Flip-flopping is a practice that emerged in the mobile sector whereby an MCP could change its termination rates frequently and significantly in order to exploit the way in which average call termination charges were previously calculated (relative to volumes in the previous year) and force other MCPs to pay more, in aggregate, than the rates that were intended under the charge control.

⁴¹⁵ TalkTalk response to May 2012 CFI, p.13

⁴¹⁶ BT response to May 2012 CFI, p.15 and p.16

⁴¹⁷ H3G response to May 2012 CFI, p.10.

⁴¹⁸ CWW response to May 2012 CFI, p.24

⁴¹⁹ CWW response to May 2012 CFI, p.24 and p.25

Ofcom's analysis and proposals

- 11.96 As can be seen above, the responses to the May 2012 CFI were mixed on this issue. After further consideration, we are proposing to continue with the current approach for the NCC, i.e. that the call origination and call termination baskets should be capped by reference to weighted average charges, rather than restricted to a flat rate that would apply as the cap in any charging period (day, evening or weekend).
- 11.97 We consider that the weighted average cap is preferable to the "flat rate cap" alternative for the following reasons:
- Whilst different time-of-day charges may have become less relevant for managing traffic in general, to the extent that voice traffic is important at peak times, it would still be advantageous for BT to be able to manage voice traffic on its network by applying peak load pricing. Furthermore, capacity constraints are only important at the margin, so even if voice traffic contributes less to the network peak than in the past, in so far as voice traffic contributes to that peak, the ability to manage voice traffic efficiently would still seem reasonable – unless it was abused.
 - Although a flat rate cap would simplify compliance, this is not considered a strong enough reason for depriving BT of the ability to manage network usage, through the network tariff gradient.
 - Despite flip-flopping being used to exploit the average rate cap in MCT, these issues have not arisen thus far in relation to fixed wholesale call origination or termination rates. Crucially our basket design proposals (discussed below), which explicitly allow multiple price changes, have been conceived to avoid the sort of 'flip-flopping' experienced in the previous caps on MTRs.

Wholesale call origination with and without operator assistance

- 11.98 The existing wholesale call origination basket includes two types of service: call origination including operator assistance (OA) and call origination excluding OA.⁴²⁰ We have considered whether it is necessary to include call origination including OA within the wholesale call origination basket.
- 11.99 External supply of call origination including OA by BT is largely related to calls to freephone numbers and we understand that the competitive conditions of wholesale call origination with OA are not substantively different from those for the service excluding OA.⁴²¹ Therefore we propose to include wholesale call origination with operator assistance within the wider call origination basket.

Sub-caps for interconnect circuits

- 11.100 In Section 10 we favoured a charge control over a cost-orientation obligation in order to regulate the pricing of interconnect circuits. In Annex 12 we explained why, within the overall interconnect circuits basket, we favoured sub-caps rather than additional cost orientation based on distributed stand alone cost (DSAC) and distributed long-run incremental cost (DLRIC).

⁴²⁰ The majority of external call origination is sold without operator assistance (10.8bn minutes in 2011/12, although there were 4.1bn minutes, or 28%, of external call origination sold including operator assistance). BT Regulatory Financial Statements 2012

⁴²¹ BT response to S135 information request, dated 24 October 2012

Prior year revenue weights

- 11.101 We have generally preferred to adopt prior year revenue weighting within charge controls and we adopted this approach for the 2009 NCC. Since prior year weighting relies on information that is already known, this makes BT's task of complying with the charge control less complex since it is always able to calculate compliance ex-ante (i.e. at the time of setting new rates it can in principle consider the implications for compliance with certainty).
- 11.102 The risk of using prior year weightings in the basket is when the relative volumes of services within a basket changes substantially – and in a predictable way. In such a scenario, BT may be able to game the control by increasing the price of the service that has growing volumes, since it would earn additional revenue whilst the price rise would be given a lower weighting within the charge control (reflecting the lower revenue weighting in the prior year). For example, the CC noted this risk in its determination of the LLU charge control appeal,⁴²² where it identified that there was scope within one of the baskets for Openreach to increase prices on growing volume services and decrease prices on declining volume services. However, we do not believe that this is a material risk within our proposals for the NCC, since the proposed baskets do not contain a large variety of different types of service and, in the case of interconnect circuits, we are proposing to impose sub-caps which would restrict BT's ability to game the control in such a way.
- 11.103 The main alternative to using prior year revenue weights is to use current year revenue weightings. However, current year weights cannot be calculated with certainty until after the end of the charge control year. This would mean that, in order to decide how far to adjust prices, BT would have to forecast weights and would need to make retrospective adjustments for errors in forecasting. We believe that this complexity would detract from the predictability of the charge control.
- 11.104 We therefore propose to use prior financial year revenue weights when testing compliance with the charge control (this maintains the approach used in the 2009 NCC formula and is consistent with our approach in other charge controls).

Multiple price changes during a year

- 11.105 We consider that BT should have the flexibility to make multiple price changes in respect of a particular service (subject to meeting its other regulatory obligations). However, we propose to modify certain technical aspects of the charge control formula that was used for the 2009 NCC. The proposed changes are intended to provide further clarity regarding how compliance with the control will be measured and make the control more robust against potential gaming that could have arisen under the existing formula.
- First, we propose to weight service prices to reflect the proportion of the year during which they were in effect. A similar approach is applicable under the current NCC formula, although we have sought to clarify how multiple price changes would be aggregated.

⁴²² CC Determination, paragraphs 3.191-3.202, August 2010
[http://projects.loop/nmr2012/eco/NCC%20-%20Basket%20design/LLU%20basket%20design%20information%20\(for%20reference%20on%20prior%20year%20weightings\)/1.1111_Carphone_Warehouse_CC_Determination_310810\[1\].pdf](http://projects.loop/nmr2012/eco/NCC%20-%20Basket%20design/LLU%20basket%20design%20information%20(for%20reference%20on%20prior%20year%20weightings)/1.1111_Carphone_Warehouse_CC_Determination_310810[1].pdf)

- Second, we propose to evaluate price changes for each service in relation to the weighted average charge that applied during the prior control year for that service, rather than being based on the price on the last day of the prior control year.

11.106 The reason for the second modification is because under the current NCC, price changes are defined in relation to the price 'immediately preceding the beginning of the relevant year',⁴²³ there may be a potential risk of gaming by BT. For example, with a single service basket, BT could set the following pattern of prices to achieve more revenue whilst still being compliant with the charge control:

- Months one to ten – the price is increased approximately in line with the RPI+X target
- Month eleven – prices are decreased to the prior year nominal level
- Month twelve – prices are increased by approximately twice RPI+X

11.107 In this example, the changes would be compliant with the current NCC, since the average price over the period is RPI+X. However, the price at the end of the year is significantly higher than the charge at the start of the year increased by RPI+X. Under the existing NCC, in the following year, price changes would be assessed in relation to the higher price at the end of the previous year. The same pattern could also be repeated in subsequent year(s). Over a three year period and across the baskets covered by the NCC, this could result in higher revenues than intended when the control was set.

11.108 To mitigate this effect, we propose to define price changes in relation to a weighted average charge (weighted by the number of days the charge is in effect) for the preceding 12 months. Certainty around this average will help BT in setting (and notifying) compliant prices during the following year, as well as giving assurance to CPs purchasing the service. Since we have proposed that BT should be required to provide 56 days' notice (as per Sections 5, 6 and 10) and the weighting of the prices is based on the number of days not volumes, we think that at the start of each control year (and up to 56 days before), the prior year average charge can be accurately calculated from the BT price list.

Carry-over provision

11.109 A carry-over provision has been included in previous controls. The carry-over provision has two functions:

- It provides BT with the ability to use the 'credit' created by setting charges below NCC requirements within a given year towards NCC compliance in the following year. Therefore the carry over avoids penalising BT for bringing forward a charge reduction (for RPI-X controls) or increasing charges less than the cap (for RPI+X controls).
- Where BT charges in excess of the cap, BT is required to make the excess up the following year by charging less than the cap would otherwise have allowed.

⁴²³ NCC 2009 – Annex 1, Schedule 1 and 2:

http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf

11.110 We believe that a symmetrical carry-over provision remains appropriate. By symmetrical we mean that a given percentage over-charge relative to the cap is treated the same as the corresponding percentage pricing below the cap.⁴²⁴

Inflation index

11.111 There is a regulatory precedent for using RPI within charge controls and CPs are familiar with this approach. The CC has also recognised the value of continuing to use RPI (as opposed to another index such as CPI).⁴²⁵

11.112 We propose to use the RPI All Items index (rounded to 1 decimal place) as the relevant inflation index within the charge control formula as this is consistent with the inflation index used for deflating nominal costs in the cost model.⁴²⁶

11.113 We are aware that the ONS has recently announced its proposals in respect of the way that RPI is calculated.⁴²⁷ It announced that while it will continue to publish the index based on the current definition of RPI, it will also publish another RPI inflation index, which will be known as RPIJ. RPIJ will not be published until March 2013.

11.114 We propose to use the RPI All Items definition in the specification of the NCC formula since the NCC model has been constructed on this basis. Should we change the way we forecast costs, we will consider again whether a change to the measure of inflation used in the NCC formula is necessary.

Rounding

11.115 We propose to round charges to three decimal places for call origination, call termination and the NTS retail uplift. This is the extent of rounding reported in the RFS and also the number of decimal places we propose to use for rounding our cost model outputs. For interconnect circuits, we propose rounding charges to the nearest penny (since prices are charged to the nearest penny). We propose that values of X are specified to 1 decimal place, consistent with the definition of the percentage change in RPI as reported by the ONS.

External revenues

11.116 We propose that the charge control is measured in relation to external charges and revenues only. This is because the aim of our proposed NCC is to mitigate the risks of BT engaging in overcharging to other CPs seeking access to BT's network.

⁴²⁴ However, our proposal would involve amending the carry over provision relative to that currently used in the NCC in order to remove an interpretation risk that could allow greater price increases than intended under the control. This risk arises because the 2009 NCC could be interpreted as allowing the arithmetic percentage difference to be carried forward as credit in the basket. We believe that a more accurate carry over would be based on the geometric percentage difference (since we are talking about rates of change which multiply over time). We would modify the carry over rule accordingly in the NCC formula. However, as explained below at paragraph 11.109, we are proposing that the carry-over provision should only apply to the overall service baskets. In other words, it should not apply to the sub-caps we propose for individual services within the interconnect circuits basket.

⁴²⁵ See paragraphs 3.21-3.22 of the CC's report http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2007/fulltext/532

⁴²⁶ For the 2009 NCC we used the inflation figure for the 12 months ending on 30 June prior to the start of the charge control year. We propose to continue to use the figure for the 12 months ending 30 June.

⁴²⁷ <http://www.ons.gov.uk/ons/rel/mro/news-release/rpirecommendations/rpinewsrelease.html>

Summary of charge controls

11.117 We propose four basket controls, each of which with a separate value of X in RPI+/- X. The controls for each service (base case) and the ranges are as follows:

Table 11.2 – Values of X and glide paths⁴²⁸

| | 2012/13 Actual Real | 2013/14 Forecast Real | 2014/15 Forecast Real | 2015/16 Forecast Real |
|--------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|
| Termination | | | | |
| Low | | | | |
| Glide-path | 0.204 | 0.002 | 0.002 | 0.002 |
| Medium (base) | | | | |
| Glide-path | 0.204 | 0.040 | 0.037 | 0.034 |
| X-Value | NA | -82.7% | -8.7% | -9.0% |
| High | | | | |
| Glide-path | 0.204 | 0.077 | 0.071 | 0.065 |
| Origination | | | | |
| Low | | | | |
| Glide-path | 0.252 | 0.240 | 0.215 | 0.193 |
| Medium (base) | | | | |
| Glide-path | 0.252 | 0.297 | 0.269 | 0.244 |
| X-Value | NA | 18.4% | -9.6% | -9.6% |
| High | | | | |
| Glide-path | 0.252 | 0.490 | 0.453 | 0.419 |
| ISB | | | | |
| Low/Medium (base) | | | | |
| X-Value | | RPI-RPI | RPI-RPI | RPI-RPI |
| High | | | | |
| X-Value | | RPI-0 | RPI-0 | RPI-0 |
| NTS retail uplift | | | | |
| X-value | | RPI-0 | RPI-0* | RPI-0* |

11.118 In the case of wholesale call origination and wholesale call termination, the values presented above represent the base case from our cost analysis reported in Annex 13. The sensitivity analysis around that base case is also reported in Annex 13.⁴²⁹

11.119 As explained in Section 5, for NTS retail uplift we propose an RPI cap until our unbundling proposals for non-geographic calls take effect. For the PRS bad debt charge we propose to continue with the existing controls set at 5.2% of PRS retail revenues (see Section 5).

Question 11.1: Do you agree with our proposed glide paths? If not, please explain why.

⁴²⁸ ppm real values are in 2011/12 prices.

⁴²⁹ In respect of interconnect circuits, in Annex 12 we considered whether RPI-0% might be a suitable alternative to a cap based on RPI-RPI, although our base case is RPI-RPI. For interconnect circuits we have also proposed sub-caps of RPI+10% for each tariff component (i.e. connections, fixed rentals and per km rentals for each circuit type included in the basket, as applicable).

Question 11.2: *Do you agree with our proposal to allow a six week implementation period for Fixed Termination Rates to be capped at LRIC? If not please explain why.*

Question 11.3: *Do you agree with our proposals relating to “Charge control design”? If not, please explain why.*

Annex 1

Responding to this consultation

How to respond

- A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made **by 5pm on 2 April 2013**.
- A1.2 Ofcom strongly prefers to receive responses using the online web form at <http://stakeholders.ofcom.org.uk/consultations/nmr-13/howtorespond/form> as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.
- A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email NarrowbandMarketReview@ofcom.org.uk attaching your response in Microsoft Word format, together with a consultation response coversheet.
- A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.
- Keith Hatfield
Floor 4
Competition Group
Riverside House
2A Southwark Bridge Road
London SE1 9HA
- Fax: 020 7981 3417
- A1.5 Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.
- A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 4. It would also help if you can explain why you hold your views and how Ofcom's proposals would impact on you.

Further information

- A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Keith Hatfield on 020 7981 3417.

Confidentiality

- A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your

response should be kept confidential, can you please specify what part or whether all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

- A1.9 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.
- A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's approach on intellectual property rights is explained further on its website at <http://www.ofcom.org.uk/about/account/disclaimer/>

Next steps

- A1.11 Following the end of the consultation period, Ofcom intends to publish a statement in summer 2013.
- A1.12 Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: http://www.ofcom.org.uk/static/subscribe/select_list.htm

Ofcom's consultation processes

- A1.13 Ofcom seeks to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.
- A1.14 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk . We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.
- A1.15 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Graham Howell, Secretary to the Corporation, who is Ofcom's consultation champion:

Graham Howell
Ofcom
Riverside House
2a Southwark Bridge Road
London SE1 9HA

Tel: 020 7981 3601

Email Graham.Howell@ofcom.org.uk

Annex 2

Ofcom's consultation principles

- A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

- A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

- A2.3 We will be clear about who we are consulting, why, on what questions and for how long.
- A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened Plain English Guide for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.
- A2.5 We will consult for up to 10 weeks depending on the potential impact of our proposals.
- A2.6 A person within Ofcom will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. Ofcom's 'Consultation Champion' will also be the main person to contact with views on the way we run our consultations.
- A2.7 If we are not able to follow one of these principles, we will explain why.

After the consultation

- A2.8 We think it is important for everyone interested in an issue to see the views of others during a consultation. We would usually publish all the responses we have received on our website. In our statement, we will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

- A3.1 In the interests of transparency and good regulatory practice, we will publish all consultation responses in full on our website, www.ofcom.org.uk.
- A3.2 We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality where appropriate.
- A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their coversheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.
- A3.4 We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at www.ofcom.org.uk/consult/.
- A3.5 Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only, so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation**BASIC DETAILS**

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing

☐

Name/contact details/job title

☐

Whole response

☐

Organisation

☐

Part of the response

☐

If there is no separate annex, which parts?

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

☐

Name

Signed (if hard copy)

Annex 4

Consultation questions

- A4.1 When responding to this consultation, respondents are asked that they do so by providing answers to the questions which are listed below.
- A4.2 In answering these questions, respondents are also advised to consider the analysis included in this consultation.

Market developments in retail services excluding the Hull Area

Question 3.1: Do you agree with our assessment that both the business and residential retail fixed narrowband calls markets in the United Kingdom have remained competitive since 2009 and that we expect the same competitive conditions to continue during the period of this review as long as appropriate wholesale regulations remain in place? If not, please explain why.

Market developments in retail services in the Hull Area

Question 4.1: Do you agree with our assessment that no material changes have occurred in the retail markets in the Hull Area since the last review in 2009? If not, please explain why.

Question 4.2: Do you agree with our assessment that ex post competition law remedies would now be sufficient to address any competition concerns identified during the period covered by this review and that it would no longer be appropriate to maintain regulation for retail narrowband call services in the Hull Area? If not, please explain why.

Wholesale call origination

Question 5.1: Do you agree with our assessment that the relevant service market is “Wholesale call origination on a fixed narrowband network”? If not, please explain why.

Question 5.2: Do you agree with our assessment that there are two relevant geographic markets: “The United Kingdom excluding the Hull Area” and “The Hull Area”? If not, please explain why.

Question 5.3: Do you agree with our assessment that BT has SMP in the market for “Wholesale call origination on a fixed narrowband network” in the United Kingdom excluding the Hull Area? If not, please explain why.

Question 5.4: Do you agree with our assessment that KCOM has SMP in the market for “Wholesale call origination on a fixed narrowband network” in the Hull Area? If not, please explain why.

Question 5.5: Do you agree with the remedies imposed on BT in the market for “Wholesale call origination on a fixed narrowband network” in the United Kingdom excluding the Hull Area? If not, please explain why.

Question 5.6: Do you agree with the remedies imposed on KCOM in the market for “Wholesale call origination on a fixed narrowband network” in the Hull Area? If not, please explain why.

Wholesale fixed geographic call termination

Question 6.1: Do you agree with our assessment that the relevant service market is “termination services that are provided by [named fixed communications provider] (CP) to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which that CP has been allocated by Ofcom in the area served by that CP”? If not, please explain why.

Question 6.2: Do you agree with our assessment that the relevant geographic market is determined by reference to the area in which the CP provides termination services and is not wider than the United Kingdom? If not, please explain why.

Question 6.3: Do you agree with our assessment that each CP has SMP in the market for fixed geographic call termination to their number range? If not, please explain why.

Question 6.4: Do you agree with the remedies imposed on BT in the market for fixed geographic call termination to its number range? If not, please explain why.

Question 6.5: Do you agree with the remedies imposed on other CPs (excluding BT) in the market for fixed geographic call termination to their number range? If not, please explain why.

Transit and conveyance services

Question 7.1: Do you agree with our assessment that there have been no material changes in the ST market since the 2009 review? If not, please explain why.

Question 7.2: Do you agree with our assessment that ex post competition law remedies would now be sufficient to address the competition concerns identified during the period covered by this review in the ST market and that it would no longer be appropriate to maintain regulation in this market? If not, please explain why.

Question 7.3: Do you agree with our assessment that the LTC/LTT market in the United Kingdom has remained competitive since 2009 and that we expect the same competitive conditions to continue during the period of this review? If not, please explain why.

Price regulation of termination and origination markets

Question 8.1: Do you agree that we should cap FTRs at LRIC? Please explain your reasons.

Question 8.2: Do you agree that wholesale call origination should be regulated on a LRIC+ basis where the “+” includes a mark-up to off-set the common cost recovery foregone from externally provided wholesale call termination on a LRIC basis? If not, please explain why.

Question 8.3: *Should the FTRs of CPs other than BT be presumed fair and reasonable where they are no higher than the Benchmark FTR? If not, please explain why.*

Question 8.4: *Should the FTR set by KCOM in the Hull Area be presumed fair and reasonable where it is no higher than the Benchmark FTR? If not, please explain why.*

Question 8.5: *Do you agree with our proposed approach to the regulation of wholesale call origination rates in the Hull Area? If not, please explain why.*

Question 8.6: *Do you agree that LRIC-based FTRs should not be adjusted for APCCs?*

Cost modelling for call conveyance services

Question 9.1: *Do you agree with our proposed approach to modelling the cost of fixed call origination and fixed call termination? If not, please explain why.*

Interconnection

Question 10.1: *Do you agree with our assessment that BT and KCOM should be required to provide interconnect circuits? If not, please explain why.*

Question 10.2: *Do you agree with the obligations we propose to impose on BT in relation to the provision of interconnect circuits? If not, please explain why.*

Question 10.3: *Do you agree with the obligations we propose to impose on KCOM in relation to the provision of interconnect circuits? If not, please explain why.*

Charge control specification

Question 11.1: *Do you agree with our proposed glide paths? If not, please explain why.*

Question 11.2: *Do you agree with our proposal to allow a six week implementation period for Fixed Termination Rates to be capped at LRIC? If not please explain why.*

Question 11.3: *Do you agree with our proposals relating to “Charge control design”? If not, please explain why.*

Annex 5

Sources of evidence

Introduction

A5.1 We have noted throughout this Consultation Document the evidence we have relied upon in relation to our findings and how we have relied upon that evidence. This Annex lists the main sources of evidence used. We also list all respondents to our consultations and to our various section 135 requests.

A5.2 Whilst the Annex lists the main evidence we have relied upon, the list is for convenience only and is not intended to be exhaustive.

List of respondents to the call for inputs

A5.3 On 17 May 2012 we published a Call for Inputs ('CFI') setting out our proposed approach to this market review and seeking stakeholder input.⁴³⁰

A5.4 Twelve stakeholders provided written responses to the Call for Inputs:

- [X];
- British Telecommunications plc;
- Cable and Wireless Worldwide plc;
- Everything Everywhere Limited;
- The Federation of Communication Services (FCS);
- Hutchison 3G UK Limited;
- Internet Telephony Services Providers' Association (ITSPA);
- KCOM Group plc;
- TalkTalk Telecom Group plc;
- United Kingdom Competitive Telecommunications Association (UKCTA);
- Verizon UK Limited; and
- Virgin Media Limited

A5.5 We have published the non-confidential versions of the responses from all the stakeholders listed above. These can be found on our website.⁴³¹

⁴³⁰ <http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/>

⁴³¹ <http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/?showResponses=true&pageNum=1#responses>

List of respondents to the charge control consultation

- A5.6 On 28 September 2012, we published a consultation on the possible approaches to cost modelling for the Network Charge Control setting out our proposed approach to cost modelling and seeking stakeholder input.⁴³²
- A5.7 Ten stakeholders provided written responses to the consultation:
- British Telecommunications plc;
 - British Sky Broadcasting Limited;
 - Cable and Wireless Worldwide plc;
 - Everything Everywhere Limited;
 - Hutchison 3G UK Limited;
 - Internet Telephony Services Providers' Association (ITSPA);
 - TalkTalk Telecom Group plc;
 - Verizon UK Limited;
 - Virgin Media Limited; and
 - Vodafone Group plc.
- A5.8 We have published the non-confidential versions of the responses from all the stakeholders listed above. These can be found on our website.⁴³³

Information-gathering using statutory powers (s135)

- A5.9 During this market review, we have issued a series of notices under section 135 of the Act requiring various CPs to provide specified information as set out in the notice. These information requests are listed below:
- 5.9.1 Information request of 11 June 2012 regarding the provision of data necessary to conduct network cost modelling. Request addressed to and response received from:
- British Telecommunications plc.
- 5.9.2 Information request of 16 July 2012 regarding interconnection and traffic volumes. Request addressed to and responses received from:
- British Sky Broadcasting Limited;
 - British Telecommunications plc;
 - Colt Technology Services;

⁴³² <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

⁴³³ <http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review/?showResponses=true>

- Cable and Wireless Worldwide plc;
- Gamma Telecoms Holdings Limited;
- KCOM Group plc;
- TalkTalk Telecom Group plc;
- Verizon UK Limited; and
- Virgin Media Limited.

5.9.3 Information request of 20 July 2012 to identify fixed communications providers (FCPs) who hold geographic number ranges for our analysis of wholesale call termination.

- The information request was sent to all companies registered as holding a number range as published by Ofcom:
<http://www.ofcom.org.uk/static/numbering/index.htm#geog1>
- The information request received 155 responses.
- This information was used to identify those with SMP in wholesale call termination. They include those who did not respond to the information request who have, by default, been included. The full list can be found in Annex 6.
- Information request of 1 August 2012 regarding the provision of data necessary to conduct network cost modelling. Request addressed to and responses received from:
 - British Sky Broadcasting Limited;
 - British Telecommunications plc;
 - Cable and Wireless Worldwide plc;
 - Gamma Telecoms Holdings Limited;
 - TalkTalk Telecom Group plc; and
 - Virgin Media Limited.

5.9.4 Information request of 24 October 2012 regarding wholesale call origination, wholesale call termination and interconnection in addition to data necessary to conduct network cost modelling. Request addressed to and responses received from:

- British Sky Broadcasting Limited;
- British Telecommunications plc;
- Cable and Wireless Worldwide plc;
- Everything Everywhere Limited;
- Gamma Telecoms Holdings Limited;

- Hutchison 3G UK Limited;
 - KCOM Group plc;
 - TalkTalk Telecom Group plc;
 - Telefonica O2 UK Limited;
 - Virgin Media Limited; and
 - Vodafone Group plc
- 5.9.5 Information request of 10 January 2013 regarding the provision of data necessary to conduct network cost modelling. Request addressed to and response received from:
- British Telecommunications plc

Ofcom documents

- A5.10 Review of the charge control on calls to mobiles (Oftel) – 26 September 2001
<http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/ctm0901.pdf>
- A5.11 The regulatory financial reporting obligations on BT and Kingston Communications (statement) – 22 July 2004
http://stakeholders.ofcom.org.uk/binaries/consultations/fin_reporting/statement/finance_report.pdf
- A5.12 Addressing the local call disadvantage (statement) – 30 July 2004
http://stakeholders.ofcom.org.uk/binaries/consultations/cps_option/statement/cps_statement.pdf
- A5.13 Review of the Universal Service Obligation (statement) – 30 June 2005
<http://stakeholders.ofcom.org.uk/binaries/consultations/uso/statement/statementreview.pdf>
- A5.14 Better policy making – 21 July 2005
http://stakeholders.ofcom.org.uk/binaries/consultations/better-policy-making/Better_Policy_Making.pdf
- A5.15 Ofcom's approach to risk in the assessment of the cost of capital (statement) – 18 August 2005
http://stakeholders.ofcom.org.uk/binaries/consultations/cost_capital2/statement/final.pdf
- A5.16 Review of BT's network charge controls (statement) – 18 August 2005
http://stakeholders.ofcom.org.uk/binaries/consultations/charge/statement/statement_ncc.pdf
- A5.17 End-to-end connectivity (statement) – 13 September 2006
http://stakeholders.ofcom.org.uk/binaries/consultations/end_to_end/statement/statement.pdf

- A5.18 Mobile call termination (statement) – 27 March 2007
http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_term/statement/statement.pdf

- A5.19 Changes to BT's regulatory financial reporting and audit requirements – 30 May 2007
<http://stakeholders.ofcom.org.uk/binaries/consultations/obligations/statement/statement.pdf>

- A5.20 Complaint from Thus Plc and Gamma Telecoms Limited against BT about alleged margin squeeze in wholesale call pricing – 1 August 2008
http://stakeholders.ofcom.org.uk/enforcement/competition-bulletins/open-cases/all-open-cases/cw_988/

- A5.21 Review of BT network charge controls (consultation) – 19 March 2009
http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/summary/reviewbtnc.pdf

- A5.22 Review of the fixed narrowband services wholesale markets (consultation) – 19 March 2009
http://stakeholders.ofcom.org.uk/binaries/consultations/review_wholesale/summary/fnwm.pdf

- A5.23 Fixed narrowband retail services markets (statement) – 15 September 2009
http://stakeholders.ofcom.org.uk/binaries/consultations/retail_markets/statement/statement.pdf

- A5.24 Review of BT's network charge controls (statement) – 15 September 2009
http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/ncstatement.pdf

- A5.25 Review of the fixed narrowband services wholesale markets (statement and consultation) – 15 September 2009
http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf

- A5.26 Next Generation Networks (statement) – 28 January 2010
http://stakeholders.ofcom.org.uk/binaries/consultations/ngndevelopments/statement/ngn_statement.pdf

- A5.27 Review of the Fixed Narrowband Services Wholesale Markets (statement) – 5 February 2010
http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/statement/statement.pdf

- A5.28 Wholesale mobile voice call termination (Volume 2 – consultation) – 1 April 2010,
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

- A5.29 Review of the Retail and Wholesale ISDN30 Markets (statement) – 20 August 2010
<http://stakeholders.ofcom.org.uk/binaries/consultations/isdn30/statement/statement.pdf>

- A5.30 Review of the Wholesale Local Access Market (statement) – 7 October 2010,
http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf
- A5.31 Retail bundling in Hull (statement) – 8 October 2010
<http://stakeholders.ofcom.org.uk/binaries/consultations/retail-bundling-in-hull/statement/statement.pdf>
- A5.32 Review of the wholesale fixed analogue exchange lines markets (statement) – 20 December 2010 <http://stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-fixed-exchange/statement/statement.pdf>
- A5.33 Wholesale mobile call termination: Guidance on dispute resolution in relation to fair and reasonable charges (statement) – 5 April 2011
<http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/statement/guidance.pdf>
- A5.34 Fair and reasonable charges for fixed geographic call termination (statement) – 27 April 2011
<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>
- A5.35 Wholesale charges for NTS and premium rate services (statement) – 20 July 2011
http://stakeholders.ofcom.org.uk/binaries/consultations/nts-retail-uplift/statement/NTSRU_statement.pdf
- A5.36 Wholesale mobile voice call termination (statement) – 15 March 2011
http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/statement/MCT_statement.pdf
- A5.37 Consumer switching (consultation) – 9 February 2012
<http://stakeholders.ofcom.org.uk/binaries/consultations/switching-fixed-voice-broadband/summary/condoc.pdf>
- A5.38 Dispute relating to BT's Standard Interconnect Agreement 14 February 2012
http://stakeholders.ofcom.org.uk/enforcement/competition-bulletins/open-cases/all-open-cases/cw_01083/
- A5.39 Charge control review for LLU and WLR services (statement) – 7 March 2012
<http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/statement/statementMarch12.pdf>
- A5.40 Simplifying non-geographic numbers (consultation) – 4 April 2012
<http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geographic-no/>
- A5.41 Fixed narrowband market review and network charge control (call for inputs) – 17 May 2012 <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/summary/condoc.pdf>
- A5.42 Narrowband Market Review (Consultation on possible approaches to cost modelling) – 28 September 2012
<http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

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<http://stakeholders.ofcom.org.uk/binaries/telecoms/numbering/numbering-plan201212.pdf>
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- A5.49 Reference under section 193 of the Communications Act 2003: British Telecommunications plc v Office of Communications (case 1180/3/3/11), Everything Everywhere Limited v Office of Communications (case 1181/3/3/11), Hutchison 3G UK Limited v Office of Communications (case 1182/3/3/11), Vodafone Limited v Office of Communications (case 1183/3/3/11) and Telefonica UK Limited regarding mobile call termination rates. Competition Commission determination – 9 February 2012 http://www.competition-commission.org.uk/assets/competitioncommission/docs/appeals/telecommunication-s-price-control-appeals/final_determination.pdf

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- A5.51 British Telecommunications plc v Office of Communications (case 1187/3/3/11). Wholesale broadband access charge control – judgment of the CAT of 22 June 2012 <http://www.catribunal.org.uk/237-7278/1187-3-3-11-British-Telecommunications-plc-Wholesale-Broadband-Access-Charge-Control.html>

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<http://www.bailii.org/ew/cases/EWCA/Civ/2009/683.html>

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<http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/ctm0901.pdf> for electronic communications and services – 13 November 2007
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- A5.68 Consumer Experience Report 2012 – 8 January 2013 http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-12/Consumer_Experience_Research1.pdf
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Annex 6

Proposals for SMP conditions excluding charge controls

NOTIFICATION OF PROPOSALS UNDER SECTIONS 48A AND 80A OF THE COMMUNICATIONS ACT 2003

Proposals for identifying markets, making market power determinations and setting SMP services conditions in relation to BT, KCOM and specified communications providers providing termination services under section 45 of the Communications Act 2003

Background

1. On 15 September 2009, Ofcom published the regulatory statements Fixed Narrowband Retail Services Markets – Identification of markets and determination of market power⁴³⁴ (the “2009 Retail Review Statement”), Review of the fixed narrowband services wholesale markets – Statement on the markets, market power determinations and remedies including further consultation⁴³⁵ (the “2009 Wholesale Review Statement”), and Review of BT’s Network Charge Controls – Explanatory Statement and Notification of decisions on charge controls in wholesale narrowband markets⁴³⁶.
2. On 5 February 2010, Ofcom published a further regulatory statement, Review of the fixed narrowband services wholesale markets – Further statement on wholesale transit markets and remedies in the wholesale call termination market⁴³⁷ (the “2010 Wholesale Review Statement”). On 20 July 2011, Ofcom published the Wholesale charges for Number Translation Services and Premium Rate Services – NTS Retail Uplift charge control and PRS Bad Debt Surcharge⁴³⁸.
3. In the statements identified in paragraphs 1 and 2 (collectively referred to as the “2009 Review Statements”), Ofcom identified markets, made market power determinations and set SMP conditions in relation to certain fixed narrowband markets. Such SMP conditions included a charge control for certain services, which is due to expire on 30 September 2013.
4. On 5 February 2013, Ofcom published a consultation document entitled Review of the fixed narrowband services markets - Consultation on the proposed markets, market power determinations and remedies, consulting on proposals to identify markets, make market power determinations and set SMP services conditions. Ofcom proposes that, if adopted, these will replace some, but not all determinations and conditions set out in the

⁴³⁴ Available at

http://stakeholders.ofcom.org.uk/binaries/consultations/retail_markets/statement/statement.pdf

⁴³⁵ Available at

http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf

⁴³⁶ Available at

(http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf)

⁴³⁷ Available at

http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/statement/statement.pdf

⁴³⁸ Available at http://stakeholders.ofcom.org.uk/binaries/consultations/nts-retail-uplift/statement/NTSRU_statement.pdf

2009 Review Statements. In particular, it is proposed that existing market definitions, market power determinations and conditions in relation to the following markets defined and reviewed in the 2009 Review Statements will remain in force until further notice:

- (a) For the United Kingdom, excluding the Hull Area
 - (i) Wholesale analogue exchange line services; and
 - (ii) Wholesale ISDN2 exchange line services.
- (b) For the Hull Area
 - (i) Wholesale analogue exchange line services; and
 - (ii) Wholesale ISDN2 exchange line services.

Proposals in the United Kingdom excluding the Hull Area

5. Ofcom is proposing to identify the following markets in the United Kingdom outside the Hull Area for the purpose of considering market power determinations:
 - (a) Wholesale call origination on a fixed narrowband network; and
 - (b) Single Transit on fixed public narrowband networks.
6. In relation to the market identified in paragraph 5(b), Ofcom is proposing that the market is one whose characteristics are not such as to justify the imposition of regulatory obligations as competition law is sufficient to address any competition problems.
7. In relation to the market listed in paragraph 5(a), Ofcom is proposing to determine that BT has significant market power and is proposing to set the SMP services conditions set out in Schedule 1 to this Notification.
8. The effect of, and Ofcom's reasons for making the proposals identifying the markets set out at paragraph 5 above, for making the proposal making the market power determination set out at paragraph 7 above, and for making the proposal to set the SMP services conditions set out in Schedule 1 to this Notification are set out in the consultation document accompanying this Notification, and in particular Sections 5 and 7.

Proposals in the Hull Area

9. Ofcom is proposing to identify the following markets in the Hull Area for the purpose of considering market power determinations:
 - (a) Wholesale call origination on a fixed narrowband network;
 - (b) Residential fixed narrowband calls; and
 - (c) Business fixed narrowband calls.
10. In relation to the markets identified in paragraph 9(b) and 9(c), Ofcom is proposing that the market is one whose characteristics are not such as to justify the imposition of

regulatory obligations as competition law is sufficient to address any competition problems.

11. In relation to the market listed in paragraph 9(a), Ofcom is proposing to determine that KCOM has significant market power and is consequently proposing to set the SMP services conditions set out in Schedule 2 to this Notification.
12. The effect of, and Ofcom's reasons for making the proposals identifying the markets set out at paragraph 9 above, for making the proposal making the market power determination set out at paragraph 11 above, and for making the proposal to set the SMP services conditions set out in Schedule 2 to this Notification are set out in the consultation document accompanying this Notification, and in particular Sections 4 and 5.

Proposals in the United Kingdom

13. Ofcom is proposing to identify [180] separate markets in the United Kingdom for the purpose of considering market power determinations.
14. These are the markets for call termination services which are provided by BT and each of the [179] communications providers (CP) listed in Annex A to Schedule 3 to this Notification to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which that CP has been allocated by Ofcom in the area served by that CP.
15. Ofcom is proposing to determine that BT and each of the persons listed in Annex A to Schedule 3 to this Notification have significant market power in relation to the relevant market in which that person operates and is proposing to set the following SMP conditions:
 - (a) On BT, the conditions set out in Schedule 1 to this Notification; and
 - (b) On each of the persons listed in Annex A to Schedule 3 to this Notification, the conditions set out in Schedule 3 to this Notification.
16. The effect of, and Ofcom's reasons for making the proposals identifying the markets set out at paragraph 14 above, for making the proposals making the market power determinations set out at paragraph 15 above, and for making the proposal to set the SMP services conditions set out in Schedules 1 and 3 to this Notification are set out in the consultation document accompanying this Notification, and in particular Section 6.

Proposals in relation to regulatory financial reporting

17. In consequence of Ofcom's proposals at paragraphs 5 to 16 above, Ofcom is proposing to make the following amendments to Annex 2 of the document entitled *The regulatory financial reporting obligations on BT and Kingston Communications – Final statement and notification* dated 22 July 2004 (as amended):
 - (a) In paragraph 4(a)(i) of the Notification, by removing "7, 9,";
 - (b) In Part 1 of Schedule 1 to the Notification, by removing the reference at paragraph 6, second column, to "As above" and replacing it with "[the date of publication of the final statement]";

- (c) In Part 1 of Schedule 1 to the Notification, by removing the reference at paragraph 7, first column, to “Local-tandem conveyance and transit on fixed public telephone networks in the United Kingdom excluding the Hull Area (SMP conditions in Schedule 2 to be revoked from 31.07.10 for this market)” and at paragraph 7, second column, of “18.08.05”;
 - (d) In Part 1 of Schedule 1 to the Notification, by removing the reference at paragraph 9, first column, to “Single transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area” and at paragraph 9, second column, of “5.02.10”; and
 - (e) In Part 1 of Schedule 1 to the Notification, by removing the reference at paragraph 10, first column, to “Wholesale fixed geographic call termination on each individual network provided by BT” and replacing it with “call termination services that are provided by BT to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which BT has been allocated by Ofcom in the area served by BT” and at paragraph 10, second column, to “15.09.09” and replacing it with “[the date of publication of the final statement]”.
18. Ofcom is also proposing to make the following amendments to Annex 3 of the document entitled *The regulatory financial reporting obligations on BT and Kingston Communications – Final statement and notification* dated 22 July 2004 (as amended):
- (a) In paragraph 4(a)(i) of the Notification, by removing “numbered 1, 4, 6 and 7” and replacing it with “numbered 1 and 4”;
 - (b) In paragraph 4(a)(iii) of the Notification, by adding “, 6” after “numbered 5”;
 - (c) In Part 1 of Schedule 1 to the Notification, by removing the reference at paragraph 6, second column, to “As above” and replacing it with “[the date of publication of the final statement]”; and
 - (d) In Part 1 of Schedule 1 to the Notification, by removing the reference at paragraph 7, first column, to “Wholesale fixed geographic call termination on each individual network provided by KCOM” and at paragraph 7, second column, to “15.9.09”.

Proposals in relation to Interconnect Circuits

19. As a result of the proposed significant market determinations in relation to BT as set out at paragraphs 5(a) and 15 above and in relation to KCOM as set out at paragraph 9(a) above, Ofcom is proposing to set the SMP services conditions in relation to Interconnect Circuits as set out in Schedule 1 to this Notification (in relation to BT) and in Schedule 2 to this Notification (in relation to KCOM).
20. In consequence, and in relation to BT, Ofcom is in addition proposing to make the following amendments to Annex 2 of the document entitled *The regulatory financial reporting obligations on BT and Kingston Communications – Final statement and notification* dated 22 July 2004 (as amended):
- (a) At paragraph 1 of Part 1 of Schedule 2, by removing the reference to “and to the following technical areas: Interconnection Circuits and Interconnection Services”;

- (b) In Part 1 of Schedule 2, by adding a new paragraph 1a which is to read “These conditions, excluding conditions OA29 to OA31 and condition OA34, shall apply to Interconnect Circuits.”
 - (c) At paragraph 2 of Part 1 of Schedule 2, by removing the definition for “Interconnection Services” and amending the definition for “Interconnection Circuits” to read “‘Interconnect Circuits’ shall have the meaning attributed to it for the purposes of the SMP conditions set out in the notification under sections 48(1) and 79(4) of the Communications Act [adopting the proposals set out in this Notification]”⁴³⁹,
21. In relation to KCOM, Ofcom is in addition proposing, at Annex 3 of the document entitled *The regulatory financial reporting obligations on BT and Kingston Communications – Final statement and notification* dated 22 July 2004 (as amended), to remove the reference at paragraph 1 of Part 1 of Schedule 2 to “and to the following technical areas: Interconnection Circuits and Interconnection Services”.
22. The effect of, and Ofcom’s reasons for making the proposals to set the SMP services conditions are set out in the consultation document accompanying this Notification, and in particular Section 10.

Proposals to apply SMP services conditions

23. Except where stated otherwise, Ofcom is proposing to set the SMP services conditions referred to in paragraphs 7, 11, 15 and 17 to 21 from the date of the notification under sections 48(1) and 79(4) of the Act adopting the proposals set out in this Notification until the publication of a notification under sections 48(1) and 79(4) of the Act revoking such conditions.
24. In relation to SMP service condition 9 set out in Schedule 1 to this Notification (Requirement to provide NTS Call Origination), Ofcom is proposing to apply the condition from the date of the notification under sections 48(1) and 79(4) of the Act adopting the proposals set out in this Notification until the NGC Effective Date.

Proposals to revoke SMP service conditions

25. Ofcom is proposing that the conditions set out at Annex 7 of the 2009 Wholesale Review Statement, the conditions set out at Annex 1 of the 2009 Retail Review Statement and the conditions set out at Annex 1 of the 2010 Wholesale Review Statement be revoked in accordance with paragraphs 26 and 27 below, each only insofar as such SMP service conditions relate to Interconnect Circuits or any of the following markets:
- (a) In the United Kingdom excluding the Hull Area
 - (i) Wholesale call origination on a fixed narrowband network;
 - (ii) Single Transit on fixed public narrowband networks;
 - (b) In the Hull Area
 - (i) Wholesale call origination on a fixed narrowband network;

⁴³⁹ Provisional wording

- (ii) Residential fixed narrowband calls;
 - (iii) Business fixed narrowband calls; and
 - (c) In the United Kingdom
 - (i) Wholesale fixed geographic call termination on each individual network.
26. Subject to paragraph 27 below, the proposed revocations in paragraph 25 above will take effect on the publication of any notification under sections 48(1) and 79(4) of the Act adopting the proposals set out in this Notification.
27. In relation to SMP service conditions AAA8 (excluding condition AAA8.3) and AAA9 (excluding condition AAA9.3) of Schedule 1 and SMP service conditions AAB6 (excluding condition AAB6.4) and AAB7 (excluding condition AAB7.3) of Schedule 2 set out at Annex 7 of the 2009 Wholesale Review Statement, the proposed revocation set out in paragraph 25 above will take effect on the date which is one (1) year after the publication of any notification under sections 48(1) and 79(4) of the Act adopting the proposals set out in this Notification.

Ofcom's duties and legal tests

28. In identifying and analysing the markets referred to in paragraphs 5, 9 and 14 above, and in considering whether to make the proposals set out in this Notification, Ofcom has, in accordance with section 79 of the Act, taken due account of all applicable guidelines and recommendations which have been issued or made by the European Commission in pursuance of a Community instrument, and relate to market identification and analysis or the determination of what constitutes significant market power.
29. Ofcom considers that the proposed SMP conditions referred to in paragraphs 7, 11, 15 and 17 to 21 above comply with the requirements of sections 45 to 47, 87 and 88 of the Act, as appropriate and relevant to each such SMP condition.
30. In making all of the proposals referred to in this Notification, Ofcom has considered and acted in accordance with its general duties set out in section 3 of the Act and the six Community requirements in section 4 of the Act.

Making representations

31. Representations may be made to Ofcom about any of the proposals set out in this Notification and the accompanying consultation document by no later than 2 April 2013.
32. Copies of this Notification and the accompanying consultation document have been sent to the Secretary of State in accordance with sections 48C(1) and 81(1) of the Act.

Interpretation

33. Except as otherwise defined in paragraph 34 of this Notification, words or expressions used shall have the same meaning as they have been ascribed in the Act.
34. In this Notification:

- (a) “BT” means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- (b) “Hull Area” means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communication (Hull) plc.
- (c) “KCOM” means KCOM Group plc, whose registered company number is 2150618, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- (d) “NGC Effective Date” means [the Effective Date as defined in the Notification under section 48(1) of the Act setting general conditions imposing an unbundled tariff structure for non-geographic calls]⁴⁴⁰; and
- (e) “United Kingdom” has the meaning given to it in the Interpretation Act 1978 (1978 c30).

Signed

David Stewart
Competition Policy Director, Ofcom

A person duly authorised in accordance with paragraph 18 of the Schedule to the Office of Communications Act 2002

5 February 2013

⁴⁴⁰ Provisional wording

SCHEDULE 1**[DRAFT] conditions imposed on BT****Part 1: Application**

The SMP conditions in Part 3 of this Schedule 1 shall, except where specified otherwise, apply to the Dominant Provider in each of the relevant markets and the area listed in Column 1 of Table 1 below to the extent specified in Column 2 of Table 1.

Table 1: Relevant markets and area for the purposes of this Schedule 1

| Column 1: Relevant market or area | Column 2: Applicable SMP condition as set out in Part 3 of this Schedule 1 |
|--|---|
| Wholesale call origination on a fixed narrowband network in the United Kingdom excluding the Hull Area | 1 to 9 inclusive |
| Call termination services that are provided by the Dominant Provider to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which the Dominant Provider has been allocated by Ofcom in the area served by the Dominant Provider | 1 and 4 to 7 inclusive |
| Interconnect Circuits in the United Kingdom excluding the Hull Area | 1 and 3 to 8, excluding SMP condition 6.5 and 6.6(e) |

Part 2: Definitions and Interpretation

1. In this Schedule 1 –

- (a) “Access Agreement” means an agreement entered into between the Dominant Provider and a Third Party for the provision of network access in accordance with Condition 1;
- (b) “Access Charge Change” means any amendment to the charges, terms and conditions on which the Dominant Provider provides network access or in relation to any charges for new network access;
- (c) “Access Charge Change Notice” means a notice given by the Dominant Provider of an Access Charge Change;
- (d) “Act” means the Communications Act 2003 (c. 21);
- (e) “Carrier Pre-selection” means a facility which allows a Subscriber to access the services of a provider of Publicly Available Telephone Services by means of pre-selection;

- (f) "CSI" means customer sited interconnection;
- (g) "Dominant Provider" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- (h) "IEC" means Interconnection extension circuits;
- (i) "Interconnect Circuits" mean any and all of the following specific services provided by the Dominant Provider in accordance with Condition 1:
 - (i) standard CSI connection;
 - (ii) standard CSI rental – fixed;
 - (iii) standard CSI rental – per km;
 - (iv) high performance CSI connection
 - (v) high performance CSI rental – fixed;
 - (vi) high performance CSI rental – per km;
 - (vii) ISI connection;
 - (viii) ISI rental per 100m;
 - (ix) IEC connection;
 - (x) IEC rental – fixed;
 - (xi) IEC rental per km;
 - (xii) intra-building circuits connection;
 - (xiii) intra-building circuits rental;
 - (xiv) rearrangements;
 - (xv) path protection connection per 34Mbit/s;
 - (xvi) path protection connection per 140Mbit/s;
 - (xvii) path protection rental per 34Mbit/s; and
 - (xviii) path protection rental per 140Mbit/s;
- (j) "ISI" means in-span Interconnection links;
- (k) "Net Retail Call Revenue" means the retail revenue for calls, excluding VAT and after any applicable discounts;
- (l) "NTS" means number translation services;

- (m) “NTS Calls” means a call to a number starting with 0500, 080, 082, 084, 0871, 0872, 0873 and 09;
 - (n) “NTS Call Origination” means originating NTS Calls and retailing those NTS Calls to the end-user on behalf of the Third Party who has requested NTS call origination;
 - (o) “NTS Retail Uplift” means the charge for retailing NTS Calls to the end-user;
 - (p) “National Telephone Numbering Plan” means the document published from time to time by Ofcom pursuant to sections 56 and 60 of the Act 2003;
 - (q) “Premium Rate Service” means a service provided on a number starting with 09;
 - (r) “Publicly Available Telephone Services” means a service made available to the public for originating and receiving, directly or indirectly, national or national and international calls through a number or numbers in a national or international telephone numbering plan;
 - (s) “Reference Offer” means the terms and conditions on which the Dominant Provider is willing to enter into an Access Agreement;
 - (t) “Subscriber” means any natural person or legal entity who or which is party to a contract with the provider of publicly available electronic communications services for the supply of such services;
 - (u) “Third Party” means a person providing a public electronic communications network or a person providing a public electronic communications service;
 - (v) “Wholesale Line Rental” means the provision of a service by the Dominant Provider to a Third Party for the use of an exchange line pursuant to a significant market power services condition.
2. For the purpose of interpreting the SMP conditions in this Schedule:
- (a) except in so far as the context otherwise requires, words or expressions shall have the meaning assigned to them in paragraph 1 of this Part above and otherwise any word or expression shall have the same meaning as it has in the Act;
 - (b) the Interpretation Act 1978 (c. 30) shall apply as if this Schedule were an Act of Parliament; and
 - (c) headings and titles shall be disregarded.

Part 3: Conditions (BT)

Condition 1 – Network access on reasonable request

- 1.1 The Dominant Provider must provide network access to a Third Party where that Third Party, in writing, reasonably requests it.
- 1.2 The provision of network access by the Dominant Provider in accordance with this Condition must:
 - (a) take place as soon as reasonably practicable after receiving the request from a Third Party;
 - (b) be on fair and reasonable terms and conditions (excluding charges); and
 - (c) be on such terms and conditions (excluding charges) as Ofcom may from time to time direct.
- 1.3 The Dominant Provider must comply with any direction Ofcom may make from time to time under this Condition.

Condition 2 – Specific form of network access

- 2.1 Without prejudice to the generality of Condition 1, the provision of network access under Condition 1 shall include access to network elements and/or facilities to allow Carrier Pre-Selection, where the request for access is made by a Third Party to provide a Publicly Available Telephone Service to a Subscriber where the Dominant Provider is providing Wholesale Line Rental to that Third Party in respect of that Subscriber.
- 2.2 The Dominant Provider must comply with any direction Ofcom may make from time to time under this Condition.

Condition 3 - Requests for new forms of network access

- 3.1 The Dominant Provider shall, for the purposes of transparency, publish guidelines, in relation to requests for new forms of network access made to it. Such guidelines must set out:
 - (a) the form in which such a request should be made;
 - (b) the information that the Dominant Provider requires in order to consider a request for a new form of network access;
 - (c) the timescales in which such requests will be handled by the Dominant Provider; and
 - (d) any provisions directed by Ofcom.
- 3.2 The guidelines must meet the following principles:
 - (a) the process for consideration of requests shall be documented end-to-end;

- (b) the timescales for each stage of the process shall be reasonable;
 - (c) the criteria by which requests will be assessed shall be clearly identified; and
 - (d) any changes to the guidelines shall be agreed between BT and other communications providers in an appropriate manner.
- 3.3 The Dominant Provider shall, upon reasonable request from a Third Party considering making a request for a new form of network access, provide that Third Party with such information as may be reasonably required to enable that Third Party to make a request for a new form of network access. Such information shall be provided within a reasonable period.
- 3.4 On receipt of a written request for a new form of network access, the Dominant Provider shall deal with the request in accordance with the guidelines described at paragraph 3.1 above. A modification of a request for a new form of network access which has previously been submitted to the Dominant Provider, and rejected by the Dominant Provider, shall be considered as a new request.
- 3.5 The Dominant Provider shall comply with any direction made by Ofcom under this Condition requiring amendments to the guidelines.

Condition 4 – No undue discrimination

- 4.1 The Dominant Provider shall not unduly discriminate against particular persons or against a particular description of persons in relation to the provision of network access in accordance with Conditions 1 or 2, as applicable.
- 4.2 In this Condition, the Dominant Provider may be deemed to have shown undue discrimination if it unfairly favours to a material extent an activity carried on by it so as to place one or more Third Parties at a competitive disadvantage in relation to activities carried on by the Dominant Provider.

Condition 5 – Publication of a Reference Offer

- 5.1 Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish a Reference Offer.
- 5.2 Subject to Condition 5.8 below, the Dominant Provider shall ensure that a Reference Offer in relation to the provision of network access includes, where applicable, at least the following:
- (a) a description of the network access to be provided, including technical characteristics (which shall include information on network configuration where necessary to make effective use of network access);
 - (b) the locations at which network access will be provided;
 - (c) any relevant technical standards for network access (including any usage restrictions and other security issues);
 - (d) the conditions for access to ancillary, supplementary and advanced services (including operational support systems, information systems or databases)

for pre-ordering, provisioning, ordering, maintenance and repair requests and billing);

- (e) any ordering and provisioning procedures;
- (f) relevant charges, terms of payment and billing procedures;
- (g) details of interoperability tests;
- (h) details of traffic and network management;
- (i) details of maintenance and quality as follows:
 - (i) specific time scales for the acceptance or refusal of a request for supply and for completion, testing and hand-over or delivery of services and facilities, for provision of support services (such as fault handling and repair);
 - (ii) service level commitments, namely the quality standards that each party must meet when performing its contractual obligations;
 - (iii) the amount of compensation payable by one party to another for failure to perform contractual commitments;
 - (iv) a definition and limitation of liability and indemnity; and
 - (v) procedures in the event of alterations being proposed to the service offerings, for example, launch of new services, changes to existing services or change to prices;
- (j) details of measures to ensure compliance with requirements for network integrity;
- (k) details of any relevant intellectual property rights;
- (l) a dispute resolution procedure to be used between the parties;
- (m) details of duration and renegotiation of agreements;
- (n) provisions regarding confidentiality of the agreements;
- (o) rules of allocation between the parties when supply is limited (for example, for the purpose of co-location or location of masts); and
- (p) the standard terms and conditions for the provision of network access.

5.3 To the extent that the Dominant Provider provides to itself network access that:

- (a) is the same, similar or equivalent to that provided to any other Third Party; or
- (b) may be used for a purpose that is the same, similar or equivalent to that provided to any other Third Party,

in a manner that differs from that detailed in a Reference Offer in relation to network access provided to any other Third Party, the Dominant Provider shall ensure that it publishes a Reference Offer in relation to the network access that it provides to itself

which includes, where relevant, at least those matters detailed in Conditions 5.2(a)-(p).

- 5.4 The Dominant Provider shall, within one month of the date that this Condition enters into force, publish a Reference Offer in relation to any network access that it is providing as at the date that this Condition enters into force.
- 5.5 The Dominant Provider shall update and publish the Reference Offer in relation to any amendments or in relation to any further network access provided after the date that this Condition enters into force.
- 5.6 Publication referred to above shall be effected by placing a copy of the Reference Offer on any relevant website operated or controlled by the Dominant Provider.
- 5.7 The Dominant Provider shall send a copy of the current version of the Reference Offer to any person at that person's written request (or such parts as have been requested).
- 5.8 The Dominant Provider shall make such modifications to the Reference Offer as Ofcom may direct from time to time.
- 5.9 The Dominant Provider shall provide network access at the charges, terms and conditions in the relevant Reference Offer and shall not depart therefrom either directly or indirectly.
- 5.10 The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

Condition 6 – Requirement to notify charges

- 6.1 Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish charges and act in the manner set out below.
- 6.2 Where it proposes an Access Charge Change, the Dominant Provider shall send to every person with which it has entered into an Access Agreement pursuant to Conditions 1 and/or 2, an Access Charge Change Notice.
- 6.3 The obligation in Condition 6.2 will not apply where the Access Charge Change is directed or determined by Ofcom or required by a notification or enforcement notification issued by Ofcom under sections 96A or 96C of the Act.
- 6.4 An Access Charge Change Notice must be sent not less than 56 days before any such amendment comes into effect.
- 6.5 The obligation in Condition 6.4 will not apply where the Access Charge Change will take effect between 1 October 2013 and 26 November 2013.
- 6.6 The Dominant Provider shall ensure that an Access Charge Change Notice includes:
 - (a) a description of the network access in question;

- (b) a reference to the location in the Dominant Provider's current Reference Offer of the terms and conditions associated with the provision of that network access;
 - (c) the date on which, or the period for which, the Access Charge Change will take effect (the "effective date");
 - (d) the current and proposed new charge; and
 - (e) the relevant network tariff gradient (save in respect of Interconnect Circuits).
- 6.7 The Dominant Provider shall not apply any Access Charge Change identified in an Access Charge Change Notice before the effective date.
- 6.8 To the extent that the Dominant Provider provides to itself network access that:
- (a) is the same, similar or equivalent to that provided to any other person; or
 - (b) may be used for a purpose that is the same, similar or equivalent to that provided to any other person, in a manner that differs from that detailed in an Access Charge Change Notice in relation to network access provided to any other person,

the Dominant Provider shall ensure that it sends to Ofcom a notice in relation to the network access that it provides to itself which includes, where relevant, at least those matters detailed in Conditions 6.6(a) to (e) and, where the Dominant Provider amends the charges, terms and conditions on which it provides itself with provides network access, it shall ensure it sends to Ofcom a notice equivalent to an Access Charge Change Notice.

Condition 7 – Requirement to notify technical information

- 7.1 Save where Ofcom consents otherwise, where the Dominant Provider provides network access pursuant to Conditions 1 or 2 and proposes new or amended terms and conditions relating to the following:
- (a) technical characteristics (including information on network configuration where necessary to make effective use of the network access provided);
 - (b) the locations at which network access will be provided; or
 - (c) the technical standards (including any usage restrictions and other security issues),

the Dominant Provider shall publish a written notice (the "Notice") of the new or amended terms and conditions, not less than 90 days before either the Dominant Provider enters into an Access Agreement to provide the new network access or the amended terms and conditions of the existing Access Agreement come into effect.

- 7.2 The obligation in Condition 7.1 will not apply where the new or amended terms and conditions are directed or determined by Ofcom or are required by a notification or enforcement notification issued by Ofcom under sections 96A or 96C of the Act.
- 7.3 The Dominant Provider shall ensure that the Notice includes:

- (a) a description of the network access in question;
 - (b) a reference to the location in the Dominant Provider's Reference Offer of the relevant terms and conditions;
 - (c) the date on which or the period for which the Dominant Provider may enter into an Access Agreement to provide the new network access or any amendments to the relevant terms and conditions will take effect (the "effective date").
- 7.4 The Dominant Provider shall not enter into an Access Agreement containing the terms and conditions identified in the Notice or apply any new relevant terms and conditions identified in the Notice before the effective date.
- 7.5 Publication referred to in Condition 7.1 shall be effected by:
- (a) placing a copy of the Notice on any relevant website operated or controlled by the Dominant Provider; and
 - (b) sending a copy of the Notice to any person at that person's written request, and where the Notice identifies a modification to existing relevant terms and conditions, to every person with which the Dominant Provider has entered into an Access Agreement pursuant to Conditions 1 and/or 2. The provision of such a copy of the Notice by the Dominant Provider may be subject to a reasonable charge.

Condition 8 – Transparency as to quality of service

- 8.1 The Dominant Provider shall publish all such information for the purposes of securing transparency as to the quality of service in relation to network access provided by the Dominant Provider, in such manner and form as Ofcom may from time to time direct.
- 8.2 The Dominant Provider shall comply with any direction Ofcom may make from time to time under this condition 8.

Condition 9 – Requirement to provide NTS Call Origination

- 9.1 The Dominant Provider shall provide NTS Call Origination as soon as it is reasonably practicable to every Third Party who reasonably requests it in writing.
- 9.2 Without prejudice to paragraphs 9.3 and 9.4 below and where a request is covered by paragraph 9.1 above, the Dominant Provider shall provide NTS Call Origination on fair and reasonable terms and conditions (excluding charges) and on such terms, conditions and charges as Ofcom may from time to time direct.
- 9.3 The Dominant Provider shall pass the Net Retail Call Revenue to the Third Party that is purchasing the NTS Call Origination, less the charges referred to in Condition 9.4 below.
- 9.4 The Dominant Provider shall make no charges for providing NTS Call Origination covered by paragraph 9.1 except for:

- (a) a charge for the call origination service used to originate the NTS Call;
 - (b) a charge for the NTS Retail Uplift; and
 - (c) a charge for bad debt relating to the retailing by the Dominant Provider of Premium Rate Service calls.
- 9.5 For the charge referred to in Condition 9.4(c) above, the Dominant Provider shall charge the Third Party no more than 5.2 per cent of the Net Retail Call Revenue for that Premium Rate Service call.
- 9.6 The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition 9.
- 9.7 This Condition 9 is without prejudice to the generality of the provisions in Conditions 1 to 8 above.

SCHEDULE 2**[DRAFT] conditions imposed on KCOM****Part 1: Application**

The SMP conditions in Part 3 of this Schedule 2 shall, except where specified otherwise, apply to the Dominant Provider in the relevant market and the area listed in Column 1 of Table 1 below to the extent specified in Column 2 of Table 1.

Table 1: Relevant markets and area for the purposes of this Schedule 2

| Column 1: Relevant market or area | Column 2: Applicable SMP condition as set out in Part 3 of this Schedule 2 |
|---|---|
| Wholesale call origination on a fixed narrowband network in the Hull Area | 1 to 5 inclusive |
| Interconnect Circuits in the Hull Area | 1 to 5, excluding SMP condition 4.5 and 4.6(e) |

Part 2: Definitions and Interpretation

1. In this Schedule 1 –

- (a) “Access Agreement” means an agreement entered into between the Dominant Provider and a Third Party for the provision of network access in accordance with Condition 1;
- (b) “Access Charge Change” means any amendment to the charges, terms and conditions on which the Dominant Provider provides network access or in relation to any charges for new network access;
- (c) “Access Charge Change Notice” means a notice given by the Dominant Provider of an Access Charge Change
- (d) “Act” means the Communications Act 2003 (c. 21);
- (e) “CSI” means customer sited Interconnection;
- (f) “Dominant Provider” means KCOM Group plc, whose registered company number is 2150618, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- (g) “IEC” means Interconnection extension circuits;
- (h) “Interconnect Circuits” mean any and all of the following specific services provided by the Dominant Provider and covered by Condition 1:

- (i) ISI connection;
- (ii) ISI rental per 100m;
- (iii) IEC connection;
- (iv) IEC rental – fixed;
- (v) IEC rental per km;
- (vi) intra-building circuits connection;
- (vii) intra-building circuits rental; and
- (viii) rearrangements.

- (i) “ISI” means in-span Interconnection links;
- (j) “Reference Offer” means the terms and conditions on which the Dominant Provider is willing to enter into an Access Agreement;
- (k) “Third Party” means either a person providing a public electronic communications network or a person providing a public electronic communications service;

2. For the purpose of interpreting this Schedule :

- (a) except in so far as the context otherwise requires, words or expressions shall have the meaning assigned to them in paragraph 1 of this Part above and otherwise any word or expression shall have the same meaning as it has in the Act;
- (b) the Interpretation Act 1978 (c. 30) shall apply as if this Schedule were an Act of Parliament; and
- (c) headings and titles shall be disregarded.

Part 3: Conditions (KCOM)

Condition 1 – Network access on reasonable request

- 1.1 The Dominant Provider must provide network access to a Third Party where that Third Party, in writing, reasonably requests it.
- 1.2 The provision of network access by the Dominant Provider in accordance with this Condition must:
 - (a) take place as soon as reasonably practicable after receiving the request from a Third Party;
 - (b) be on fair and reasonable terms, conditions and charges; and
 - (c) be on such terms, conditions and charges as Ofcom may from time to time direct.
- 1.3 The Dominant Provider must comply with any direction Ofcom may make from time to time under this Condition.

Condition 2 – No undue discrimination

- 2.1 The Dominant Provider shall not unduly discriminate against particular persons or against a particular description of persons in relation to the provision of network access in accordance with Condition 1.
- 2.2 In this Condition, the Dominant Provider may be deemed to have shown undue discrimination if it unfairly favours to a material extent an activity carried on by it so as to place Third Parties at a competitive disadvantage in relation to activities carried on by the Dominant Provider.

Condition 3 – Publication of a Reference Offer

- 3.1 Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish a Reference Offer.
- 3.2 Subject to Condition 3.8 below, the Dominant Provider shall ensure that a Reference Offer in relation to the provision of network access includes, where applicable, at least the following:
 - (a) a description of the network access to be provided, including technical characteristics (which shall include information on network configuration where necessary to make effective use of network access);
 - (b) the locations at which network access will be provided;
 - (c) any relevant technical standards for network access (including any usage restrictions and other security issues);
 - (d) the conditions for access to ancillary, supplementary and advanced services (including operational support systems, information systems or databases)

for pre-ordering, provisioning, ordering, maintenance and repair requests and billing);

- (e) any ordering and provisioning procedures;
- (f) relevant charges, terms of payment and billing procedures;
- (g) details of interoperability tests;
- (h) details of traffic and network management;
- (i) details of maintenance and quality as follows:
 - (i) specific time scales for the acceptance or refusal of a request for supply and for completion, testing and hand-over or delivery of services and facilities, for provision of support services (such as fault handling and repair);
 - (ii) service level commitments, namely the quality standards that each party must meet when performing its contractual obligations;
 - (iii) the amount of compensation payable by one party to another for failure to perform contractual commitments;
 - (iv) a definition and limitation of liability and indemnity; and
 - (v) procedures in the event of alterations being proposed to the service offerings, for example, launch of new services, changes to existing services or change to prices;
- (j) details of measures to ensure compliance with requirements for network integrity;
- (k) details of any relevant intellectual property rights;
- (l) a dispute resolution procedure to be used between the parties;
- (m) details of duration and renegotiation of agreements;
- (n) provisions regarding confidentiality of the agreements;
- (o) rules of allocation between the parties when supply is limited (for example, for the purpose of co-location or location of masts); and
- (p) the standard terms and conditions for the provision of network access.

3.3 To the extent that the Dominant Provider provides to itself network access that:

- (a) is the same, similar or equivalent to that provided to any other Third Party; or
- (b) may be used for a purpose that is the same, similar or equivalent to that provided to any other Third Party,

in a manner that differs from that detailed in a Reference Offer in relation to network access provided to any other Third Party, the Dominant Provider shall ensure that it publishes a Reference Offer in relation to the network access that it provides to itself

which includes, where relevant, at least those matters detailed in Conditions 5.2(a)-(p).

- 3.4 The Dominant Provider shall, within one month of the date that this Condition enters into force, publish a Reference Offer in relation to any network access that it is providing as at the date that this Condition enters into force.
- 3.5 The Dominant Provider shall update and publish the Reference Offer in relation to any amendments or in relation to any further network access provided after the date that this Condition enters into force.
- 3.6 Publication referred to above shall be effected by placing a copy of the Reference Offer on any relevant website operated or controlled by the Dominant Provider.
- 3.7 The Dominant Provider shall send a copy of the current version of the Reference Offer to any person at that person's written request (or such parts as have been requested).
- 3.8 The Dominant Provider shall make such modifications to the Reference Offer as Ofcom may direct from time to time.
- 3.9 The Dominant Provider shall provide network access at the charges, terms and conditions in the relevant Reference Offer and shall not depart therefrom either directly or indirectly.
- 3.10 The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

Condition 4 – Requirement to notify charges

- 4.1 Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish charges and act in the manner set out below.
- 4.2 Where it proposes an Access Charge Change, the Dominant Provider shall send to every person with which it has entered into an Access Agreement pursuant to Conditions 1 and/or 2, an Access Charge Change Notice.
- 4.3 The obligation in Condition 6.2 will not apply where the Access Charge Change is directed or determined by Ofcom or required by a notification or enforcement notification issued by Ofcom under sections 96A or 96C of the Act.
- 4.4 An Access Charge Change Notice must be sent not less than 56 days before any such amendment comes into effect.
- 4.5 The obligation in Condition 4.4 will not apply where the Access Charge Change will take effect between 1 October 2013 and 26 November 2013.
- 4.6 The Dominant Provider shall ensure that an Access Charge Change Notice includes:
 - (a) a description of the network access in question;

- (b) a reference to the location in the Dominant Provider's current Reference Offer of the terms and conditions associated with the provision of that network access;
 - (c) the date on which, or the period for which, the Access Charge Change will take effect (the "effective date");
 - (d) the current and proposed new charge; and
 - (e) the relevant network tariff gradient.
- 4.7 The Dominant Provider shall not apply any Access Charge Change identified in an Access Charge Change Notice before the effective date.
- 4.8 To the extent that the Dominant Provider provides to itself network access that:
- (a) is the same, similar or equivalent to that provided to any other person; or
 - (b) may be used for a purpose that is the same, similar or equivalent to that provided to any other person, in a manner that differs from that detailed in an Access Charge Change Notice in relation to network access provided to any other person,

the Dominant Provider shall ensure that it sends to Ofcom a notice in relation to the network access that it provides to itself which includes, where relevant, at least those matters detailed in Conditions 4.6(a) to (e) and, where the Dominant Provider amends the charges, terms and conditions on which it provides itself with provides network access, it shall ensure it sends to Ofcom a notice equivalent to an Access Charge Change Notice.

Condition 5 – Requirement to notify technical information

- 5.1 Save where Ofcom consents otherwise, where the Dominant Provider provides network access pursuant to Conditions 1 or 2 and proposes new or amended terms and conditions relating to the following:
- (a) technical characteristics (including information on network configuration where necessary to make effective use of the network access provided);
 - (b) the locations at which network access will be provided; or
 - (c) the technical standards (including any usage restrictions and other security issues),

the Dominant Provider shall publish a written notice (the "Notice") of the new or amended terms and conditions, not less than 90 days before either the Dominant Provider enters into an Access Agreement to provide the new network access or the amended terms and conditions of the existing Access Agreement come into effect.

- 5.2 The obligation in Condition 5.1 will not apply where the new or amended terms and conditions are directed or determined by Ofcom or are required by a notification or enforcement notification issued by Ofcom under sections 96A or 96C of the Act.
- 5.3 The Dominant Provider shall ensure that the Notice includes:

- (a) a description of the network access in question;
 - (b) a reference to the location in the Dominant Provider's Reference Offer of the relevant terms and conditions; and
 - (c) the date on which or the period for which the Dominant Provider may enter into an Access Agreement to provide the new network access or any amendments to the relevant terms and conditions will take effect (the "effective date").
- 5.4 The Dominant Provider shall not enter into an Access Agreement containing the terms and conditions identified in the Notice or apply any new relevant terms and conditions identified in the Notice before the effective date.
- 5.5 Publication referred to in Condition 5.1 shall be effected by:
 - (a) placing a copy of the Notice on any relevant website operated or controlled by the Dominant Provider; and
 - (b) sending a copy of the Notice to any person at that person's written request, and where the Notice identifies a modification to existing relevant terms and conditions, to every person with which the Dominant Provider has entered into an Access Agreement pursuant to Conditions 1 and/or 2. The provision of such a copy of the Notice by the Dominant Provider may be subject to a reasonable charge.

SCHEDULE 3

[DRAFT] conditions imposed on each of the persons listed in Annex A to this Schedule 3

Part 1: Application

The SMP conditions in Part 3 of this Schedule 3 shall apply to each of the Dominant Providers listed in Annex A to this Schedule 3, in relation to the market for call termination services which are provided by that Dominant Provider to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which that Dominant Provider has been allocated by Ofcom in the area served by that Dominant Provider.

Part 2: Definitions and Interpretation

1. In this Schedule 3 –

- (a) “Access Charge Change” means any amendment to the charges, terms and conditions on which the Dominant Provider provides network access or in relation to any charges for new network access;
- (b) “Access Charge Change Notice” means a notice given by the Dominant Provider of an Access Charge Change;
- (c) “Act” means the Communications Act 2003 (c. 21);
- (d) “Dominant Provider” means, in relation to each market identified in paragraph 14 of this Notification, the person identified in Annex A to this Schedule 3 insofar as it operates on that market; and
- (e) “Third Party” means either a person providing a public electronic communications network or a person providing a public electronic communications service.

2. For the purpose of interpreting the SMP conditions in this Schedule:

- (a) except in so far as the context otherwise requires, words or expressions shall have the meaning assigned to them in paragraph 2 of this Part above and otherwise any word or expression shall have the same meaning as it has in the Act;
- (b) the Interpretation Act 1978 (c. 30) shall apply as if this Schedule were an Act of Parliament; and
- (c) headings and titles shall be disregarded.

Part 3: Conditions (Communications Providers listed at Annex A to this Schedule 3)

Condition 1 – Network access on reasonable request

- 1.1 The Dominant Provider must provide network access to a Third Party where that Third Party, in writing, reasonably requests it.
- 1.2 The provision of network access by the Dominant Provider in accordance with this Condition must:
 - (a) take place as soon as reasonably practicable after receiving the request from a Third Party;
 - (b) be on fair and reasonable terms, conditions and charges; and
 - (c) be on such terms, conditions and charges as Ofcom may from time to time direct.
- 1.3 The Dominant Provider must comply with any direction Ofcom may make from time to time under this Condition.

Condition 2 – Requirement to notify charges

- 2.1 Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish charges and act in the manner set out below.
- 2.2 Where the Dominant Provider proposes an Access Charge Change, it must publish an Access Charge Change Notice on an appropriate publicly accessible website.
- 2.3 An Access Charge Change Notice must be published on or before the day on which the Access Charge Change comes into effect.
- 2.3 The Dominant Provider must ensure that any Access Charge Change Notice includes the date on which, or period for which, the Access Charge Change will take effect.

Annex A to Schedule 3 (List of Dominant Providers for the purpose of Schedule 3)

1. (AQ) Limited whose registered company number is 03663860, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
2. 10Act Limited whose registered company number is 05617099, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
3. 24 Seven Communications Limited whose registered company number is 04468566, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
4. 3C Limited whose registered company number is 06041466, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
5. 4D Interactive Ltd whose registered company number is 02676756, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
6. Ace Call Limited whose registered company number is 06729339, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
7. Affiniti Integrated Solutions Ltd whose registered company number is 02817039, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
8. Alliance Technologies LLC whose registered company number is 20-4720577, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
9. Aloha Telecommunications Limited whose registered company number is 07210905, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
10. Andrews & Arnold Ltd whose registered company number is 03342760, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
11. Anycall Ltd whose registered company number is 04581373, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
12. Atomstream Limited whose registered company number is 06746855, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
13. Avant UK Ltd whose registered company number is 03895766, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

14. Bicom Systems EURL whose registered company number is 07870693, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
15. Bluecom (UK) Ltd whose registered company number is 03478971, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
16. Broadcast Telecom Ltd whose registered company number is 06996222, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
17. BSKYB LLU Assets Limited whose registered company number is 03137522, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
18. BSKYB Telecommunications Services Limited whose registered company number is 02883980, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
19. Buzz Networks Limited whose registered company number is 03260342, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
20. Cable & Wireless Worldwide whose registered company number is 07029206, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
21. Callagenix Ltd whose registered company number is 03963819, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
22. Calltracks Limited whose registered company number is 06539973, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
23. Callworld UK Ltd whose registered company number is 05161797, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
24. CFL Communications Limited whose registered company number is 04419749, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
25. Cheapest International Calls LLP whose registered company number is OC356986, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
26. Cheers International Sales Limited whose registered company number is 06288825, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
27. Citrus Telecommunications Ltd whose registered company number is 03517870, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

28. CLECOM Limited whose registered company number is 05149833, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
29. Cloud9 Communications Limited whose registered company number is 07153956, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
30. Cobalt Telephone Technologies whose registered company number is 03151938, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
31. COLT Technology Services whose registered company number is 02452736, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
32. Connect Telecom UK Ltd whose registered company number is 04198443, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
33. Content Guru Ltd whose registered company number is 05653869, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
34. Coralbridge Ltd whose registered company number is 06345881, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
35. Core Telecom Limited whose registered company number is 05332008, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
36. Daisy Communications Ltd whose registered company number is 04145329, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
37. Danemere Street Creative whose registered company number is 03506479, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
38. Daotec Ltd whose registered company number is 04296038, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
39. Dark Group Limited whose registered company number is 03766500, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
40. Digital Mail Limited whose registered company number is 02661078, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

41. Digitech Solutions Global Limited whose registered company number is 05821246, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
42. DRD Communications Limited whose registered company number is 03545257, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
43. DXI Telecom Limited whose registered company number is 07945651, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
44. E164 Ltd whose registered company number is 06982841, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006..
45. Edge Telecom Limited whose registered company number is 03101247, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
46. Eircom UK Ltd whose registered company number is NF003670, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
47. Entanet International Ltd whose registered company number is 03274237, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
48. Eurobell (Holdings) Limited whose registered company number is 02904215, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
49. Everything Everywhere Limited whose registered company number is 02382161, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
50. Excell Group Ltd whose registered company number is 03678027, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
51. Firstsound Ltd whose registered company number is 02845928, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
52. FleXtel Limited whose registered company number is 02772380, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
53. Fluenta Ltd whose registered company number is 07940266, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
54. Frontier Systems Ltd whose registered company number is 03544845, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

55. Fused Networks Limited whose registered company number is 04510154, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
56. Gage Networks LLP whose registered company number is OC304799, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
57. Gamma Telecom Holdings Ltd whose registered company number is 04287779, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
58. Gladstar Telecommunications Ltd whose registered company number is 05197421, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
59. GlemNet Ltd whose registered company number is 04308716, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
60. Global One Communications Holding Ltd whose registered company number is 01416834, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
61. Griffin Information Systems Ltd whose registered company number is 03676297, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
62. Group 3 Technology Limited whose registered company number is 04127747, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
63. Hello Telecom (UK) plc whose registered company number is 04489059, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
64. iHub UK Ltd whose registered company number is SC213090, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
65. In Call Solutions Limited whose registered company number is 05799390, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
66. i-Net Communications Group plc whose registered company number is 04036526, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
67. Instant Communication Limited whose registered company number is 04036526, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

68. Internexus Networks Limited whose registered company number is 03376785, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
69. InTouch Communication Services Limited whose registered company number is 03606467, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
70. Invoco Ltd whose registered company number is 04465219, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
71. Invomo Ltd whose registered company number is 06267056, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
72. IP Base Ltd whose registered company number is 05607201, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
73. Jimati UK Ltd whose registered company number is 07702856, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
74. KCOM Group plc whose registered company number is 02150618, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
75. Known Communications Limited whose registered company number is 07629174, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
76. Known Future Limited whose registered company number is 04555918, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
77. Lanonyx Telecom Limited whose registered company number is 07658086, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
78. Level 3 Communications Ltd whose registered company number is 02495998, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
79. Linear Telecoms Limited whose registered company number is 06917811, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
80. Localphone Limited whose registered company number is 06085990, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
81. LTT plc whose registered company number is 04260920, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

82. Magnetic North Software Limited whose registered company number is 03637644, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
83. Magrathea Telecommunications Ltd whose registered company number is 04260485, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
84. Mars Communications Limited whose registered company number is 06478834, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
85. MDNX Enterprise Services Limited whose registered company number is 04287100, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
86. Media Telecom Ltd whose registered company number is 07126854, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
87. Microtalk UK Ltd whose registered company number is 06477169, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
88. Minotaur IT Ltd whose registered company number is 05392223, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
89. Mundio Mobile Limited whose registered company number is 04553934, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
90. Nationwide Telephone Assistance Ltd whose registered company number is 04315226, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
91. Need More Time Ltd Ltd whose registered company number is 03925530, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
92. Net Solutions Europe Limited whose registered company number is 03203624, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
93. Net-Work Internet Ltd whose registered company number is 03900685, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
94. Neural Telecommunications (UK) Ltd whose registered company number is 04966619, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

95. NewVoiceMedia Limited whose registered company number is 03602868, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
96. Nexbridge Communications Limited whose registered company number is 07179973, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
97. Nexus Telecommunications plc whose registered company number is 03895766, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
98. NG Business Systems Ltd whose registered company number is 07677135, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
99. NG Network Consultancy Ltd whose registered company number is 06920255, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
100. Nodemax Limited whose registered company number is 06127089, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
101. O-Bit Telecom Limited whose registered company number is 04365519, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
102. Orbis Telecom whose registered company number is 05402754, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
103. Orbtalk Limited whose registered company number is 05382664, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
104. Ossian Telecom Limited whose registered company number is SC347950, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
105. Outsourcery Limited whose registered company number is 05861138, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
106. OVH Limited whose registered company number is 05519821, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
107. Oxygen8 Communications UK Limited whose registered company number is 03383285, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
108. Phone Co-Op Numbering Limited whose registered company number is 07432108, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

109. Planet Numbers Ltd whose registered company number is 03823269, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
110. Plus Telecom Limited whose registered company number is 04052436, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
111. Primus Telecommunications Ltd whose registered company number is 02937312, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
112. Prodigy Internet Ltd whose registered company number is 03828160, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
113. Promotions4All Ltd whose registered company number is 07046038, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
114. Pulsant (Scotland) Limited whose registered company number is SC236128, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
115. QX Telecom Ltd whose registered company number is 03820728, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
116. Reality Telecom plc whose registered company number is 04267969, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
117. Red Matter Limited whose registered company number is 06968219, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
118. Redstone Communications Ltd whose registered company number is 04145329, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
119. Relax Telecom plc whose registered company number is 06777698, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
120. Resilient Networks plc whose registered company number is 01403177, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
121. Rutland Telecom Ltd whose registered company number is 04320627, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

122. Six Degrees Unified Comms Limited whose registered company number is 04335920, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
123. Skycom Ltd whose registered company number is 04101655, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
124. Skymaker Limited whose registered company number is 03101247, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
125. Smallworld Cable Limited whose registered company number is 05679836, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
126. Solutios Limited whose registered company number is 03977874, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
127. Spacetel UK Ltd whose registered company number is 03036383, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
128. Spitfire Network Services Ltd whose registered company number is 02657590, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
129. Starcomm Ltd whose registered company number is 02830288, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
130. Storacall Technology Ltd whose registered company number is 02578478, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
131. Stream Live Ltd whose registered company number is 03487227, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
132. Swiftnet Ltd whose registered company number is 02469394, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
133. Synety Limited whose registered company number is 05557457, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
134. Syntec Telecom Ltd whose registered company number is 03871988, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
135. TalkTalk Communications Limited whose registered company number is 01599423, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

136. Telappliant Ltd whose registered company number is 04632756, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
137. Telecom2 Ltd whose registered company number is 06926334, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
138. Telecoms World Direct Ltd whose registered company number is 05861680, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
139. Telecoms World plc whose registered company number is 03576847, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
140. Teledesign Ltd whose registered company number is 03254784, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
141. TeleMagic Ltd whose registered company number is 07390681, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
142. Telephone Box Limited whose registered company number is 07198723, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
143. Telephony Services Limited whose registered company number is 05134355, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
144. TeleSurf Limited whose registered company number is 06427905, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
145. TeleWare plc whose registered company number is 04756742, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
146. TeleWare Telecom Limited whose registered company number is 06458538, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
147. TelNG Limited whose registered company number is 05503631, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
148. TelXL Ltd whose registered company number is 04249562, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

149. TeslaOne Limited whose registered company number is 06814714, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
150. TG Support Limited whose registered company number is 05370731, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
151. Tiscali UK Limited whose registered company number is 01599423, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
152. Titanium Limited whose registered company number is 06952284, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
153. TRA (UK) LTD whose registered company number is 04222478, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
154. Truphone Ltd whose registered company number is 04187081, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
155. Tuxtel Ltd whose registered company number is 06774113, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
156. United Connect Ltd whose registered company number is 03204967, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
157. Unitel Global Communications Ltd whose registered company number is 04797153, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
158. UPA Telecom Ltd whose registered company number is 06447901, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
159. Vectone Network Limited whose registered company number is 05445235, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
160. Verizon UK Ltd whose registered company number is 02776038, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
161. Vertical Systems Limited whose registered company number is 01741340, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
162. Via-Vox Limited whose registered company number is 04646978, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

163. Vibe Communications UK Ltd whose registered company number is 05742367, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
164. Virgin Media Limited whose registered company number is 02591237, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
165. Virgin Media Wholesale Limited whose registered company number is 02514287, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
166. Vital Phone Limited whose registered company number is 04203630, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
167. VoiceHost Limited whose registered company number is 05851537, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
168. Voicenet Solutions Ltd whose registered company number is 05083841, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
169. Voicetec Systems Ltd whose registered company number is 03948745, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
170. VoIP-Un Limited whose registered company number is 05225497, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
171. Voxalis Ltd whose registered company number is 05630233, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
172. Voxbone SA whose registered company number is BE 0478.928.788, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
173. Wavecrest (UK) Ltd whose registered company number is 03042254, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
174. Wightfibre Ltd whose registered company number is 05470659, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
175. Wizaner Limited whose registered company number is 02530183, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

176. Yim Siam Telecom whose registered company number is 05668333, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
177. ZAF Telecom Ltd whose registered company number is 04347883, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
178. Zamir Telecom Limited whose registered company number is 05286517, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.
179. Zimo Communications Limited whose registered company number is 05374218, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

Annex 7

Proposals for charge controls for call origination, call termination, and interconnect circuits

NOTIFICATION OF PROPOSALS UNDER SECTION 48A OF THE COMMUNICATIONS ACT 2003

Proposals for the setting of SMP services conditions in relation to BT under section 45 of the Communications Act 2003

Background

1. On 5 February 2013, Ofcom published a consultation document entitled Review of the fixed narrowband services markets - Consultation on the proposed markets, market power determinations and remedies (the "February 2013 Consultation").
2. Annex 6 of the February 2013 Consultation sets out the Notification under sections 48A and 80A of the Act, in which Ofcom proposes to identify certain markets, make market power determinations and set SMP services conditions (the "Market Power Notification").
3. In the Market Power Notification, Ofcom proposes to identify, amongst others, the following markets:
 - (a) Wholesale call origination on a fixed narrowband network in the United Kingdom excluding the Hull Area; and
 - (b) Call termination services which are provided by BT to another communications provider, for the termination of voice calls to geographic numbers which BT has been allocated by Ofcom in the area served by BT.
4. In the Market Power Notification, Ofcom also proposes that BT has significant market power and proposes to impose SMP services conditions in relation to both markets identified in paragraph 3 above. Ofcom also proposes, as a result of BT's proposed significant market power in relation to call origination and call termination, to impose certain SMP services conditions in relation to interconnect circuits.
5. In this Notification and with reference to the market power determinations referred to in the Market Power Notification, Ofcom proposes to impose SMP conditions setting certain price controls.

Proposals

6. Ofcom is proposing to set the following SMP conditions:
 - (a) In relation to the market listed in paragraph 3(a) above, SMP Condition 10 as set out in Schedule 1 to this Notification;
 - (b) In relation to the market listed in paragraph 3(b) above, SMP Condition 11 as set out in Schedule 2 to this Notification; and

- (c) As a result of BT's significant market power in relation to the market listed in paragraph 3(a) and 3(b) above, in relation to interconnect circuits, SMP Condition 12 as set out in Schedule 3 to this Notification.
- 7. The effect of, and Ofcom's reasons for making the proposals to set the SMP conditions set out in Schedules 1, 2, and 3 to this notification are set out in the consultation document accompanying this Notification, and in particular Sections 5, 6 and 10.

Ofcom's duties and legal tests

- 8. In proposing to set the SMP conditions referred to in paragraph 6 above, Ofcom has taken due account of all applicable recommendations issued by the European Commission in accordance with Section 4A of the Act.
- 9. Ofcom considers that the proposed SMP conditions referred to in paragraph 6 above comply with the requirements of sections 45 to 47, 87 and 88 of the Act, as appropriate and relevant to each such SMP condition.
- 10. In proposing to set the SMP conditions referred to in paragraph 6 above, Ofcom has considered and acted in accordance with its general duties set out in section 3 of the Act and the six Community requirements set out in section 4 of the Act.

Making representations

- 11. Representations may be made to Ofcom about any of the proposals set out in this Notification and the accompanying consultation document by no later than 2 April 2013.
- 12. Copies of this Notification and the accompanying consultation document have been sent to the Secretary of State in accordance with sections 48C(1) of the Act.

Interpretation

- 13. Except as otherwise defined in paragraph 14 of this Notification, words or expressions used shall have the same meaning as they have been ascribed in the Act.
- 14. In this Notification:
 - (a) "Act" means the Communications Act 2003 (c. 21);
 - (b) "BT" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
 - (c) "Hull Area" means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communication (Hull) plc; and
 - (d) "United Kingdom" has the meaning given to it in the Interpretation Act 1978 (1978 c30).

Signed

David Stewart
Competition Policy Director, Ofcom

**A person duly authorised in accordance with paragraph 18 of the Schedule to the
Office of Communications Act 2002**

5 February 2013

SCHEDULE 1**[Draft] Condition 10: Charge control – call origination**

- (a) The Dominant Provider shall take all reasonable steps to secure that, at the end of each Relevant Year, the Percentage Change, C_t , (as determined in accordance with paragraph (b)) in the aggregate of Charges for all of the services listed in the Annex to this Schedule 1 (all such services together referred to as the “Basket”) is not more than the Controlling Percentage, CP_t , (as determined in accordance with paragraph (c)).
- (b) The Percentage Change for the purpose of the Basket specified in paragraph (a) shall be calculated by employing the following formula:

$$C_t = \frac{\sum_{i=1}^n \left[R_i \frac{(\bar{p}_{i,t} - \bar{p}_{i,t-1})}{\bar{p}_{i,t-1}} \right]}{\sum_{i=1}^n R_i}$$

Where:

C_t is the Percentage Change in the aggregate of Charges for the services in the Basket during the Relevant Year, t ;

n is the number of services in the Basket;

i is a service numbered from 1 to n for each of the n services in the Basket;

R_i is the External Revenue accrued during the Prior Financial Year in respect of service, i ;

t refers to the Relevant Year;

$t-1$ refers to the Prior Year;

$\bar{p}_{i,t}$ is the weighted average Charge made by the Dominant Provider for service, i , during the Relevant Year:

Where such Relevant Year Weighted Average Charge shall be calculated by employing the following formula:

$$\bar{p}_{i,t} = \sum_{j=1}^m (w_j p_j)$$

Where:

m is the number of periods for which there are distinct Charges during the Relevant Year;

j is a number from 1 to m for each of the m periods during which a Charge is in effect;

w_j is the proportion of the Relevant Year in which each Charge, p_j , is in effect, calculated by the number of days during which the Charge is in effect and dividing

- (1) for the First Relevant Year, by 365;
- (2) for the Second Relevant Year, by 365; and
- (3) for the Third Relevant Year, by 366.

p_j is the Charge for the specified period, j , during the Relevant Year, for the specific service, i ;

$\bar{p}_{i,t-1}$ is the weighted average Charge made by the Dominant Provider for service, i , during the Prior Year:

Where such Prior Year Weighted Average Charge shall be calculated by employing the following formula:

$$\bar{p}_{i,t-1} = \sum_{j=1}^m (w_j p_j)$$

Where:

m is the number of periods for which there are distinct Charges during the Prior Year and;

j is a number from 1 to m for each of the m periods during which a Charge is in effect;

w_j is the proportion of the Prior Year in which each Charge, p_j , is in effect, calculated by the number of days during which the Charge is in effect and dividing by 365;

p_j is the Charge for the specified period, j , during the Prior Year, for the specific service, i ;

- (c) Subject to paragraphs (d) (e) and (f), the Controlling Percentage in relation to any Relevant Year shall be calculated by employing the following formula:

$$CP_t = RPI_t + X$$

Where:

CP_t is the Controlling Percentage for the Relevant Year, rounded to one decimal place;

RPI_t is the change in the Retail Prices Index in the period of 12 months ending on 30 June immediately before the beginning of the Relevant Year expressed as a percentage, rounded to one decimal place;

X is:

- (1) for the First Relevant Year, [...]
- (2) for the Second Relevant Year, [...]
- (3) for the Third Relevant Year, [...]

[The values of X consulted on are set out in the consultation document accompanying this notification].

- (d) Where the Percentage Change in either the First Relevant Year or the Second Relevant Year is less than the Controlling Percentage (the “Deficiency”), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph (f).
- (e) Where the Percentage Change in either the First Relevant Year or the Second Relevant Year is more than the Controlling Percentage (the “Excess”), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph (f).
- (f) In the case of Deficiency (defined in (d) above) or Excess (defined in (e) above), the Controlling Percentage will be calculated by employing the following formula:

$$CP_t = [(100\% + RPI_t + X)(100\% + CP_{t-1}) / (100\% + C_{t-1})] - 100\%$$

Where:

CP_t is the Controlling Percentage for the Second Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Third Relevant Year (in case of Deficiency or Excess in the Second Relevant Year);

CP_{t-1} is the Controlling Percentage for the First Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Second Relevant Year (in case of Deficiency or Excess in the Second Relevant Year);

C_{t-1} is the Percentage Change in the aggregate of Charges for the services in the Basket during the First Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Second Relevant Year (in case of Deficiency or Excess in the Second Relevant Year), calculated in accordance with (b);

X is as set out in paragraph (c) above; and

RPI_t is as set out in paragraph (c) above.

- (g) Where

- (1) the Dominant Provider makes a material change (other than to a Charge) to any service which is subject to this Condition 10;
- (2) The Dominant Provider makes a change to the date on which its financial year ends; or
- (3) there is a material change in the basis of the Retail Prices Index,

paragraphs (a) to (f) shall have effect subject to such reasonable adjustment to take account of the change as Ofcom may direct to be appropriate in the circumstances.

For the purposes of this paragraph, a material change to any service which is subject to this Condition 10 includes the introduction of a new service wholly or substantially in substitution for that existing service.

- (h) The Dominant Provider shall record, maintain and supply to Ofcom in an electronic format, no later than three months after the end of each of the Relevant Years, the data necessary for Ofcom to monitor compliance of the Dominant Provider with the price control. The data shall include:

- i. pursuant to paragraph **(b)**, the calculated Percentage Change relating to the aggregate of Charges for all of the services in the Basket;
- ii. all relevant data the Dominant Provider used in the calculation of the Percentage Change as set out in (i) above, including for each specific service, *i*;
- iii. all Charges published by the Dominant Provider from time to time during the Relevant Year and the Prior Year, including the period they were in force;
- iv. the Relevant Year Weighted Average Charges and the Prior Year Weighted Average Charges for all of the services in the Basket and calculations thereof;
- v. other data necessary for monitoring compliance with the charge control.

whereby all relevant revenues in respect of a specific service in the Basket are provided to the nearest £1,000.

(i) The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition 10.

(j) Paragraphs **(a)** to **(i)** shall not apply to such extent as Ofcom may direct.

(k) In this Condition:

- i. Basket has the meaning as described in paragraph **(a)**;
- ii. Charge means the published pence per minute charge rounded to three decimal places (being the amount offered or charged by the Dominant Provider, excluding any discounts), to a communications provider for a unit of any of the services subject to this Condition 10;
- iii. Charge Change means a change to any of the Charges for the provision of services subject to this Condition 10;
- iv. Controlling Percentage is to be determined in accordance with paragraph **(c)**;
- v. Dominant Provider means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- vi. External Revenue means revenue from communications providers, other than the Dominant Provider, in relation to the services subject to this Condition 10;
- vii. Ofcom means the Office of Communications;
- viii. Percentage Change is to be determined in accordance with paragraph **(b)**;
- ix. Prior Financial Year means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;
- x. Prior Year means each of the following three periods:

- (1) in relation to the First Relevant Year, the period beginning 1 October 2012 and ending 30 September 2013 (the “First Prior Year”);
 - (2) in relation to the Second Relevant Year, the period beginning 1 October 2013 and ending 30 September 2014 (the “Second Prior Year”); and
 - (3) In relation to the Third Relevant Year, the period beginning 1 October 2014 and ending 30 September 2015 (the “Third Prior Year”);
- xi. Prior Year Weighted Average Charge is to be determined in accordance with the relevant formula in paragraph **(b)**;
- xii. Relevant Year means each of the following three periods:
 - (1) The period beginning on 1 October 2013 and ending on 30 September 2014 (the “First Relevant Year”);
 - (2) The period beginning on 1 October 2014 and ending on 30 September 2015 (the “Second Relevant Year”); and
 - (3) The period beginning on 1 October 2015 and ending on 30 September 2016 (the “Third Relevant Year”);
- xiii. Relevant Year Weighted Average Charge is to be determined in accordance with the relevant formula in paragraph **(b)**; and
- xiv. Retail Prices Index or “RPI” means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty’s Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

Annex to Schedule 1 – Services in the Basket subject to the charge control pursuant to paragraph 10(a) (call origination)

- i) External Wholesale call originating local exchange segment PSTN and ISDN (excl Operator Assistance ("OA")) Day
- ii) External Wholesale call originating local exchange segment PSTN and ISDN (excl OA) Evening
- iii) External Wholesale call originating local exchange segment PSTN and ISDN (excl OA) Weekend
- iv) External Wholesale call originating local exchange segment (incl OA) Day
- v) External Wholesale call originating local exchange segment (incl OA) Evening
- vi) External Wholesale call originating local exchange segment (incl OA) Weekend

SCHEDULE 2**[Draft] Condition 11: Charge control – call termination**

- (a) The Dominant Provider shall take all reasonable steps to secure that, at the end of each Relevant Year, the Percentage Change, C_t , (as determined in accordance with paragraph (b)) in the aggregate of Charges for all of the services listed in the Annex to this Schedule 2 (all such services together referred to as the “Basket”) is not more than the Controlling Percentage, CP_t , (as determined in accordance with paragraph (c)).
- (b) The Percentage Change for the purpose of the Basket specified in paragraph (a) shall be calculated by employing the following formula:

$$C_t = \frac{\sum_{i=1}^n \left[R_i \frac{(\bar{p}_{i,t} - \bar{p}_{i,t-1})}{\bar{p}_{i,t-1}} \right]}{\sum_{i=1}^n R_i}$$

Where:

C_t is the Percentage Change in the aggregate of Charges for the services in the Basket during the Relevant Year, t ;

n is the number of services in the Basket;

i is a service numbered from 1 to n for each of the n services in the Basket;

R_i is the External Revenue accrued during the Prior Financial Year in respect of service, i ;

t refers to the Relevant Year;

$t-1$ refers to the Prior Year;

$\bar{p}_{i,t}$ is the weighted average Charge made by the Dominant Provider for service, i , during the Relevant Year:

Where such Relevant Year Weighted Average Charge shall be calculated by employing the following formula:

$$\bar{p}_{i,t} = \sum_{j=1}^m (w_j p_j)$$

Where:

m is the number of periods for which there are distinct Charges during the Relevant Year;

j is a number from 1 to m for each of the m periods during which a Charge is in effect;

w_j is the proportion of the Relevant Year in which each Charge, p_j , is in effect, calculated by the number of days during which the Charge is in effect and dividing

- (1) for the First Relevant Year, by 365;
- (2) for the Second Relevant Year, by 365; and
- (3) for the Third Relevant Year, by 366.

p_j is the Charge for the specified period, j , during the Relevant Year, for the specific service, i ;

$\bar{p}_{i,t-1}$ is the weighted average Charge made by the Dominant Provider for service, i , during the Prior Year:

Where such Prior Year Weighted Average Charge shall be calculated by employing the following formula:

$$\bar{p}_{i,t-1} = \sum_{j=1}^m (w_j p_j)$$

Where:

m is the number of periods for which there are distinct Charges during the Prior Year and;

j is a number from 1 to m for each of the m periods during which a Charge is in effect;

w_j is the proportion of the Prior Year in which each Charge, p_j , is in effect, calculated by the number of days during which the Charge is in effect and dividing by 365; and

p_j is the Charge for the specified period, j , during the Prior Year, for the specific service, i ;

- (c) Subject to paragraphs (d) (e) and (f), the Controlling Percentage in relation to any Relevant Year shall be calculated by employing the following formula:

$$CP_t = RPI_t + X$$

Where:

CP_t is the Controlling Percentage for the Relevant Year, rounded to one decimal place;

RPI_t is the change in the Retail Prices Index in the period of 12 months ending on 30 June immediately before the beginning of the Relevant Year expressed as a percentage, rounded to one decimal place;

X is:

- (1) for the First Relevant Year, [...]%
- (2) for the Second Relevant Year, [...]%
- (3) for the Third Relevant Year, [...]%

[The values of X consulted on are set out in the consultation document accompanying this notification].

- (d) Where the Percentage Change in either the First Relevant Year or the Second Relevant Year is less than the Controlling Percentage (the “Deficiency”), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph (f).
- (e) Where the Percentage Change in either the First Relevant Year or the Second Relevant Year is more than the Controlling Percentage (the “Excess”), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph (f).
- (f) In the case of Deficiency (defined in (d) above) or Excess (defined in (e) above), the Controlling Percentage will be calculated by employing the following formula:

$$CP_t = [(100\% + RPI_t + X)(100\% + CP_{t-1}) / (100\% + C_{t-1})] - 100\%$$

Where:

CP_t is the Controlling Percentage for the Second Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Third Relevant Year (in case of Deficiency or Excess in the Second Relevant Year);

CP_{t-1} is the Controlling Percentage for the First Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Second Relevant Year (in case of Deficiency or Excess in the Second Relevant Year);

C_{t-1} is the Percentage Change in the aggregate of Charges for the services in the Basket during the First Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Second Relevant Year (in case of Deficiency or Excess in the Second Relevant Year), calculated in accordance with (b);

X is as set out in paragraph (c) above; and

RPI_t is as set out in paragraph (c) above.

- (g) Where

- (1) the Dominant Provider makes a material change (other than to a Charge) to any service which is subject to this Condition 11;
- (2) The Dominant Provider makes a change to the date on which its financial year ends; or
- (3) there is a material change in the basis of the Retail Prices Index,

paragraphs (a) to (f) shall have effect subject to such reasonable adjustment to take account of the change as Ofcom may direct to be appropriate in the circumstances.

For the purposes of this paragraph, a material change to any service which is subject to this Condition 11 includes the introduction of a new service wholly or substantially in substitution for that existing service.

- (h) The Dominant Provider shall record, maintain and supply to Ofcom in an electronic format, no later than three months after the end of each Relevant Year, the data necessary for Ofcom to monitor compliance of the Dominant Provider with the price control. The data shall include:

- i. pursuant to paragraph **(b)**, the calculated Percentage Change relating to the aggregate of Charges for all of the services in the Basket;
- ii. all relevant data the Dominant Provider used in the calculation of the Percentage Change as set out in (i) above, including for each specific service, *i*;
- iii. all Charges published by the Dominant Provider from time to time during the Relevant Year and the Prior Year, including the period they were in force;
- iv. the Relevant Year Weighted Average Charges and the Prior Year Weighted Average Charges for all of the services in the Basket and calculations thereof;
- v. other data necessary for monitoring compliance with the charge control.

whereby all relevant revenues in respect of a specific service in the Basket are provided to the nearest £1,000.

(i) The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition 11.

(j) Paragraphs **(a)** to **(i)** shall not apply to such extent as Ofcom may direct.

(k) In this Condition:

- i. Basket has the meaning as described in paragraph **(a)**;
- ii. Charge means, the published pence per minute charge rounded to three decimal places (being the amount offered or charged by the Dominant Provider, excluding any discounts), to a communications provider for a unit of any of the services subject to this Condition 11;
- iii. Charge Change means a change to any of the Charges for the provision of services subject to this Condition 11;
- iv. Controlling Percentage is to be determined in accordance with paragraph **(c)**;
- v. Dominant Provider means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- vi. External Revenue means revenue from communications providers, other than the Dominant Provider, in relation to the services subject to this Condition 11;
- vii. Ofcom means the Office of Communications;
- viii. Percentage Change is to be determined in accordance with paragraph **(b)**;
- ix. Prior Financial Year means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;
- x. Prior Year means each of the following three periods:

- (1) in relation to the First Relevant Year, the period beginning 1 October 2012 and ending 30 September 2013 (the “First Prior Year”);
 - (2) in relation to the Second Relevant Year, the period beginning 1 October 2013 and ending 30 September 2014 (the “Second Prior Year”); and
 - (3) In relation to the Third Relevant Year, the period beginning 1 October 2014 and ending 30 September 2015 (the “Third Prior Year”);
- xi. Prior Year Weighted Average Charge is to be determined in accordance with the relevant formula in paragraph **(b)**;
- xii. Relevant Year means each of the following three periods:
 - (1) The period beginning on 1 October 2013 and ending on 30 September 2014 (the “First Relevant Year”);
 - (2) The period beginning on 1 October 2014 and ending on 30 September 2015 (the “Second Relevant Year”); and
 - (3) The period beginning on 1 October 2015 and ending on 30 September 2016 (the “Third Relevant Year”);
- xiii. Relevant Year Weighted Average Charge is to be determined in accordance with the relevant formula in paragraph **(b)**; and
- xiv. Retail Prices Index or “RPI” means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty’s Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

Annex to Schedule 2 – Services in the Basket subject to the charge control pursuant to paragraph 11(a) (call termination)

- i) External Wholesale call termination local exchange segment - Day
- ii) External Wholesale call termination local exchange segment - Evening
- iii) External Wholesale call termination local exchange segment - Weekend

SCHEDULE 3**[Draft] Condition 12: Charge control – interconnect circuits**

- (a) The Dominant Provider shall take all reasonable steps to secure that, at the end of each Relevant Year, the Percentage Change, C_t , (as determined in accordance with paragraph (b)) in the aggregate of Charges for all of the services listed in the Annex to this Schedule 3 (all such services together referred to as the “Basket”) is not more than the Controlling Percentage, CP_t , (as determined in accordance with paragraph (c)).
- (b) The Percentage Change for the purpose of the Basket specified in paragraph (a) shall be calculated by employing the following formula:

$$C_t = \frac{\sum_{i=1}^n \left[R_i \frac{(\bar{p}_{i,t} - \bar{p}_{i,t-1})}{\bar{p}_{i,t-1}} \right]}{\sum_{i=1}^n R_i}$$

Where:

C_t is the Percentage Change in the aggregate of Charges for the services in the Basket during the Relevant Year, t ;

n is the number of services in the Basket;

i is a service numbered from 1 to n for each of the n services in the Basket;

R_i is the External Revenue accrued during the Prior Financial Year in respect of service, i ;

t , refers to the Relevant Year;

$t-1$ refers to the Prior Year;

$\bar{p}_{i,t}$ is the weighted average Charge made by the Dominant Provider for service, i , during the Relevant Year:

Where such Relevant Year Weighted Average Charge shall be calculated by employing the following formula:

$$\bar{p}_{i,t} = \sum_{j=1}^m (w_j p_j)$$

Where:

m is the number periods for which there are distinct Charges during the Relevant Year;

j is a number from 1 to m for each of the m periods during which a Charge is in effect;

w_j is the proportion of the Relevant Year in which each Charge, p_j , is in effect, calculated by the number of days during which the Charge is in effect and dividing

- (1) for the First Relevant Year, by 365;
- (2) for the Second Relevant Year, by 365; and
- (3) for the Third Relevant Year, by 366.

p_j is the Charge for the specified period, j , during the Relevant Year, for the specific service, i ;

$\bar{p}_{i,t-1}$ is the weighted average Charge made by the Dominant Provider for service, i , during the Prior Year:

Where such Prior Year Weighted Average Charge shall be calculated by employing the following formula:

$$\bar{p}_{i,t-1} = \sum_{j=1}^m (w_j p_j)$$

Where:

m is the number of periods for which there are distinct Charges during the Prior year;

j is a number from 1 to m for each of the m periods during which a Charge is in effect;

w_j is the proportion of the Prior Year in which each Charge, p_j , is in effect, calculated by the number of days during which the Charge is in effect and dividing by 365; and

p_j is the Charge for the specified period, j , during the Prior Year, for the specific service, i ;

- (c) Subject to paragraphs (d) (e) and (f), the Controlling Percentage in relation to any Relevant Year shall be calculated by employing the following formula:

$$CP_t = RPI_t + X$$

Where:

CP_t is the Controlling Percentage for the Relevant Year, rounded to one decimal place;

RPI_t is the change in the Retail Prices Index in the period of 12 months ending on 30 June immediately before the beginning of the Relevant Year expressed as a percentage, rounded to one decimal place;

X is:

- (1) for the First Relevant Year, [...]
- (2) for Second Relevant Year, [...]
- (3) for the Third Relevant Year, [...]

[The values of X consulted on are set out in the consultation document accompanying this notification].

- (d) Where the Percentage Change in either the First Relevant Year or the Second Relevant Year is less than the Controlling Percentage (the “Deficiency”), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph (f).
- (e) Where the Percentage Change in either the First Relevant Year or the Second Relevant Year is more than the Controlling Percentage (the “Excess”), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph (f).
- (f) In the case of Deficiency (defined in (d) above) or Excess (defined in (e) above), the Controlling Percentage for the following Relevant Year will be calculated by employing the following formula:

$$CP_t = [(100\% + RPI_t + X)(100\% + CP_{t-1}) / (100\% + C_{t-1})] - 100\%$$

Where:

CP_t is the Controlling Percentage for the Second Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Third Relevant Year (in case of Deficiency or Excess in the Second Relevant Year);

CP_{t-1} is the Controlling Percentage for the First Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Second Relevant Year (in case of Deficiency or Excess in the Second Relevant Year);

C_{t-1} is the Percentage Change in the aggregate of Charges for the services in the Basket during the First Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Second Relevant Year (in case of Deficiency or Excess in the Second Relevant Year), calculated in accordance with (b);

X is as set out in paragraph (c) above; and

RPI_t is as set out in paragraph (c) above.

- (g) The Dominant Provider shall also and, in any event, take all reasonable steps to secure that, at the end of each Relevant Year, the Percentage Change in the Charge for each and every service listed in the Annex to this Schedule 3 is not more than the RPI increased by 10 percentage points.

For the purpose of this paragraph (g), the Percentage Change shall be calculated by employing the following formula:

$$C_i = \frac{(\bar{p}_{i,t} - \bar{p}_{i,t-1})}{\bar{p}_{i,t-1}}$$

Where

C_i is the Percentage Change for the Relevant Year for each service, i ; and

$\bar{p}_{i,t}$ and $\bar{p}_{i,t-1}$ are as defined in paragraph (b) above.

- (h) Where

- (1) the Dominant Provider makes a material change (other than to a Charge) to any service which is subject to this Condition 12;
- (2) The Dominant Provider makes a change to the date on which its financial year ends; or
- (3) there is a material change in the basis of the Retail Prices Index,

paragraphs **(a)** to **(g)** shall have effect subject to such reasonable adjustment to take account of the change as Ofcom may direct to be appropriate in the circumstances.

For the purposes of this paragraph, a material change to any service which is subject to this Condition 12 includes the introduction of a new service wholly or substantially in substitution for that existing service.

- (i)** The Dominant Provider shall record, maintain and supply to Ofcom in an electronic format, no later than three months after the end of each Relevant Year, the data necessary for Ofcom to monitor compliance of the Dominant Provider with the price control by performing the calculation of the Percentage Change. The data shall include:
 - i. pursuant to paragraph **(b)**, the calculated Percentage Change relating to the aggregate of Charges for all of the services in the Basket;
 - ii. all relevant data the Dominant Provider used in the calculation of the Percentage Change as set out in (i) above, including for each specific service, *i*;
 - iii. all Charges published by the Dominant Provider from time to time during the Relevant Year and the Prior Year, including the period they were in force;
 - iv. the Relevant Year Weighted Average Charges and the Prior Year Weighted Average Charges for all of the services in the Basket and calculations thereof;
 - v. other data necessary for monitoring compliance with the charge control.

whereby all relevant revenues in respect of a specific service in the Basket are provided to the nearest £1,000.

- (j)** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition 12.

(k) Paragraphs **(a)** to **(j)** shall not apply to such extent as Ofcom may direct.

(l) In this Condition:

- i. Basket has the meaning as described in paragraph **(a)**;
- ii. Charge means, the published charge rounded to the nearest penny (being the amount offered or charged by the Dominant Provider, excluding any discounts), to a communications provider for a unit of any of the services subject to this Condition 12;
- iii. Charge Change means a change to any of the Charges for the provision of services subject to this Condition 12;

- iv. Controlling Percentage is to be determined in accordance with paragraph **(c)**;
- v. Dominant Provider means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- vi. External Revenue means revenue from communications providers, other than the Dominant Provider, in relation to the services subject to this Condition 12;
- vii. Ofcom means the Office of Communications;
- viii. Percentage Change is to be determined in accordance with paragraph **(b)**;
- ix. Prior Financial Year means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;
- x. Prior Year means each of the following three years:
 - (1) in relation to the First Relevant Year, the period beginning 1 October 2012 and ending 30 September 2013 (the “First Prior Year”);
 - (2) in relation to the Second Relevant Year, the period beginning 1 October 2013 and ending 30 September 2014 (the “Second Prior Year”); and
 - (3) in relation to the Third Relevant Year, the period beginning 1 October 2014 and ending 30 September 2015 (the “Third Prior Year”);
- xi. Prior Year Weighted Average Charge is to be determined in accordance with the relevant formula in paragraph **(b)**;
- xii. Relevant Year means each of the following three years:
 - (1) The period beginning on 1 October 2013 and ending on 30 September 2014 (the “First Relevant Year”);
 - (2) The period beginning on 1 October 2014 and ending on 30 September 2015 (the “Second Relevant Year”); and
 - (3) The period beginning on 1 October 2015 and ending on 30 September 2016 (the “Third Relevant Year”);
- xiii. Relevant Year Weighted Average Charge is to be determined in accordance with the relevant formula in paragraph **(b)**; and
- xiv. Retail Prices Index or “RPI” means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty’s Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

Annex to Schedule 3 – Services in the Basket subject to the charge control pursuant to paragraph 12(a) (interconnect circuits)

- i) External wholesale standard Customer-Sited Interconnect connections;
- ii) External wholesale standard Customer-Sited Interconnect rentals – fixed;
- iii) External wholesale standard Customer-Sited Interconnect rentals - per km;
- iv) External wholesale interconnection extension circuits connections;
- v) External wholesale interconnection extension circuits rentals – fixed;
- vi) External wholesale interconnection extension circuits rentals - per km;
- vii) External wholesale intra-building circuits connections;
- viii) External wholesale intra-building circuits rentals;
- ix) External wholesale in-span interconnection links rentals;
- x) External nominated in-span interconnection links - per km; and
- xi) External wholesale rearrangements.

Annex 8

Proposal for NTS retail uplift

NOTIFICATION OF PROPOSALS UNDER SECTION 48A OF THE COMMUNICATIONS ACT 2003

Proposals for the setting of SMP services conditions in relation to BT under section 45 of the Communications Act 2003

Background

1. On 5 February 2013, Ofcom published a consultation document entitled Review of the fixed narrowband services markets - Consultation on the proposed markets, market power determinations and remedies (the "February 2013 Consultation").
2. Annex 6 of the February 2013 Consultation sets out the Notification under sections 48A and 80A of the Communications Act 2003, in which Ofcom proposes to identify certain markets, make market power determinations and set SMP services conditions (the "Market Power Notification").
3. In the Market Power Notification, Ofcom proposes to identify, amongst others, the market for wholesale call origination on a fixed narrowband network in the United Kingdom excluding the Hull area, proposes that BT has significant market power in relation to this market and proposes to set SMP services conditions.
4. At Condition 9 of Schedule 1 of the Market Power Notification, Ofcom proposes that BT be required to provide NTS Call Origination and that it shall make no charges for doing so, except for a charge for the call origination service used to originate the NTS Call; a charge for the NTS Retail Uplift; and a charge for bad debt relating to the retailing by the Dominant Provider of Premium Rate Service calls.
5. In this Notification, and with reference to the market power determination referred to in the Market Power Notification, and Condition 9 of Schedule 1 of the Market Power Notification, Ofcom proposes to set the charge for the NTS Retail Uplift.

Proposals

6. Ofcom is proposing to set SMP condition 13 in relation to the market listed in paragraph 3 above, as set out in the Schedule to this Notification.
7. Ofcom is proposing to apply SMP condition 13 as set out in the Schedule to this Notification from the date of the notification under sections 48(1) and 79(4) of the Communications Act adopting the proposals set out in this Notification until the NGC Effective Date.
8. The effect of, and Ofcom's reasons for making the proposal to set the SMP condition set out in the Schedule to this Notification are set out in the consultation document accompanying this Notification, and in particular Section 5.

Ofcom's duties and legal tests

9. In proposing to set the SMP condition referred to in paragraph 6, Ofcom has taken due account of all applicable recommendations issued by the European Commission in accordance with Section 4A of the Act.
10. Ofcom considers that the proposed SMP condition referred to in paragraph 6 complies with the requirements of sections 45 to 47, 87 and 88 of the Act, as appropriate and relevant to such SMP condition.
11. In proposing to set the SMP condition referred to in paragraph 6, Ofcom has considered and acted in accordance with its general duties set out in section 3 of the Act and the six Community requirements set out in section 4 of the Act.

Making representations

12. Representations may be made to Ofcom about the proposal set out in this Notification and the accompanying consultation document by no later than 2 April 2013.
13. Copies of this Notification and the accompanying consultation document have been sent to the Secretary of State in accordance with sections 48C(1) of the Act.

Interpretation

14. Except as otherwise defined in paragraph 14 of this Notification, words or expressions used shall have the same meaning as they have been ascribed in the Act.
15. In this Notification:
 - (a) "Act" means the Communications Act 2003 (c. 21);
 - (b) "BT" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
 - (c) "Hull Area" means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communication (Hull) plc;
 - (d) "NGC Effective Date" means [the Effective Date as defined in the Notification under section 48(1) of the Act setting general conditions imposing an unbundled tariff structure for non-geographic calls]⁴⁴¹; and
 - (e) "United Kingdom" has the meaning given to it in the Interpretation Act 1978 (1978 c30).

Signed

⁴⁴¹ Provisional wording

David Stewart
Competition Policy Director, Ofcom

**A person duly authorised in accordance with paragraph 18 of the Schedule to the
Office of Communications Act 2002**

5 February 2013

SCHEDULE**[Draft] Condition 13: Charge control – NTS retail uplift**

- (a) The Dominant Provider shall take all reasonable steps to secure that, at the end of each Relevant Year, the Percentage Change, C_t , (as determined in accordance with paragraph (b)) in the aggregate of the NTS Retail Uplift for all of the services listed in the Annex to this Schedule 1 (all such services together referred to as the “Basket”) is not more than the Controlling Percentage, CP_t , (as determined in accordance with paragraph (c)).
- (b) The Percentage Change for the purpose of the Basket specified in paragraph (a) shall be calculated by employing the following formula:

$$C_t = \frac{\sum_{i=1}^n \left[R_i \frac{(\bar{p}_{i,t} - \bar{p}_{i,t-1})}{\bar{p}_{i,t-1}} \right]}{\sum_{i=1}^n R_i}$$

Where:

C_t is the Percentage Change in the aggregate of the NTS Retail Uplift for the services in the Basket during the Relevant Year, t ;

n is the number of services in the Basket;

i is a service numbered from 1 to n for each of the n services in the Basket;

R_i is the External Revenue accrued during the Prior Financial Year in respect of service, i ;

t , refers to the Relevant period;

$t-1$ refers to the Prior Period;

$\bar{p}_{i,t}$ is the weighted average NTS Retail Uplift made by the Dominant Provider for service, i , during the Relevant Year:

Where such Relevant Year Weighted Average NTS Retail Uplift shall be calculated by employing the following formula:

$$\bar{p}_{i,t} = \sum_{j=1}^m (w_j p_j)$$

Where:

m is the number of periods for which there are distinct Charges during the Relevant Year;

j is a number from 1 to m for each of the m periods during which a NTS Retail Uplift is in effect;

w_j is the proportion of the Relevant Year in which each NTS Retail Uplift, p_j , is in effect, calculated by the number of days during which the NTS Retail Uplift is in effect and dividing

- (1) for the First Relevant Year, by 365;
- (2) for the Second Relevant Year:
 - a. where the NGC Effective Date falls after 30 September 2015, by 365; or
 - b. where the NGC Effective Date falls before 30 September 2015, by such number of days as counted in the period starting with 1 October 2014 and ending with the day before the NGC Effective Date; and
- (3) for the Third Relevant Year:
 - a. where the NGC Effective Date falls after 30 September 2016, by 366; or
 - b. where the NGC Effective Date falls before 30 September 2016, by such number of days as counted in the period starting with 1 October 2015 and ending with the day before the NGC Effective Date.

p_j is the NTS Retail Uplift for the specified period, j , during the Relevant Year, for the specific service, i ;

$\bar{p}_{i,t-1}$ is the weighted average NTS Retail Uplift made by the Dominant Provider for service, i , during the Prior Year:

Where such Prior Year Weighted Average NTS Retail Uplift shall be calculated by employing the following formula:

$$\bar{p}_{i,t-1} = \sum_{j=1}^m (w_j p_j)$$

Where:

m is the number of periods for which there are distinct Charges during the Prior year;

j is a number from 1 to m for each of the m periods during which a NTS Retail Uplift is in effect;

w_j is the proportion of the Prior Year in which each NTS Retail Uplift, p_j , is in effect, calculated by the number of days during which the NTS Retail Uplift is in effect and dividing by 365; and

p_j is the NTS Retail Uplift for the specified period, j , during the Prior Year, for the specific service, i ;

- (c) Subject to paragraphs (d) (e) and (f), the Controlling Percentage in relation to any Relevant Year shall be calculated by employing the following formula:

$$CP_t = RPI_t + X$$

Where:

CP_t is the Controlling Percentage for the Relevant Year, rounded to one decimal place;

RPI_t is the change in the Retail Prices Index in the period of 12 months ending on 30 June immediately before the beginning of the Relevant Year expressed as a percentage (rounded to one decimal place);

X is:

- (1) for the First Relevant Year, 0%
- (2) for the Second Relevant Year, 0%
- (3) for the Third Relevant Year, 0%

- (d) Where the Percentage Change in either the First Relevant Year or the Second Relevant Year is less than the Controlling Percentage (the “Deficiency”), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph (f).
- (e) Where the Percentage Change in either the First Relevant Year or the Second Relevant Year is more than the Controlling Percentage (the “Excess”), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph (f).
- (f) In the case of Deficiency (defined in (d) above) or Excess (defined in (e) above), the Controlling Percentage for the following Relevant Year will be calculated by employing the following formula:

$$CP_t = [(100\% + RPI_t + X)(100\% + CP_{t-1}) / (100\% + C_{t-1})] - 100\%$$

Where:

CP_t is the Controlling Percentage for the Second Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Third Relevant Year (in case of Deficiency or Excess in the Second Relevant Year);

CP_{t-1} is the Controlling Percentage for the First Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Second Relevant Year (in case of Deficiency or Excess in the Second Relevant Year);

C_{t-1} is the Percentage Change in the aggregate of the NTS Retail Uplift for the services in the Basket during the First Relevant Year (in case of Deficiency or Excess in the First Relevant Year) or for the Second Relevant Year (in case of Deficiency or Excess in the Second Relevant Year), calculated in accordance with (b);

X is as set out in paragraph (c) above; and

RPI_t is as set out in paragraph (c) above.

- (g) Where

- (1) the Dominant Provider makes a material change (other than to a NTS Retail Uplift) to any service which is subject to this Condition 13;

- (2) The Dominant Provider makes a change to the date on which its financial year ends; or
- (3) there is a material change in the basis of the Retail Prices Index,

paragraphs **(a)** to **(f)** shall have effect subject to such reasonable adjustment to take account of the change as Ofcom may direct to be appropriate in the circumstances.

For the purposes of this paragraph, a material change to any service which is subject to this Condition 13 includes the introduction of a new service wholly or substantially in substitution for that existing service.

- (h)** The Dominant Provider shall record, maintain and supply to Ofcom in an electronic format, no later than three months after the end of each Relevant Year, the data necessary for Ofcom to monitor compliance of the Dominant Provider with the price control by performing the calculation of the Percentage Change. The data shall include:
 - i. pursuant to paragraph **(b)**, the calculated Percentage Change relating to the aggregate of the NTS Retail Uplift for all of the services in the Basket;
 - ii. all relevant data the Dominant Provider used in the calculation of the Percentage Change as set out in (i) above, including for each specific service, *i*;
 - iii. all NTS Retail Uplifts published by the Dominant Provider from time to time during the Relevant Year and the Prior Year, including the period they were in force;
 - iv. the Relevant Year Weighted Average NTS Retail Uplifts and the Prior Year Weighted Average NTS Retail Uplifts for all of the services in the Basket and calculations thereof; and
 - v. other data necessary for monitoring compliance with the charge control.

whereby all relevant revenues in respect of a specific service in the Basket are provided to the nearest £1,000.

- (i)** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition 14.
- (j)** Paragraphs **(a)** to **(i)** shall not apply to such extent as Ofcom may direct
- (k)** In this Condition:
 - i. Basket has the meaning as described in paragraph **(a)**;
 - ii. Charge means, the published pence per minute charge rounded to three decimal places (being the amount offered or charged by the Dominant Provider, excluding any discounts), to a communications provider for a unit of any of the services subject to this Condition 12;

- iii. “NGC Effective Date” means [the Effective Date as defined in the Notification under section 48(1) of the Act setting general conditions imposing an unbundled tariff structure for non-geographic calls]⁴⁴²; and
- iv. “NTS Calls” means a call to a number starting with 0500, 080, 082, 084, 0871, 0872, 0873 and 09;
- v. NTS Retail Uplift means, the charge for retailing NTS Calls to the end-user (being the amount offered or charged by the Dominant Provider, as published and excluding any discounts), to a communications provider for a unit of any of the services subject to this Condition 13;
- vi. NTS Retail Uplift Change means a change to any of the NTS Retail Uplifts for the provision of services subject to this Condition 13;
- vii. Controlling Percentage is to be determined in accordance with paragraph (c);
- viii. Dominant Provider means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- ix. External Revenue means revenue from communications providers, other than the Dominant Provider, in relation to the services subject to this Condition 13;
- x. Ofcom means the Office of Communications;
- xi. Percentage Change is to be determined in accordance with paragraph (b);
- xii. Prior Financial Year means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;
- xiii. Prior Year means each of the following three years:
 - (1) in relation to the First Relevant Year, the period beginning 1 October 2012 and ending 30 September 2013 (the “First Prior Year”);
 - (2) in relation to the Second Relevant Year, the period beginning 1 October 2013 and ending 30 September 2014 (the “Second Prior Year”); and
 - (3) in relation to the Third Relevant Year, the period beginning 1 October 2014 and ending 30 September 2015 (the “Third Prior Year”);
- xiv. Prior Year Weighted Average NTS Retail Uplift is to be determined in accordance with the relevant formula in paragraph (b);
- xv. Relevant Year means each of the following three years:
 - (1) The period beginning on 1 October 2013 and ending on 30 September 2014 (the “First Relevant Year”);
 - (2) The period beginning on 1 October 2014 and ending on 30 September 2015 or, where the NGC Effective Date falls before 30 September 2015,

⁴⁴² Provisional wording

the period beginning on 1 October 2014 and ending on the day before the NGC Effective Date (the “Second Relevant Year”); and

- (3) The twelve-month period beginning on 1 October 2015 and ending on 30 September 2016 or, where the NGC Effective Date falls before 30 September 2016, the period beginning on 1 October 2015 and ending on the day before the NGC Effective Date (the “Third Relevant Year”);

- xvi. Relevant Year Weighted Average NTS Retail Uplift is to be determined in accordance with the relevant formula in paragraph **(b)**; and
- xvii. Retail Prices Index or “RPI” means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty’s Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

Annex to the Schedule – Services in the Basket subject to the charge control pursuant to condition 14(a)

1. Calls to a number starting with 0500 or 080
2. Calls to a number starting with 082, 084, 0871, 0872, 0873 and 09

Annex 9

Proposals for direction to provide interconnection circuit KPIs

NOTIFICATION OF PROPOSALS UNDER SECTIONS 49 AND 49A OF THE COMMUNICATIONS ACT 2003 AND SMP CONDITION 8 (TRANSPARENCY OF SERVICE) PROPOSED TO BE IMPOSED ON BT IN RELATION TO INTERCONNECTION CIRCUITS

Background

1. On 5 February 2013, Ofcom published a consultation document entitled Review of the fixed narrowband services markets - Consultation on the proposed markets, market power determinations and remedies (the "February 2013 Consultation"), consulting on proposals identifying markets, making market power determinations and setting SMP services conditions. In the February 2013 Consultation, Ofcom proposed to impose certain SMP conditions on BT in relation to interconnection circuits. In particular, under proposed condition 8, Ofcom proposed that BT be required to publish all such information for the purposes of securing transparency as to the quality of service in relation to the network access provided by BT, in such manner and form as Ofcom may require from time to time.
2. This Notification relates to proposals to give effect to such condition 8 by setting out the information which, if the proposal is adopted, BT would be required to publish.

Proposal to give direction

3. Ofcom is proposing to make the direction set out in the Schedule to this Notification.
4. The effect of, and reasons for giving, the proposed direction are set out in the accompanying consultation document, and in particular section 10.

Proposal to withdraw direction

5. Ofcom is proposing to withdraw the direction set out at Annex 9 of the regulatory statement Review of the fixed narrowband services wholesale markets – Statement on the markets, market power determinations and remedies including further consultation⁴⁴³, with effect on the publication of any notification under sections 49 and 49A of the Act adopting the proposals set out in this Notification.

Ofcom's duties and legal tests

6. Ofcom considers that the proposed direction referred to in paragraph 3 complies with the requirements of section 49(2) of the Act.

⁴⁴³ Available at

http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf

7. In making the proposal referred to in paragraph 3, Ofcom has considered and acted in accordance with its general duties set out in section 3 of the Act and the six community requirements in section 4 of the Act.

Making representations

8. Representations may be made to Ofcom about the proposals set out in this Notification and the accompanying consultation document by no later than 2 April 2013.
9. In accordance with section 49C(1)(a) of the Act, a copy of the Notification, together with the Schedules, has been sent to the Secretary of State.

Interpretation

10. Except as otherwise defined in paragraph 11 of this Notification, words or expressions used shall have the same meaning as they have been ascribed in the Communications Act 2003.
11. In this Notification:
 - (a) “BT” means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;

Signed

David Stewart
Competition Policy Director, Ofcom

A person duly authorised in accordance with paragraph 18 of the Schedule to the Office of Communications Act 2002

5 February 2013

SCHEDULE

Part 1: Definitions and Interpretation

1. In this Schedule and the Annex to this Schedule –

- (a) “Committed Order” means an Order for which a Contract Delivery Date has been confirmed;
- (b) “Completed Order” means an Order which has been provisioned and for which all other related work has been carried out;
- (c) “Contract Delivery Date” means the date agreed between the Dominant Provider and a Third Party for an Order to become a Completed Order;
- (d) “CSI” means customer sited Interconnection links;
- (e) “Data Management Amendments” means the routing amendment which a Third Party requests the Dominant Provider to make in order to modify the way in which calls are routed both at the Digital Local Exchange and at the tandem switches;
- (f) “Dominant Provider” means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;
- (g) “Fault” means a degradation or problem or with Interconnection Circuits which is identified by the Dominant Provider or a Third Party and which is registered on the Dominant Provider’s operational support system;
- (h) “IEC” means interconnection extension circuits;
- (i) “Interconnection Circuits” mean any and all of the following specific services provided by the Dominant Provider:
 - (i) CSI;
 - (ii) ISI;
 - (iii) IEC;
- (j) Interconnection Circuit KPIs mean the KPIs set out in the Annex to this Schedule;
- (k) “ISI” means in-span Interconnection links;
- (l) “KPI” means key performance indicator;
- (m) “Order” means a request for Interconnection Circuits submitted to the Dominant Provider by a Third Party;
- (n) “Reporting Period” means each of the four periods of three calendar months which make up a calendar year, the first of such periods starting on 1 October 2013 and ending on 31 December 2013 and each of the following three-month periods starting on the day after the last day of the previous period;

(o) “Restored Service” means the point at which the Interconnection Circuit in relation to which a Fault was registered becomes available again for use by the Third Party;

(p) “Third Party” means either:

(iv) a person providing a Public Electronic Communications Network; or

(v) a person providing a Public Electronic Communications Service;

(q) “Working Day” means any day other than Saturdays, Sundays, public holidays or bank holidays in the United Kingdom.

2. For the purpose of interpreting this Direction:

(a) Except insofar as the context otherwise requires, words or expressions shall have the meaning assigned to them and otherwise any word or expression shall have the same meaning as it has in the Act, or if it has no meaning there, in Part 1 of Schedule 1 to the Notification;

(b) the Interpretation Act 1978 shall apply as if this Direction were an Act of Parliament; and

(c) headings and titles shall be disregarded.

Part 2: Direction

1. The Dominant Provider shall publish the information as set out in the Annex to this Schedule.

2. The information required by paragraph 1 above shall be published within 14 Working Days of the last Working Day of the Reporting Period in respect of that Reporting Period.

3. Nothing in this Direction shall require the Dominant Provider to publish confidential information relating to its business or that of a Third Party.

Annex – Interconnection Circuit KPIs

Part 1: Indicators

1. The Dominant Provider shall publish the information required in KPIs (i) to (iii) set out in paragraph 4 below in relation to the provision of Interconnection Circuits to all Third Parties (as an aggregate figure);
2. The Dominant Provider shall publish the information required in KPI (iii) set out in paragraph 4 below in relation to the provision of Data Management Amendments to itself.
3. The KPIs referred to in paragraphs 1, 2 and 3 above are as follows:

KPI (i) - Percentage of orders provisioned on time: the percentage of Completed Orders that were completed by the Contract Delivery Date during the Reporting Period;

KPI(ii) - Average time to restore service: the average time (in hours) during the Reporting Period for the Dominant Provider to achieve Restored Service after a Fault has been registered;

KPI(iii) - Data Management Amendments: the percentage of Data Management Amendments for new numbers that become Completed Orders during the Reporting Period whereby they are completed within 30 Working Days of the Order becoming a Committed Order excluding any Data Management Amendments where the standard 30 Working Day lead time has not been requested.

Part 2: Volumes

1. The Dominant Provider shall publish the information required in KPIs (i) to (iii) set out in paragraph 7 below in relation to the provision of Interconnection Circuits to all Third Parties (as an aggregate figure);
2. The KPIs referred to in paragraphs 5 and 6 above are as follows:

KPI(i) - Volume of orders provisioned: the total number of Committed Orders that became Completed Orders during the Reporting Period;

KPI(ii) - Volume of faults reported: the number of Faults where the Dominant Provider subsequently achieves Restored Service during the Reporting Period;

KPI(iii) - Volume of Data Management Amendments: the total number of Data Management Amendments for new number ranges that became Completed Orders during the Reporting Period.

Annex 10

Equality impact assessment

Introduction

- A10.1 Ofcom is required by statute to assess the potential impact of all our functions, policies, projects and practices on race, disability and gender equality.⁴⁴⁴
- A10.2 We fulfil these obligations by carrying out an Equality Impact Assessment (EIA), which examines whether or not the remedies that we have proposed for the wholesale narrowband markets would have an adverse impact on equality.
- A10.3 In this way, the EIA assists us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers, regardless of their background or identity.

Narrowband market review

- A10.4 The aim of this narrowband market review is to assess the state of competition in the retail and wholesale narrowband markets and, if any fixed CP is found to have SMP, to impose regulatory obligations designed to promote competition and to protect consumers.
- A10.5 The main stages in developing the proposed regulatory obligations were:
- A programme of extensive research and data collection to inform our analysis;
 - Definition of the retail narrowband markets;
 - Definition of the wholesale narrowband markets;
 - Assessment of SMP in the relevant markets; and
 - Determination of the appropriate remedies for the CPs found to have SMP.

Equality impact assessment

- A10.6 The intention behind our approach to regulating narrowband markets is to impose a set of regulatory obligations on CPs with SMP that will promote competition by requiring them to provide other CPs with access to their networks on regulated terms, and to protect consumers.
- A10.7 In order to achieve this, we have outlined in this consultation (in addition to a number of general remedies) our proposals to impose charge controls on BT. These controls relate to wholesale fixed call origination rates, wholesale fixed call termination rates (FTRs) and interconnect circuits. In addition, a set of temporary controls has been proposed for the NTS market:

⁴⁴⁴ Ofcom has a general duty under the 2010 Equality Act to advance equality of opportunity in relation to age, gender, disability, ethnicity, religious belief, sexual orientation, gender reassignment and pregnancy and maternity.

- wholesale fixed call origination rates: To be set on the basis of LRIC+ with an additional mark-up to recover common costs no longer recovered from setting FTRs at LRIC;
- FTRs: To be set on the basis of LRIC;
- interconnect circuit charges: To be capped on the basis of RPI-RPI for each charge control year; and
- NTS temporary controls: The Retail Uplift is to be capped on the basis of RPI+0%, while the PRS Bad Debt Surcharge cap is to be maintained on the same share of PRS retail revenues as now, until the new NTS regime is implemented.⁴⁴⁵

A10.8 These proposed changes to wholesale prices will have an indirect effect on consumers at the retail level. As part of this EIA, it is important to determine whether or not the impact of these changes falls disproportionately on particular groups of consumers.

What effect would these proposals have on retail prices?

A10.9 Due to the complexity of competition at the retail level, it is difficult to predict in advance how retail offers will be changed, if at all, in response to the proposed changes to charge controls at the wholesale level. This is because fixed CPs have discretion over the level and structure of their prices and are therefore likely to pursue a variety of retail strategies when confronted with regulatory changes at the wholesale level. In addition, it is also difficult to determine precisely how end consumers will respond to these changes.

A10.10 As a result, we can only make broad inferences about the effect on consumers. We will therefore only consider the implications for consumers of the most likely reactions by CPs.

A10.11 A consequence of the proposals to set FTRs at LRIC based on an NGN model is that FTRs will fall significantly. LRIC-based FTRs only allow for the recovery of costs incremental to the provision of the wholesale call termination service to third parties. Therefore, FTRs would no longer contribute to the recovery of common costs.

A10.12 On the other hand, we also propose that wholesale call origination rates are regulated at LRIC+ with an additional allowance to recover the common costs no longer recovered as a result of setting FTRs at LRIC. This means that the reduction in FTRs will be accompanied by an adjustment to wholesale fixed call origination rates to third party retailers. For total fixed-to-fixed traffic, the impact of these changes to FTRs should net-off to zero.

A10.13 Despite this, net wholesale call revenues for fixed CPs may still decline to the extent that CPs also terminate traffic from mobile calls and international calls. CPs' precise exposure to revenue loss is thus determined by their relative balance of traffic from fixed and non-fixed sources. Our analysis suggests that fixed CPs might suffer a total revenue loss of approximately £61m per year as a result of declining

⁴⁴⁵ Proposals for the new NTS regime were formulated in: Ofcom, *Simplifying Non-geographic Numbers*, April 2012, <http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geographic-no/>

FTR revenues received from mobile CPs and international calls, if there was no rebalancing of other (retail) tariffs via the waterbed effect (see Section 11).

- A10.14 However, because all fixed CPs will suffer a similar reduction in wholesale termination revenues, they would be expected to attempt to recoup some of their net revenue loss through retail prices for fixed subscribers. If there is a full waterbed effect and no reduction in other costs, we estimate this might impact fixed line and call retail bills by approximately £1.85 annually.⁴⁴⁶ This would represent less than a 1% average increase in consumer bills,⁴⁴⁷ which is considerably less than current inflation levels based on either the consumer price index (CPI) or the retail price index (RPI).⁴⁴⁸
- A10.15 Given the nature of competition at the retail level, which increasingly revolves around bundles of calls and access, we would expect at least some of the increase in retail prices to be felt through higher fixed bundle charges rather than a simple increase in the price of calls.
- A10.16 Finally, we do not envisage that the proposals for any of the markets subject to ex-ante regulation, in particular our charge control proposals, will have a significant impact on the structure of retail prices. First, the financial effects of our proposals are likely to be relatively limited in relation to the scale of the retail market (see above and Section 11). Second, we are proposing that FTRs and wholesale fixed call origination rates remain regulated on the basis of per minute rates (as now). Third, our charge control proposals for the NTS retail uplift are based on constant real charges (i.e. RPI+0%) and, for interconnect circuits, on constant nominal charges (i.e. RPI-RPI).
- A10.17 In light of these assumptions, we can make the following statements about the likely impact of our proposals on retail prices:
- mobile-to-fixed call prices might be expected to fall following the decrease in the wholesale cost of providing this call service; and
 - fixed-to-fixed call prices (and/or other fixed retail prices) might be expected to increase due to the waterbed effect, though not substantially.

Breakdown of telephony users potentially affected

- A10.18 At this stage, it should be reiterated that the effect of changes to wholesale charges on consumers will depend on how mobile and fixed CPs react with regard to changing retail prices. Because this is difficult to predict, and because a number of other factors will also affect retail price setting, it is unclear whether the changes in retail prices we might anticipate will necessarily transpire during the period of this review.
- A10.19 Having said this, we can still attempt to disentangle the likely impact of our charge control proposals on consumers into the following categories:

⁴⁴⁶ See Section 11, paragraph 11.29 for how we have calculated this effect.

⁴⁴⁷ [deliberately blank footnote].

⁴⁴⁸ For December 2012, CPI annual inflation stood at 2.7% while RPI annual inflation (which is used within the charge control formula) stood at 3.1%.

http://www.ons.gov.uk/ons/dcp171780_295345.pdf

Mobile (only) users

A10.20 People who exclusively use mobile services are likely to be better off under these proposals. This is because it will be cheaper for CPs to terminate mobile-to-fixed calls on the relevant fixed network. Competition at the retail level should ensure that these savings are passed through to mobile consumers.

Fixed (only) users

A10.21 In contrast, fixed subscribers who do not use mobile services may face price increases. Wholesale call termination is an example of a two-sided market in which there are two distinct sets of users – those who purchase call termination via the CP that serves them, and the terminating CP's own retail customers. In the presence of a waterbed effect, a reduction in FTRs would tend to cause prices on the 'other side' of the market to rise. Other things equal, this amounts to a retail price increase for those who exclusively purchase fixed-line telephony, although our analysis in section 11 and in this annex indicates that this is likely to be very modest.

Mobile and fixed users

A10.22 As Table A10.1 below shows, the vast majority of people have access to both a fixed line and mobile services. This group of people may or may not benefit from the charge control proposals, depending on their relative usage of each service, the changes in the retail prices of each service and the specific way in which they purchase fixed voice services. As we do not have the detailed data needed to carry out such an exercise, we are unable to determine how many consumers in this group may benefit (and by how much) and how many could lose out. Any exercise of this nature would also be unlikely to generate robust results.

Table A10.1: Household penetration of fixed and mobile telephony (total population)

| Fixed-only | Mobile-only | Fixed and Mobile |
|------------|-------------|------------------|
| 5% | 15% | 79% |

Source: Figure 1.41, Ofcom CMR 2012.

Vulnerable consumers

A10.23 We consider that the 5% of consumers who rely exclusively on fixed telephony are most vulnerable to our proposed changes to charge controls at the wholesale level. This is because they may face an increase in retail prices for fixed call services but would not benefit from any reduction in retail prices for mobile call services which may result from the imposition of LRIC for FTRs.

A10.24 However, we stated (above) that the average increase in fixed line and call bills for consumers would be expected to be less than 1%, even when assuming a full

waterbed effect.⁴⁴⁹ This remains significantly lower than current RPI and CPI inflation.

- A10.25 In addition, fixed line rental and calls are often sold together with broadband. For fixed-only consumers who purchase this 'dual-play' service, the percentage increase in their overall bundle price will be even lower.
- A10.26 Among consumers on low incomes, who may spend significantly less than average on fixed telephony services, the possible impact of our proposals may be felt more strongly. Some low-income consumers have the option of purchasing BT Basic, which costs £4.95 a month (and includes a quarterly £4.50 call allowance).⁴⁵⁰ It is therefore possible that very low-usage consumers only spend £4.95 a month on telecoms services. Even when we continue to assume a 100% waterbed effect, though, the potential bill increase for this group of people remains less than 4%.
- A10.27 Because we expect any potential increase in retail prices for fixed-only consumers to be limited, and in practice impossible to distinguish from other market developments, it is unlikely that our proposed wholesale level remedies will have a material negative impact on any specific consumer group (regardless of their preferences for fixed or mobile telephony).
- A10.28 We do not therefore seek to assess whether or not the composition of each category in Table A10.1 is disproportionately skewed with respect to indicators such as gender, age, disability and ethnicity.
- A10.29 Given the analysis in this annex, we are confident that the NCC proposals outlined in this review will not be to the detriment of our aim of advancing equality of opportunity between different groups in society.

⁴⁴⁹ There has been greater research into the waterbed effect in mobile markets, as covered in our 2011 MCT Statement, in which we stated that we believed the waterbed effect was likely to be strong but incomplete.

⁴⁵⁰ Correct as of January 5th 2013. BT Basic is available for people on low incomes who are claiming income support, job seeker's allowance, employment support allowance or pension credit.

Annex 11

Network and technology choice for the NCC

Introduction

A11.1 This annex sets out our approach to the technology choice for cost modelling in this NCC, for the purpose of establishing efficient charges. This NCC will apply during a period of technological change and in the presence of competing networks using different technologies (and with different topologies).

A11.2 The structure of this annex is as follows:

- 11.2.1 a background section outlining our previous network technology choice and relevant regulatory documents published since – most notably the 2009 EC Recommendation and the 2011 F&R Guidance;
- 11.2.2 a summary of the questions in relation to network choice raised in our May 2012 CFI and in the September 2012 Consultation;
- 11.2.3 a summary of responses received to those consultations; and
- 11.2.4 an explanation of our framework for technology choice and how we propose to implement regulation of wholesale call termination and wholesale call origination, specifically:
 - our approach to setting efficient charges and what this means for technology choice;
 - the number of points of interconnection (Pols) modelled and the practical regulation of physical interconnection between competing networks; and
 - how the costs of conversion between time division multiplexing (TDM) networks and next generation networks (NGNs) should be recovered.

Publications prior to this market review

Technology choice in the 2009 NCC

A11.3 In 2009 we modelled a hypothetical ongoing network based on TDM components and TDM topology, although the cost model itself was not solely based on BT's top-down costs as reported by BT. Instead the costs of the network were adjusted to reflect:

- all traffic being carried on the TDM network throughout the control period, i.e. ignoring the impact of traffic being carried on BT's NGN (21CN), if any⁴⁵¹; and

⁴⁵¹ BT ultimately deferred plans to migrate voice from its TDM network to its 21CN. However, BT has continued 21C investments for other services.

- capital and operating costs forecast at the levels that would be expected if the network was an ongoing TDM network (i.e. not based on the heavily depreciated asset values reported in the BT Regulatory Financial Statements).⁴⁵²

2009 EC Recommendation

Summary of the EC's position on technology choice

A11.4 The 2009 EC Recommendation states that:

*The cost model should be based on efficient technologies available in the timeframe considered by the model. Therefore the core part of both fixed and mobile networks could in principle be Next-Generation-Network (NGN)-based.*⁴⁵³

A11.5 The Explanatory Note to the 2009 EC Recommendation provides further detail on technology choice as follows:

*From a forward-looking perspective, a new operator would choose a packet-switched network with all services delivered over an IP core network. Given that regulating termination rates at the level of efficient costs aims at reflecting a situation which would prevail under competitive circumstances, this implies the selection of the most efficient technologies subject to the availability of such technologies in the timeframe considered by the model. In a competitive market, a new entrant would opt for the most efficient available technology, i.e. one based on NGN, for the purposes of building a core network. Hence, a BU model built today could assume that the core network is NGN-based, to the extent that the costs of such a network can be reliably identified.*⁴⁵⁴

Approach taken by other NRAs

A11.6 Alongside our May 2012 CFI we published a report by Analysys Mason that set out the approaches taken by other NRAs in relation to the choice of cost model.⁴⁵⁵

A11.7 The report by Analysys Mason indicates that, since the publication of the 2009 EC Recommendation, at least eight NRAs have built NGN models.⁴⁵⁶ However, as far as we are aware, none of the incumbent operators have moved their voice services wholly onto an NGN, even though some have made NGN investments.⁴⁵⁷

⁴⁵² We did this to better reflect forward looking efficient prices (which would not be based on heavily depreciated assets values). We also removed from the cost base any 21CN-specific investments.

⁴⁵³ Paragraph 4. 2009 EC Recommendation.

⁴⁵⁴ Section 5.1.1 EC. *Commission staff working document accompanying the 2009 EC Recommendation on.*

⁴⁵⁵ Analysys Mason *Report for Ofcom, Study of approaches to fixed call origination and termination charge controls*, 15 May 2012. http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/annexes/analysys_mason.pdf

⁴⁵⁶ See the summary table at Figure 65 of the 15 May 2012 Analysys Mason report. Even though some NRAs were setting cost-based FTRs using a blend of TDM and NGN cost models, all had implemented, or were proposing to integrate, NGN model results in their charge controls.

⁴⁵⁷ For example, France Telecom operates both a TDM network and an NGN, although some alternative operators in France have rolled out NGNs. ARCEP, the French NRA, considered that TDM was sub-optimal and so regulated on the basis of NGN model outputs only. In Austria, Telekom Austria is in the process of rolling out its NGN, however, RTR, the NRA, regulates on the basis of an NGN model. This was also the situation in Belgium. For the other countries surveyed, it was not clear

- A11.8 Since then, the Irish regulator, Comreg, has issued its final decision and has used an NGN model (though Comreg has included a transition from TDM to NGN).⁴⁵⁸ The regulator in the Czech Republic, CTU, has recently notified the Commission of its proposed regulation of fixed termination rates.⁴⁵⁹

The 2011 F&R Guidance

- A11.9 In the 2011 F&R Guidance we outlined the basis on which we would consider the FTRs set by CPs other than BT to be fair and reasonable. Our guidance outlined that:
- 11.9.1 symmetric rates based on the Benchmark FTR (i.e. the cap applied to BT) would be presumed fair and reasonable;
 - 11.9.2 alternative technologies, topologies or scale were unlikely to provide a justification for higher FTRs (than the Benchmark FTR);⁴⁶⁰ and
 - 11.9.3 the costs of conversion should be borne by IP operators (at least while TDM was the basis of the Benchmark FTR).⁴⁶¹
- A11.10 Other conclusions from that guidance which bear on matters of technology, topology and conversion costs were that:
- 11.10.1 both TDM and NGN could be efficient ways for different operators to provide fixed-line voice services and our guidance on fair and reasonable charging for termination would provide reasonably efficient signals for investment in NGNs until the next narrowband review;⁴⁶²
 - 11.10.2 an NGN seeking to convert its outbound traffic from IP to TDM before sending it for termination on a TDM network has commercial choices,

whether the incumbent was in the process of migrating to NGN. Nevertheless, the NRAs still chose to regulate on the basis of an NGN or an NGN-TDM blended model.

⁴⁵⁸ Comreg, *Mobile and Fixed Voice Call Termination Rates in Ireland*, 21 November 2012

<http://www.comreg.ie/fileupload/publications/ComReg12125.pdf>

⁴⁵⁹ The Commission raised concerns over CTU's notification, including whether CTU has taken full account of NGNs in its consideration of forward-looking efficient technologies,

http://europa.eu/rapid/press-release_IP-12-1350_en.htm, In response to the opening of a Phase 2 investigation by the Commission, BEREC published its opinion on 21 January 2013. BEREC's view in relation to CTU's model is that it is NGN based.

http://berec.europa.eu/eng/news_consultations/whats_new/1358-berec-adopted-a-new-opinion-on-a-phase-ii-investigation-in-relation-to-the-market-for-call-termination-at-a-fixed-location-in-the-czech-republic

⁴⁶⁰ Paragraph 3.59-3.60 (regarding topology), paragraph 3.68-3.70 (regarding scale). Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

⁴⁶¹ Paragraph 4.84. Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011 <http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

⁴⁶² Paragraph 4.135, 2nd bullet. Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011 <http://stakeholders.ofcom.org.uk/binaries/consultations/778516/fair-reasonable-statement.pdf>

including self-provision and the purchase of conversion services from other CPs (transit providers);⁴⁶³

11.10.3 an NGN should seek to recover the costs of conversion from its own termination charge (set symmetrical with the Benchmark FTR);⁴⁶⁴

11.10.4 originating networks should be able to make reasonable requests to interconnect at termination points using the originators' preferred technology and pay no more than the Benchmark FTR (unless the three-stage test was demonstrated⁴⁶⁵). This would include where NGNs requested an IP termination service from a TDM network, although IP standards were noted as less well developed;⁴⁶⁶

11.10.5 BT's migration from TDM to IP should not ordinarily cause FTRs to rise;⁴⁶⁷ and

11.10.6 we did not consider BT's IP Exchange product to be a termination service as it was available at a few locations and termination for geographic calls to BT's subscribers was available deeper in the BT network (at local switches).⁴⁶⁸

Documents published as part of this market review

Call for Inputs

A11.11 In the May 2012 CFI we asked for stakeholders' views on whether, based on the 2009 EC Recommendation that the core network cost model "*could in principle be Next Generation Network (NGN)-based*", we should model an NGN.⁴⁶⁹

A11.12 A number of respondents supported building an NGN cost model:

⁴⁶³ Paragraph 4.135, 2nd sub-bullet. Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

⁴⁶⁴ Paragraph 4.135, 4th sub-bullet. Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

⁴⁶⁵ The three stage test is set out in Section 8 of this Consultation, see paragraph [8.89]

⁴⁶⁶ Paragraph 4.135, 6th bullet. Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

⁴⁶⁷ Paragraph 4.135, 7th bullet. Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

⁴⁶⁸ Paragraph 4.135, 8th bullet. Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

⁴⁶⁹ Page.38, Question 25. Ofcom *Fixed narrowband market review and network charge control (call for inputs)* 17 May 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/summary/condoc.pdf>

- TalkTalk argued that: “[f]or a long time, it has been beyond dispute that NGNs are based on proven technology that is much more efficient than TDM.”⁴⁷⁰
- [X] argued that in principle it was “...difficult to bring any form of cogent argument against the full adoption of the [2009] EC Recommendation.”⁴⁷¹
- ITSPA explained that “All ITSPA members operate an NGN core network of some description and find themselves continually frustrated by a regulatory regime that promotes the deferral of investment in new core network technologies by incumbent and large TDM operators...”⁴⁷² ITSPA went on to argue that this review was “...the only opportunity this side of 2016 for Ofcom to lay out a specific roadmap for the expedient migration from legacy, decades-old technology, to new, more efficient and ultimately beneficial technologies.”

A11.13 Other respondents were undecided:

- H3G noted that although voice calls have traditionally been delivered using circuit switched technology, it considered IP-based NGNs to be “...significantly less costly to build and operate than circuit-switched networks...”⁴⁷³ However, it went on to note that “...Three understands that the majority of calls to fixed geographic numbers terminate on TDM networks. Ofcom has traditionally excluded technologies at low levels of deployment for cost modelling purposes when regulating call termination in both fixed and mobile networks.”
- A similar point was raised by EE, which also argued that while it did not have a specific view on the appropriateness of using an NGN model for some or all of the NCC, the use or otherwise of such an approach should ensure a competitively neutral outcome.⁴⁷⁴
- CWW considered that an NGN-core network would be an appropriate approach, but was uncertain as to whether it would be the most appropriate approach. Therefore, it considered that we should model both TDM and NGN (with the latter including interworking costs⁴⁷⁵) and use whichever gave the lowest costs.
- On the question of model calibration, CWW was sympathetic to the difficulty of the task, given that BT does not yet operate a national NGN, but it argued that this was not a reason not to adopt an NGN-based model. As CWW explained “...otherwise ultimately NGN-based costs will never be used until such a time that BT chooses to deploy a national NGN.”⁴⁷⁶ Indeed [X] went further and argued that the absence of a national NGN operated by BT meant that the model could be specified without interference from the commercial and strategic choices made by BT.⁴⁷⁷

⁴⁷⁰ TalkTalk response to May 2012 CFI, p.11

⁴⁷¹ [X] response to May 2012 CFI, Question 26

⁴⁷² ITSPA response to May 2012 CFI, p.1

⁴⁷³ H3G response to May 2012 CFI, p.5, Question 25

⁴⁷⁴ EE response to May 2012 CFI, p.5

⁴⁷⁵ We take “interworking costs” to mean the costs of converting TDM traffic to IP and vice versa.

⁴⁷⁶ CWW response to May 2012 CFI, p.22, Question 26

⁴⁷⁷ [X] response to May 2012 CFI, Question 26

- KCOM accepted that it was valid for Ofcom to consider NGNs in the context of cost modelling for regulated services, but argued that the physical way in which CPs interconnected was a distinct policy issue meriting separate consideration.⁴⁷⁸
- Virgin Media neither came out in favour of or against NGNs for cost modelling, but instead noted the practical difficulties of the task, in particular the lack of a national NGN on which to base the model. Virgin Media went on to argue that we should not simply model an NGN on the basis of the 2009 EC Recommendation.⁴⁷⁹

A11.14 BT did not object to an NGN based model, but identified a number of considerations that needed to be addressed:

- The apportionment of costs where assets are shared between services – PSTN is the primary voice service and has strict quality of service requirements which have to be met. Some 150kb is required to emulate PSTN over IP as opposed to 64kb in legacy networks. Peak usage has to be accommodated to the same high standard and resilience is a prerequisite, all of which requires dedicated resources.
- The transition from legacy to NGN networks requires a lengthy period of parallel running and this needs to be taken account of in the modelling. Also, migration costs are potentially a major barrier to change and any charge control needs to take them into account.
- A critical issue to be debated is where in the network hypothetical NGN based termination rates would apply from.
- The assumptions made about the number of players in the hypothetical market will need to be decided. BT assumed it would be 4 players with equal shares as in the MTR model.
- Assumptions will need to be made about the network topology and how a hypothetical model is related to the existing node structure.⁴⁸⁰

September 2012 Consultation

Network and technology choice

A11.15 In the September 2012 Consultation we identified two approaches to setting cost-based charges during a period of significant technology change:⁴⁸¹

11.15.1 the MEA approach; and

11.15.2 the anchor pricing approach.

⁴⁷⁸ KCOM response to May 2012 CFI, p.3

⁴⁷⁹ Virgin Media response to May 2012 CFI, Question 26

⁴⁸⁰ BT response to May 2012 CFI, p.14, Question 25

<http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/responses/BT.pdf>

⁴⁸¹ Paragraph 3.18 et seq. Ofcom, *Narrowband Market Review (Consultation on possible approaches to cost modelling)*, 28 September 2012

<http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

A11.16 We then set out the questions we saw as most important in deciding between the two approaches above:

- i) Can we identify the relevant MEA for delivering the service in question?
- ii) Can we calculate robust cost estimates for the services based on the MEA?
- iii) Would the use of the MEA approach allow an efficient operator to recover its costs?
- iv) Does the MEA approach give appropriate migration signals to consumers?

A11.17 In relation to the first question we said that major new networks deployed in the United Kingdom in the last few years were NGNs and that whilst these did not have the geographic coverage and the scope of services of TDM networks, these networks connect to substantial numbers of consumers across a significant proportion of the United Kingdom.

A11.18 We also said that equipment suppliers continue to maintain *existing* TDM equipment, but, as far as we were aware, they were not providing TDM equipment for new network build.

A11.19 We said that even if these points suggested that NGNs are a proven technology, we also need to consider whether they can provide voice services more cheaply than TDM networks. We said that whilst a quantitative assessment would be complex, and possibly indeterminate, the use of NGNs to provide voice in competition to TDM networks provided evidence that the CPs doing this believed that NGN technology was an efficient way to offer voice services.

A11.20 In relation to the second question, we considered how we might calculate robust cost estimates for voice calls delivered via TDM technology (in which a significant number of assets, i.e. switches, deliver just voice calls) and for NGNs (where the majority of assets provide two or more services (e.g. voice calls and broadband)). We noted certain important factors that added complexity to such an assessment. For example, we explained that we would need a methodology for abating asset values between the multiple services offered over the NGN.⁴⁸² We also noted that the sharing of assets between multiple services (such as duct, cable, accommodation and transmission equipment) is a feature of both NGNs and TDM networks which may make the assessment more complex.⁴⁸³

A11.21 Whilst we have previously adopted a hypothetical ongoing network cost model because of concerns over whether NGNs were sufficiently mature, we said that NGNs were now a sufficiently mature technology to assess their costs directly from CPs investing in and operating such networks. Given that assessing the costs of TDM networks could be problematic due to the age of BT's current voice network and that manufacturers were no longer producing TDM equipment, we said that we

⁴⁸² If the replacement technology offers higher functionality, such as multiple service delivery (e.g. voice and data), it needs to be "abated", i.e. the value of the higher functionality netted off from the replacement cost. See September 2012 Consultation, paragraph 3.39-3.41. (Of course this abatement assumes that the replacement asset provides all existing services as well as additional services/functionality. As we explain later on in this section, there is a question over the extent to which all existing voice services, including interconnect, can be provided over an IP network).

⁴⁸³ Paragraph 3.42, Ofcom, *Narrowband Market Review (Consultation on possible approaches to cost modelling)*, 28 September 2012 <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

considered that NGN cost data was likely to provide at least as robust an estimate of the ongoing costs of a fixed voice network as the best available TDM cost data.

- A11.22 In relation to the third question, we explained that if a regulated firm has not had a fair opportunity to recover its sunk investments, then this could deter future investment. However, we noted that this approach should not prevent losses that are caused by an operator's inefficiency, nor should it lead to higher prices than would be charged under an anchor pricing approach.
- A11.23 In relation to the fourth question, we identified that in the present case, we would place more weight on ensuring efficient investment and migration decisions by CPs, rather than by consumers, since the use of NGN or TDM networks was not a choice driven by end consumers.
- A11.24 Based on the above we considered that NGNs could be reasonably considered as the MEA for voice services and sought stakeholder's views on this.⁴⁸⁴

Points of interconnection (Pol)

- A11.25 In the September 2012 Consultation, we explained how, in order to access wholesale call origination and wholesale call termination on BT's TDM network, CPs must interconnect with BT's DLEs – of which BT currently has over 650.
- A11.26 NGNs have no direct equivalent of the DLE and the number of Pols would be likely to be much lower. We explained that discussion at NGNuk concluded on 27+2 Pols in the context of BT's proposed 21CN and this was particularly pertinent to our considerations.
- A11.27 We noted that in response to our May 2012 CFI, BT argued that the optimal number of Pols was open to conjecture as data volumes were still developing and some respondents argued for fewer Pols than the 27+2 identified via NGNuk. We also noted that other NRAs that had developed NGN models had typically included a relatively small number of Pols. In addition, BT's 21CN has been rolled out for broadband services – offering Wholesale Broadband Connect (WBC) – and interconnection thereto is offered at 20 Pols. Overall, we included 20 Pols in our model.
- A11.28 We then considered how the rates that resulted from our hypothetical model should be applied to the regulated services of wholesale call termination and wholesale call origination.
- A11.29 We said that where an NGN provides wholesale call origination or wholesale call termination via IP interconnection, the charge set by our NGN model would apply. For a nation-wide network, i.e. BT, we proposed that the charge controlled rates would be applicable at 20 – 30 Pols for traffic handed over via an IP interconnect. For existing NGN operators, which are sub-national, we proposed that the regulated FTR would be applicable from the existing number of NGN nodes on their network.
- A11.30 Where a CP operates a TDM network and continues to provide TDM interconnection, we proposed that the charge controlled rates would apply for traffic

⁴⁸⁴ Paragraph 3.59 and page 20, Question 1, Ofcom, *Narrowband Market Review (Consultation on possible approaches to cost modelling)*, 28 September 2012
<http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

handed over at the Pol nearest to the called customer. In BT's current network, the relevant Pol would be at the DLE. Therefore, when a call was handed over at the DLE, the charge derived from our NGN model would apply.

A11.31 We asked for stakeholders' views on this approach.

Conversion between TDM and IP

A11.32 Currently, the operator of an NGN bears these costs for conversion as explained in the 2011 F&R Guidance (see above).

A11.33 In the September 2012 Consultation, we recognised that standards for IP interconnection were still evolving and that TDM interconnection is still required. We noted that, today, to a large degree, interconnection is realised using TDM interconnection.⁴⁸⁵

A11.34 Nevertheless, we noted that NGNs could reasonably be considered the MEA for voice services (see above). On this basis, we considered that the CP that has deployed the MEA should not face higher charges (or incur costs) greater than those for interconnection with another CP also using the MEA. We said that it followed from this that TDM operators should bear the costs of conversion.

A11.35 We also noted that the provision of TDM to IP conversion may be contestable, although in practice it may be that NGNs are likely to have lower costs in providing conversion.

A11.36 We did not reach a firm conclusion on how we should treat conversion, saying we would consider it further in this Consultation.

A11.37 We asked for stakeholders' views on whether we should base interconnection in the model on IP,⁴⁸⁶ whether it was appropriate to include 20 Pols in the model⁴⁸⁷ and how the costs of conversion between TDM and IP should be treated.⁴⁸⁸

Respondents' views on choice of network technology for our cost model

Choice of network technology

A11.38 All respondents agreed in principle with the use of NGN as the technology choice in the model but provided a range of views as to why this was the case.

A11.39 Sky,⁴⁸⁹ [X],⁴⁹⁰ H3G,⁴⁹¹ ITSPA,⁴⁹² [X],⁴⁹³ and TalkTalk⁴⁹⁴ said that costs should be based on those of the MEA and that was an NGN. EE agreed on the use of NGN as

⁴⁸⁵ Paragraph 3.79, Ofcom, *Narrowband Market Review (Consultation on possible approaches to cost modelling)*, 28 September 2012 <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

⁴⁸⁶ Question 2, Ofcom, *Narrowband Market Review (Consultation on possible approaches to cost modelling)*, 28 September 2012 <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

⁴⁸⁷ Question 3, Ofcom, *Narrowband Market Review (Consultation on possible approaches to cost modelling)*, 28 September 2012 <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

⁴⁸⁸ Question 4, Ofcom, *Narrowband Market Review (Consultation on possible approaches to cost modelling)*, 28 September 2012 <http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf>

the MEA on the assumption this did not result in an increase in the level of costs.⁴⁹⁵ Verizon agreed in principle though it said it was unclear how the charges from the model would apply in the real world.⁴⁹⁶

- A11.40 BT noted that Ofcom placed some emphasis on its duty to take utmost account of the 2009 EC Recommendation. BT pointed out that this did not suggest that the cost model should be NGN-based but rather that it should be based on “efficient technological choice available in the timeframe of the model”. BT argued that in the United Kingdom, an efficient decision for an operator with a TDM network would be to sustain that network, rather than to replace it. It accepted that practical considerations may mean a new entrant built an NGN. On this basis BT accepted that an NGN model, if suitably calibrated, could be used to suggest charges for calls. BT stressed that this did not mean the time was right to base regulation on a presumption that NGN was the efficient technology. It also argued that in considering this question Ofcom should not “infringe the fundamental principle that BT should have a reasonable opportunity to recover its efficiently incurred costs.”⁴⁹⁷
- A11.41 BT noted that whilst a number of CPs have built NGNs in the United Kingdom, these CPs do not provide the equivalent of a fully national network capable of competing directly with the PSTN, because these CPs can choose not to serve customers that are expensive to reach or that have requirements not met by their NGN (or, alternatively, can serve these customers using BT’s TDM network by purchasing regulated wholesale services). As such there were no NGNs with either full national coverage or which provided the full set of services available today. BT also stated that it was unaware of any such deployments anywhere in the world.
- A11.42 BT also argued that the protracted migration from TDM networks to NGNs may mean that future efficient network designs may be substantially different from today’s NGNs. It argued that the deployment of fibre and growth in services based on VoIP could mean there was no single efficient approach to providing voice services and that regulation should allow for these models to develop.⁴⁹⁸
- A11.43 CWW supported (with some reservations) the use of an NGN as the basis of the model. CWW’s reservations over the use of NGNs as the MEA were that it would like to see:
- analysis demonstrating NGN as the lowest cost technology choice, rather than this being merely assumed, though it recognised the practical difficulties in doing this.
 - confirmation that Ofcom’s proposed approach was to compare the LRIC+ of our modelled NGN with the LRIC+ derived from the TDM based model used in the previous NCC, as opposed to comparing the LRIC of the NGN with the LRIC+ of the TDM model.

⁴⁸⁹ Sky response to September 2012 Consultation, para 10, page 3.

⁴⁹⁰ [X].

⁴⁹¹ H3G response to September 2012 Consultation, page 3.

⁴⁹² ITSPA response to September 2012 Consultation, page 1.

⁴⁹³ [X].

⁴⁹⁴ TalkTalk response to September 2012 Consultation, page 1.

⁴⁹⁵ EE response to September 2012 Consultation, page 2 – 3.

⁴⁹⁶ Verizon response to September 2012 Consultation, page 2.

⁴⁹⁷ BT response to September 2012 Consultation, para 1.1, page 5

⁴⁹⁸ BT response to September 2012 Consultation, para 1.1 to 1.5, page 5.

- clarification as to why Ofcom had proposed to check the results of the NGN model to ensure BT could recover the costs of its TDM network.⁴⁹⁹

A11.44 CWW did not consider that the use of an NGN as the basis of the model should be necessarily carried over as the basis for regulation in relation to interconnection. In making this argument CWW made similar points to those made by BT in relation to the difference between new entrant network deployments as compared to the approach that would be taken by CPs that already had a TDM network.

A11.45 Virgin Media agreed that NGN could be considered the MEA in the context of a notional CP building a network from scratch. Virgin Media said that the model needed to be clear where shared assets were used, as opposed to where existing, legacy TDM assets were used. It said a possible approach may be to use a hybrid model, including both TDM and NGN assets, as has been done by some other NRAs.⁵⁰⁰

A11.46 Virgin Media also had concerns about using a bottom up approach to model an NGN, rather than using BT's actual TDM network because:

- the lack of a real-world equivalent of the modelled network meant there was no way to benchmark the outputs of the model;
- any errors introduced through the use of the hypothetical NGN would be compounded by any errors that would occur irrespective of the technology choice, such as forecasting inaccuracies (which it noted had led to costs dropping to too low a level in the 2005 charge control modelling exercise). It said this would be a significant issue where LRIC was being modelled as this could set charges below the level of efficiently incurred incremental costs. Virgin Media said this would be disastrous, and that it would be "entirely incompatible with the relevant statutory tests in section 88 of the Act"; and
- cross-checking against existing, but sub-national NGNs would not be appropriate, and neither would cross-checking against other NRA models. As a result it said that a cross-check against the top down TDM model used in previous charge controls should be used as more than a ceiling, because a significant variation between the LRIC+ of the bottom-up NGN model to the FAC CCA costs obtained from the 2009 model would indicate a concern in the approach taken and consideration should be given to reducing the gap.⁵⁰¹

A11.47 Vodafone broadly supported Ofcom's proposal to use an NGN design, though it indicated that the lack of a way to carry out a full, top-down calibration meant that Ofcom should use as many cross-checks as possible.⁵⁰²

Interconnection

A11.48 In general, respondents agreed that the model should include interconnection based on IP but there was a range of views on:

- the number of Pols in the model;

⁴⁹⁹ CWW response to September 2012 Consultation, page 7 - 8.

⁵⁰⁰ Virgin Media response to September 2012 Consultation, page 7.

⁵⁰¹ Virgin Media response to September 2012 Consultation, page 4.

⁵⁰² Vodafone response to September 2012 Consultation, page 4 - 5.

- how physical interconnection between networks should be regulated in reality, as distinct from the hypothetical modelling approach; and
- how the costs of conversion between TDM and IP should be treated.

Number of Pols in the model

- A11.49 H3G believed that Ofcom should take a similar approach in the United Kingdom to that taken by other NRAs, i.e. that fewer Pol should be assumed than in an equivalent TDM network.⁵⁰³
- A11.50 Sky considered that the optimum number of Pols may be lower than the 20 proposed by Ofcom but accepted that this corresponds to the established locations for interconnection to BT's wholesale bitstream products.⁵⁰⁴ TalkTalk⁵⁰⁵ and Verizon⁵⁰⁶ said that an assumption of 20 Pols was reasonable. Virgin Media said that whilst it had reservations about the overall approach taken, a smaller number of Pols, such as 20, would be more appropriate than having many more Pols.⁵⁰⁷
- A11.51 ITSPA⁵⁰⁸ and [X]⁵⁰⁹ argued that only six Pols were necessary. [X]⁵¹⁰ said that whilst a case could be made for as few as three to five, it considered that the industry agreed "27+2" should be used.
- A11.52 CWW said that Ofcom should build into its modelling the Pols as agreed by NGNuk, rather than 20. CWW set out that the reasons for the industry agreement of "27+2" Pols were related to considerations of where CPs had built their networks (that is, some of the 20 core nodes chosen by BT did not have extensive CP interconnection whereas other nearby nodes did), to reduce geographic tromboning and to provide resilience (for example in Northern Ireland). CWW argued that it would be more appropriate for Ofcom to model "27+2"⁵¹¹ Pols, noting that traffic would not be evenly spread across all of these.⁵¹²
- A11.53 Vodafone said that Ofcom should exercise care in its modelling assumptions. It highlighted the choice of 20 Pols as against the NGNuk agreement on "27+2" and said that Ofcom should set out a sensitivity analysis of any variance between the modelled network and this "real-world" agreement.⁵¹³
- A11.54 BT said that it accepted an assumption on the number of Pols was required in the model but it said it was not clear what the most efficient interconnection arrangements would be. For example, it said that in an NGN environment, signalling

⁵⁰³ H3G response to September 2012 Consultation, page 4.

⁵⁰⁴ Sky response to September 2012 Consultation, para 12 page 3.

⁵⁰⁵ TalkTalk response to September 2012 Consultation, page 3.

⁵⁰⁶ Verizon response to September 2012 Consultation, page 3.

⁵⁰⁷ Virgin Media response to September 2012 Consultation, page 8.

⁵⁰⁸ ITSPA response to September 2012 Consultation, page 2.

⁵⁰⁹ [X].

⁵¹⁰ [X].

⁵¹¹ Whilst NGNuk agreed on "27+2" Pols, CWW said that this could be reduced to "27+1", because since the NGNuk discussions Thus had become part of CWW and so one of the Pols required only by Thus was no longer necessary. See CWW response to September 2012 Consultation, page 10.

⁵¹² CWW response to September 2012 Consultation, page 8 – 11.

⁵¹³ Vodafone response to September 2012 Consultation, page 5.

and media could be split and delivered at separate points. This meant that 20 Pols was only one possible efficient approach.⁵¹⁴

Application of the modelled network technology to Interconnection

- A11.55 Not all CPs expressed a view on the regulation of interconnection directly, but rather discussed it in relation to conversion costs, which we cover below.
- A11.56 Sky said that because we proposed interconnection at 20 Pols in the modelled network, we should change our guidance so that interconnection via IP is available at 20 Pols and the wholesale call termination rate should apply at these points.⁵¹⁵
- A11.57 BT argued that TDM networks and NGNs would exist in parallel for some time. It argued that regulated wholesale call origination and wholesale call termination services should be made available at the Pol closest to the customer and, in a TDM network such as BT's, this would be the DLE. It accepted an assumption on the number of Pols was required in the model, but this should not be taken as the basis to mandate interconnection, to decide where Pols should be built or the functionality that they should provide. BT said that the market should be left to decide the most efficient way of interconnecting between networks. BT said that mandating it to provide IP interconnection at 20 Pols would provide a "perverse incentive" for CPs with TDM networks to convert traffic to IP for handover to BT, which would then convert it back to TDM. It said this would be inefficient and would impact call quality.⁵¹⁶
- A11.58 BT also said that if it was required to provide interconnection via IP at 20 Pols it would expect TDM interconnection would be de-regulated, as proposed in Italy, because it could no longer be considered to be an efficient interconnection model.⁵¹⁷
- A11.59 CWW argued in some detail that there are a number of IP interconnection standards but none of these were suitable to be considered as the basis for the interconnection of fixed line networks. It also said that further standards currently under development by NICC⁵¹⁸ (specifically NICC ND1035, referred to as SIP-NNI) would be likely to be the most suitable standard to support IP based interconnection in the medium term. This would provide support for the majority of the current services provided though it would not, in the short to medium term, support all ISDN services or some of the requirements for calls to emergency services (though this particular aspect is managed predominantly by BT and CWW so it could be considered separately). CWW argued that given the current position it cannot be argued that IP interconnection is the MEA for interconnection between networks today. It said that the industry is currently experiencing a transitional phase and proposed that a tipping point will be reached at some point, after which it could be assumed that IP interconnection was the appropriate approach.⁵¹⁹

⁵¹⁴ BT response to September 2012 Consultation, para 3.1 page 6.

⁵¹⁵ Sky response to September 2012 Consultation, para 13 page 3 - 4.

⁵¹⁶ BT response to September 2012 Consultation, para 1.1 – 1.2, 2.1 page 5.

⁵¹⁷ BT response to September 2012 Consultation, para 3.2, page 6

⁵¹⁸ NICC is the technical forum that develops interoperability standards for public communications networks in the United Kingdom. <http://www.niccstandards.org.uk/>

⁵¹⁹ CWW response to September 2012 Consultation, pages 12 – 15.

Costs of conversion

A11.60 H3G⁵²⁰, ITSPA⁵²¹, [X]⁵²², TalkTalk, [X] and Sky said that the costs of conversion should be excluded from the regulated rates and that TDM networks should bear these costs.

11.60.1 TalkTalk said that the costs of conversion should be excluded from the charges for wholesale call origination and wholesale call termination and said this cost should be borne by TDM operators. It said that in response to previous Ofcom consultations it had argued that TDM operators should bear these costs but Ofcom had rejected that argument as TDM was taken as the MEA. TalkTalk said that it would be inconsistent, if NGN was now the MEA, for NGNs to bear this cost.⁵²³

11.60.2 [X] agreed that if the MEA is NGN then the costs of conversion between TDM to IP should be excluded from the cost base of wholesale call origination and termination. It said these should be borne by TDM networks; otherwise they would be incentivised to delay migration to the efficient IP technology. It said this would transfer the burden of the costs of conversion onto forward-looking innovative companies and would not be in the interests of consumers.⁵²⁴

11.60.3 Sky said that Ofcom's guidance on fair and reasonable charges for geographic termination rates should be changed. The 2011 F&R Guidance resulted in Sky continuing to pay BT for traffic handover at BT's tandem exchanges (which includes both termination and LTC charges) but it now only received, in return, the regulated termination rates (which were calculated based on interconnection at BT's local exchanges). Sky argued that this had cost it [X] and led to it being disadvantaged as compared to CPs interconnected to BT's DLEs *"even though the EC and Ofcom both accept that it would be inefficient for an NGN operator to invest in local interconnection"*. In addition to changing guidance so that interconnection via IP is available at 20 Pols, Sky said that BT should not be able to recover interworking costs and should bear the costs itself. It said BT should also not be able to recover the costs of additional conveyance from these 20 points. Sky also said that Ofcom would need to set a price cap for IP interconnection circuits.⁵²⁵

A11.61 However, a number of respondents offered different views:

11.61.1 BT argued that the provision of conversion between TDM and IP is competitive and so Ofcom should not decide the location where interconnection is provided or how conversion is provided, and should allow the market to determine it instead.⁵²⁶

11.61.2 CWW argued it would be wrong for Ofcom to exclude the costs of conversion between TDM and IP from the costs used to calculate wholesale call origination and wholesale call termination rates. It argued

⁵²⁰ H3G response to September 2012 Consultation, page 3.

⁵²¹ ITSPA response to September 2012 Consultation, page 2.

⁵²² [X]

⁵²³ [X].

⁵²⁴ Gamma response to September 2012 Consultation, page 4 – 5.

⁵²⁵ Sky response to September 2012 Consultation, para 11 – 14, page 2 – 3.

⁵²⁶ BT response to September 2012 Consultation, para 4.1, page 6.

that during the transition phase (as outlined above in paragraph A11.61), a sharing of conversion costs would be appropriate.⁵²⁷ Separately, CWW outlined an approach where the point at which the majority of networks were implementing IP interconnection for the majority of their traffic could be taken as the point at which costs would stop being shared and would, instead, fall to the TDM network operators to bear.⁵²⁸

11.61.3 Virgin Media disagreed with our proposal to exclude the costs of conversion from the modelled rates. It argued that there was more conversion than simply TDM to IP conversion (such as codec conversion). It said that in the current environment with different technologies in use, it would be incorrect to exclude these costs because it could lead to the model setting rates below the costs of an efficient operator, particularly where rates are set based on LRIC. It therefore argued that the costs of conversion (between TDM and IP, between different IP protocols and between different codecs) should be included within the cost based regulated rates, at least for this current charge control period.⁵²⁹

A11.62 EE said the costs of interworking would be unavoidable in the short to medium term and needed to be regulated. It said no additional costs should be recovered when the terminating network is unable to provide IP interconnection.⁵³⁰

A11.63 In relation to the costs of conversion, Verizon said the exercise was hypothetical, and it should not pre-empt other decisions Ofcom may make.⁵³¹

Our proposals for network technology choice and setting cost-based charges

A11.64 Whilst there was general agreement that NGN technology could be an appropriate basis for assessing costs, there were different views on whether NGN should be considered the MEA, as set out in paragraphs A11.44 to A11.50.

A11.65 Before proposing the appropriate technology for our hypothetical network cost model, we first explain more fully the economic framework behind our approach.

Economic objectives in setting cost-based charges

A11.66 We are interested in network technology choice because we wish to set cost-based charge controls. Therefore, we are interested in network technology choice as a means to an end, not an end in itself.

A11.67 Had we considered charge control remedies which were not based on cost modelling, then the question of technology choice would be redundant. For example, had the appropriate remedy for wholesale call origination or wholesale call termination been identified as a simple charge control based on RPI then cost modelling would be unnecessary.

A11.68 In setting efficient charge controls for wholesale call origination, wholesale call termination and interconnection, our main objectives are:

⁵²⁷ CWW response to September 2012 Consultation, pages 12 – 15.

⁵²⁸ CWW meeting with Ofcom of 14 November 2012.

⁵²⁹ Virgin Media response to September 2012 Consultation, page 9.

⁵³⁰ EE response to September 2012 Consultation, pages 2 – 3.

⁵³¹ Verizon response to September 2012 Consultation, pages 2 – 3.

- Allocative efficiency – i.e. prices reflect forward looking (marginal/incremental) costs;
- Productive efficiency – i.e. BT and access seekers face incentives to minimise costs and efficient buy/build signals;
- Dynamic efficiency – essentially allocative and productive efficiency over time, with a particular emphasis on incentives to invest. Typically this involves providing an opportunity to recover efficiently incurred costs, although not a guarantee of cost recovery;
- Effective competition – i.e. that our intervention promotes competition (i.e. those able to do things more efficiently than BT can enter using their own resources and infrastructure) but does not unnecessarily restrict the ability of BT or other regulated CPs from competing.

A11.69 Often these objectives will be in tension:

- Pricing at marginal or incremental cost, while good for allocative efficiency, will not recover sunk costs. Regulating in a way which does not provide an opportunity to recover sunk costs is undesirable for dynamic efficiency, because it undermines incentives to invest in new assets which, once acquired, are themselves sunk.
- Setting prices on the basis of full replacement costs is likely to be good for effective competition (since access seekers face appropriate “buy/build” signals – i.e. whether to “buy” access or “build” their own infrastructure). However, prices based on full replacement costs, may not be good for allocative efficiency (since prices will depart from marginal/incremental costs if replacement costs involve sunk investments when there are already usable sunk assets in place). Moreover, if investment in competing infrastructure is not practicable or commercially viable, prices set on the basis of replacement cost may result in access seekers paying a higher price than the incumbent needs for cost recovery.

Network technology choice in light of our objectives

A11.70 As set out earlier in this annex, in the 2009 NCC we modelled a hypothetical ongoing TDM network as the basis for setting cost based charges for wholesale call termination, wholesale call origination and interconnection. This approach is essentially one of anchor pricing, since the charges based on this hypothetical ongoing TDM network would apply irrespective of the actual technology used. That is, charges are “anchored” to be no higher than the level that would prevail if there were no technological change – in this way customers (that is, wholesale purchasers of the regulated products) and ultimately consumers are no worse off due to technological change. During a period of technology change, we could adopt a similar anchor pricing approach in this NCC or we could adopt an alternative, such as one based on an MEA approach (to the extent we can identify the MEA).

A11.71 An anchor pricing approach or an approach based on an MEA is only ever implemented as a means to an end – the end being to cap charges in a way most likely to secure economic efficiency (i.e. allocative, productive and dynamic) and effective competition.

- A11.72 As explained in the September 2012 Consultation, setting prices on the basis of MEA costs is consistent with asset valuation under CCA, where assets are valued at their current replacement cost. This was the approach recommended in the “Byatt report” (1986).⁵³²
- A11.73 The MEA approach seeks to set regulated prices reflective of the costs faced by an entrant if the SMP market were in fact contestable. The approach is most appropriate for those services or parts of the network where assets can potentially be replicated by entrants (even if this might not be so in the short-run, in the longer-run entrants might successfully integrate upwards). The MEA approach fits well with the principle of effective competition, and fits well with dynamic and productive efficiency (because regulated rates are not based on incurred costs but modelled costs).
- A11.74 However, the MEA approach does not always fit well with allocative efficiency. This is because the MEA approach will involve placing a value on all assets in the ground, and so even sunk assets will be valued on a replacement cost basis, even if they would not be replaced during the period of assessment (i.e. the control period) or even in the foreseeable future.⁵³³
- A11.75 The MEA approach is likely to be relatively straightforward when there is a single service and where the replacement asset(s) differs on few, if any, dimensions compared with the asset(s) being replaced. But, with more than one service being produced and/or where the new assets have different functionality (and/or configuration) then valuing the assets already in place using the MEA approach is not straightforward. To illustrate in the present context:
- While the current market review is concerned with wholesale call origination and wholesale call termination, these are inputs to downstream voice call markets which involve end-to-end calls. Since network investment is driven by demand for the downstream services provided (i.e. demand for wholesale call termination and wholesale call origination is a derived demand), a more relevant comparison of network costs would be on an end-to-end call basis;
 - The combination of possible end-to-end call types is very large, comprising at least: local, regional and national calls, with a proportion of these calls being

⁵³² The full title of the Byatt report is: *Accounting for Economic Costs and Changing Prices, A Report to HM Treasury by an Advisory Group, Volume I, HMSO 1986*. At paragraph 56 the Byatt report states: “We have concluded that the principle of CCA [current cost accounting] asset valuation is correct as a basis for measuring continuing economic costs. The principle of asset valuation for balance sheet purposes under CCA is to assess what the business would lose if deprived of its assets in a competitive market. This is the value of the assets to the business, which is not, of course, the same as the value of the business...” Paragraph 57 states: “In principle, the CCA valuation of the tangible assets to a business is based on what a competitor would be prepared to pay for them in a fully competitive market, ie the cost of an asset of equivalent productive capability – a Modern Equivalent Asset (MEA) – if the asset would be worth replacing or the recoverable amount if it would not be.”

⁵³³ What matters for economic efficiency is marginal costs, defined as the costs causally related to the output including the reduction in the productive capability of assets due to current consumption. (See Khan (1993, 5th printing), *The Economics of Regulation: Principles and Institutions*, The MIT Press, pp 71-73.) For example, if the use of TDM assets for wholesale call termination and wholesale call origination traffic during the control period (i.e. up to September 2016), or even sometime thereafter, does not affect the date at which replacement investment would be required, then the economic cost of using those assets in the control period will be very low (in the limit might only comprise the power, cooling and basic fault repair required for continued operation).

delivered end-to-end on a single network (an on-net call) with others terminating on a different network to the one on which it originated (off-net calls);

- TDM networks have a different topology to NGNs, so that a TDM network is likely to have more nodes than an NGN providing the same scale and coverage. Therefore, some of the “services” in wholesale TDM networks will not map directly onto “services” provided on an NGN. For example,
 - local-tandem conveyance/transit (LTC/LTT) involves switching and conveyance between DLE and tandem switches in a TDM network and such switches do not exist in NGNs;
 - a regional end-to-end call that requires wholesale call origination, wholesale call termination and two LTC/LTT “legs” on a TDM network may require only call origination plus call termination on an NGN, or may require wholesale call origination, wholesale call termination, plus conveyance across the NGN core.
- Voice networks are typically provided using infrastructure which is shared with data networks – whilst this is less so in the case of TDM networks, some of the assets (such as SDH transmission infrastructure, fibre, duct, etc.) will be shared. Therefore, an important question is whether the replacement costs of TDM networks and NGNs for voice services should be based on:
 - stand-alone costs (i.e. any common costs which might be allocated to other services such as broadband and leased lines are included in the cost stack);
 - stand-alone costs net of the value attributable to other services; or
 - the incremental voice costs only (i.e. ignore any common costs between voice and other services when comparing cost stacks between TDM networks and NGNs).

A11.76 In the September 2012 Consultation, we identified that appropriate (like-for-like) comparison of the value of TDM networks and NGNs was difficult (paragraph 3.26 et seq.). Nevertheless, we ultimately proposed that NGNs were sufficiently proven and considered that cost information was sufficiently available such that NGNs could be used as the MEA for modelling wholesale call origination and wholesale call termination services (paragraph 3.59-3.61).

A11.77 Responses to the September 2012 Consultation have raised questions over the extent to which NGNs are the MEA for voice services considered in the round.

A11.78 While for the majority of voice call services provided we consider that NGNs are likely to be a sufficiently good replacement for TDM networks, there are some existing call services (for example, some ISDN30 features and some CLI based services) which NGNs may not fully support. Some of the responses to the September 2012 Consultation also highlighted the importance of taking into account physical interconnection when considering whether NGNs are the MEA. In that regard, we are aware that interconnection via IP remains nascent and there is more than one IP interconnection standard.⁵³⁴ In addition, as noted by CWW in its

⁵³⁴ IP provides the transport layer. IP Interconnection for voice services, as referred to here, relates to the protocols required to set up the call and to convey the voice across the IP transport layer. Therefore, the IP Interconnection standards relate to call set-up/control, codec selection and packetisation delay.

response to the September 2012 Consultation (see paragraph A11.61), IP interconnection may not fully support all United Kingdom services. CWW noted that the result of this was that the majority of NGNs interconnect via TDM and not IP.⁵³⁵ We also note that the widespread use of TDM interconnection provides a “fall back” option where problems arise with IP interconnection.

A11.79 In light of these responses and after further consideration of the technology and market features at play in this review period, we do not propose to identify NGNs as the MEA for wholesale call termination, wholesale call origination and interconnection. However, we do consider that a hypothetical NGN forms a reasonable basis on which to set regulated charges, at least for wholesale call termination and wholesale call origination – our position on interconnection is explained under the next heading of this annex. The reasons for our approach are as follows.

A11.80 First, we do not propose to identify NGN as the MEA:

- **Not all voice-related services are yet replicated using NGNs:** While some form of NGN is likely to be the main platform for TDM networks when they migrate to a new technology, responses to the September 2012 Consultation indicate that there remains some doubt over whether NGNs are sufficiently mature for all services of interest (in particular, but not restricted to, physical interconnection) to be considered the MEA in the strict sense of the term.
- **Robust comparison of the replacement costs of TDM networks and NGNs is very difficult:** The complications created by (i) multiple services, (ii) different topologies and wholesale services, and (iii) network equipment no longer available from manufacturers for new build TDM networks render a robust comparison very difficult, if not impossible.

A11.81 Second, there are nevertheless good reasons to model the costs of an NGN as the basis for setting regulated rates for wholesale call origination and wholesale call termination:

- **Setting regulated prices in recognition of contestable market principles is appropriate, even if we cannot definitively identify NGNs as the MEA:** NGNs have been the technology of choice for recent entrants in voice calls markets and the demand for wholesale call termination and wholesale call origination is ultimately a derived demand from the retail call markets, which are competitive. Setting regulated rates for wholesale call origination and wholesale call termination based on NGNs, is likely to provide a reasonably efficient outcome given our objectives outlined earlier: i.e. access seekers will face reasonably efficient buy/build price signals which in principle is good for competition and regulated prices are set independently of BT's incurred costs (which provides dynamic and productive efficiency advantages).
- **Repeated use of anchor pricing makes it difficult to be confident that modelled TDM cost-volume relationships will be robust:** In both the 2005 and 2009 NCCs we built a hypothetical ongoing TDM cost model. While in the 2005 model, few adjustments to TDM costs were made⁵³⁶, in the 2009 NCC the same

⁵³⁵ CWW response to September 2012 Consultation, page 14

⁵³⁶ 21CN related expenditure was removed, the efficiency factor assumed no 21CN investment and all traffic was assumed to be conveyed on the TDM, even if in the review period some traffic might have been conveyed on BT's 21CN. See Annex 6 of Review of BT's network charge

approach as in 2005 was taken, but with the substantial addition of increasing the TDM asset lives and uplifting the asset base to be consistent with the NRC/GRC ratio from 2003/04.⁵³⁷ Perpetuating this approach embeds the characteristics of TDM costs based on a top-down view of the network from over a decade ago.

- **2009 EC Recommendation and bottom-up LRIC modelling:** Related to the preceding point, any LRIC-model based on TDM is likely to reflect cost-volume relationships from BT's top-down TDM network, which is unlikely to provide a satisfactory basis for evaluating the forward-looking avoidable costs of termination, modelled as the final traffic increment. Taking utmost account of the 2009 EC Recommendation, we consider this provides a further reason to model an NGN.

Our proposals on interconnection issues

Modelled points of interconnection

- A11.82 In response to the September 2012 Consultation, CPs provided a range of views on how many Pols should be included in our model. In the model we published alongside the September 2012 Consultation we included 20 Pols, which also corresponded to the location of the core nodes in our model. Some respondents argued fewer Pols should be included, whereas several others argued that whilst 20 was of the right order we should in fact base our model on the "27+2" Pols as agreed through industry negotiation in relation to BT's proposed migration of voice services to 21CN. BT itself recognised that we needed to make an assumption on the number of Pols but said that there are numerous ways to build an NGN of which having 20 Pols was only one of a range of possible answers.
- A11.83 These responses demonstrate the complexity in developing an NGN cost model, since the decisions on the most appropriate interconnection infrastructure that would be put in place in the real world would take account of a wide range of factors such as the total range of services being provided, the location of different networks and the volume of traffic to be exchanged between them. As such we broadly accept the points made by BT in that there could be different approaches, and the point made by CWW (and others) that it is important to recognise the basis on which industry agreed to "27+2".
- A11.84 In order to model the costs incurred in providing the wholesale call origination and wholesale call termination services we need to make an assumption on the number of Pols in the hypothetical network we have modelled. If BT implemented an NGN, the "27+2" Pols agreed previously by industry may continue to represent the most appropriate approach to implementing interconnection to BT, based on existing infrastructure deployed by CPs and the specific choices for the location of nodes capable of supporting interconnection by BT. We have modelled a hypothetical network which seeks to model the costs that would be incurred by an efficient network operator. It is not, therefore, necessarily the case that the discussions by industry that led to "27+2" should be taken as the basis for our modelled network. We have modelled, as our base case, a network with 20 Pols for the reasons we

controls: Explanatory Statement and Notification of decisions on BT's SMP status and charge controls in narrowband wholesale markets, 18 August 2005,

http://stakeholders.ofcom.org.uk/binaries/consultations/charge/statement/statement_ncc.pdf

⁵³⁷ See Annex 2 of Review of BT's Network Charge Controls: Explanatory Statement and Notification of decisions on BT's SMP status and charge controls in narrowband wholesale markets, 15 September 2009

set out in the September 2012 Consultation (and as summarised in paragraph A11.26 and A11.27 above). We also present, in Annex 14, the sensitivity of the costs of the services in question to the number of Pol.

Regulatory approach to physical interconnection

A11.85 In response to the September 2012 Consultation there was a range of views as to how physical interconnection should be regulated, as set out earlier in this annex. Some argued that on the basis we had modelled NGN costs for wholesale call origination and wholesale call termination at 20 Pol for traffic handed over via IP, we should follow a similar approach in regulating physical interconnection. As a result, BT would be required to offer IP interconnection at 20 Pols.

A11.86 Others argued that because IP interconnection standards are still developing, and that the vast majority of traffic in the United Kingdom used TDM interconnection, it would be premature to require the provision of IP interconnection.

A11.87 Following responses to the September 2012 Consultation, we have further considered our approach to regulating interconnection under the following headings:

- Uncertainty over NGN as the MEA;
- Technology neutrality; and
- Potential for arbitrage.

Uncertainty over NGN as the MEA

A11.88 As noted in the responses to the September 2012 consultation and as discussed above in paragraphs A11.84 – A11.85, there is some question over whether NGN is yet properly characterised as the MEA for all voice (and voice related) services.

Technology neutrality

A11.89 We have a statutory duty (deriving from our European Community requirements) to carry out our functions in a manner, so far as practicable, which does not favour one form of network or service over another.⁵³⁸

A11.90 Consistent with that principle of technology neutrality, we have defined wholesale call termination as the service that relates to the conveyance of all signals (including relevant control signals) required to terminate calls on a customer's exchange line from the point in the network closest to the end customer's point of connection to the network where those signals can be accessed by another CP. This definition is equally applicable to both TDM networks and NGNs.

A11.91 But even though our approach to market definition and SMP is technology neutral and even though we propose a single (i.e. symmetric) wholesale call termination rate is applied to all CPs, where CPs operate different network technologies and topologies, it is likely that they will prefer different Pols. Generally speaking for a given level of traffic between two networks, a TDM Network is likely to have a higher number of Pols for efficient traffic handling than an NGN.

⁵³⁸ Act, section 4(6)

- A11.92 While we recognise that co-existence of networks with different technologies/topologies may introduce some inefficiencies, the parallel running of competing networks is an almost inevitable corollary of infrastructure based competition in many competitive markets. Over time, particularly as technology changes, the optimal network choice for entry is likely to change, but once the sunk costs of entry have been incurred it is likely to be more efficient for an individual operator to exploit that infrastructure, than to invest in duplicate infrastructure.
- A11.93 For example, CWW and the cable networks (now consolidated under the Virgin Media brand), entered voice service markets in the 1990s by directly connecting customers using TDM technology. In the period from 2005 onwards TalkTalk, and then Sky and others, entered using LLU for directly connecting customers coupled with an NGN for voice (and data) services.
- A11.94 In recognition of the fact that the forward looking costs of TDM networks are likely to be low and because a history of infrastructure based entry is likely to result in a market with competing CPs using different technologies, we consider that technology neutrality favours an approach in which the wholesale call termination (and origination) rates set by regulation applies from the terminating (originating) node to which the called (calling) customer is actually connected.
- A11.95 We would expect to continue with this approach until it could be shown that a particular form of technology was no longer an efficient way to provide the services in question. In making such an assessment we would expect to take into account the scope for the new technology to fully support existing services and the extent to which the different technologies are used by competing CPs.

Potential for arbitrage

- A11.96 Finally, there is also a risk in requiring CPs to offer wholesale call termination to their customers connected by one technology (e.g. TDM) by means of another technology (e.g. IP). For example, if the wholesale call termination rate were the same for calls to BT customers whether for TDM hand-over at 650 DLEs or IP hand-over at, say, 20 Pol, originating CPs would prefer IP handover (since they could avoid the costs of interconnecting to 650 TDM Pols⁵³⁹).
- A11.97 Not only would existing NGN operators prefer IP hand-over at 20 Pol, other TDM network operators might also prefer it. That is, TDM network operators could invest in media-gateways (MGWs) and present traffic as IP for hand-over at 20 Pol, rather than as TDM at 650 Pol. Such arbitrage would be profitable for TDM operators where the investment in MGWs was lower than the ongoing costs of TDM interconnect at 650 points on the BT network.
- A11.98 This would result in multiple conversions between TDM and IP. This is likely to be inefficient and multiple conversions between TDM and IP could impact voice call quality by introducing delay and coding errors.

Conclusion on points of interconnection

- A11.99 Having considered further the responses to the September 2012 Consultation, and in light of our reasoning on technology choice above, we now propose that the point

⁵³⁹ These costs could include purchasing conveyance to the DLEs via LTC/LTT or the cost of TDM interconnect circuits to the 650+ DLEs.

of interconnection (and hence technology used for interconnection) would be determined by:

- for wholesale call termination, the network technology (and topology) by which the called party is physically connected; and
- for wholesale call origination, to the extent that regulated wholesale call origination services are required to be provided, the network technology (and topology) by which the calling party is physically connected,

A11.100 Therefore, for interconnection to BT's TDM connected customers, the Pol would be at the DLE. We do not propose to require BT to offer IP interconnection at alternative Pols for the provision of wholesale call origination and wholesale call termination services from/to these customers.

A11.101 Similarly, for other terminating CPs that have deployed a TDM network the Pol would be the existing switch to which the called customer is connected. We do not propose to mandate that these other TDM networks provide IP interconnection at fewer nodes than their existing TDM nodes. For NGNs, the locations of Pols are decided by the specific network implementation of the specific CP.⁵⁴⁰

A11.102 Once NGNs have matured sufficiently (in particular to address the issues discussed above in relation to IP interconnect standards and other relevant services) then we would consider again whether IP Interconnection should be the basis for our regulation. Other factors we might also take into account would include if the number of TDM based CPs has markedly diminished, or that the continued use of TDM networks in co-existence with NGNs is otherwise clearly inefficient.

Provision of interconnection circuits

A11.103 In previous market reviews we have regulated BT's (and KCOM's) provision of interconnection circuits, whereas we have not imposed specific obligations on other CPs found to have SMP in wholesale call termination and have instead relied on the obligation imposed on these CPs requiring them to provide network access on reasonable request, plus each CP's obligations under General Condition 1.⁵⁴¹

A11.104 We have proposed in the preceding section that interconnection should be at the point in the network closest to the called customer. In the case of BT (and KCOM), for as long as they connect customers via TDM, this would involve interconnection to their DLEs.

A11.105 We consider in Section 10 of this review whether we should impose further specific obligations in relation to physical interconnection and propose that we should require BT and KCOM to provide interconnect circuits.

A11.106 In its response to the September 2012 Consultation Sky argued that one of the results of the 2011 F&R Guidance, was that the removal of the previous Reciprocity regime had been to disadvantage it compared to CPs interconnected at the DLEs, even though it was inefficient for an NGN to interconnect at the DLEs, which it said

⁵⁴⁰ This is without prejudice to the particular circumstances of any network access disputes as we might be called upon to resolve.

⁵⁴¹ General Condition of Entitlement, <http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/general-conditions/>

was accepted by both the EC and Ofcom. As such, Sky argued that BT should be required to provide interconnection at 20 Pols.

A11.107 We do not agree with Sky's argument. First, we have set out earlier in this section why we consider that NGNs may not yet be the MEA for all voice services (especially for interconnection) and why TDM networks and NGNs may represent efficient competing technologies. Second, the market by which CPs gain access to BT's DLEs has been found to be effectively competitive. LTC/LTT was de-regulated in 2009 based on the extent of direct interconnection to BT's DLEs and the presence of alternative providers of conveyance and transit to the DLEs.

A11.108 Therefore, we consider it appropriate for interconnection to BT's network to be at the DLEs for wholesale call origination and wholesale call termination whilst BT's end customers are connected via TDM, or until the point at which NGNs are clearly the MEA and we consider that continued competition between TDM and NGNs would be inefficient.

Regulation of charges for interconnection circuits

A11.109 In Section 10 we have proposed that BT should be subject to a charge control for interconnection circuits.

A11.110 Although we are proposing to regulate wholesale call origination and wholesale call termination charges by reference to an NGN, this stems from our desire to follow a costing methodology guided by contestable market principles (even if NGN is not identified as the MEA) and the concerns we have with setting (bottom-up) LRIC-based charges for wholesale call termination using a heavily depreciated TDM network (for which we have only top-down cost information).

A11.111 As noted above, IP interconnection is less established than TDM interconnection so we do not consider that IP interconnection would provide a realistic foundation for setting cost-based charges for interconnect circuits. IP interconnection could be realised in a number of ways (for example, responses to the September 2012 Consultation disagreed on the number of Pols and BT, for example, suggested that the number of Pols where the media (i.e. the audio traffic, as opposed to the call control traffic) was handed over could be up to 1,000, given that other services would have this many Pols). Therefore our view is that IP interconnection is unlikely to provide a better basis for setting charges for interconnection circuits provided by BT.

A11.112 As explained in Annex 12, having analysed the reported and hypothetical ongoing TDM costs of interconnect circuits against current revenues, we consider that an RPI-RPI cap on the basket of TDM interconnect circuits is likely to be the most appropriate means to control interconnect circuit charges for the period of this control.

Our proposals for the regulatory treatment of conversion costs

A11.113 We expect that NGN and TDM networks will co-exist for some time and, as such, the costs of conversion between NGN and TDM networks will continue to be incurred.

A11.114 In response to the September 2012 Consultation a number of respondents argued that these costs should be excluded from the wholesale call origination and

wholesale call termination cost stacks. As noted previously, six respondents that argued this also said that TDM networks should bear the costs of conversion.

A11.115 BT, whilst arguing that conversion costs should be excluded, said that this was because conversion should be considered to be competitive and so Ofcom should let the market decide how best to provide conversion.

A11.116 Several respondents argued that because the costs of conversion will need to be incurred whilst different technologies exist, we should include them in the costs of the wholesale call origination and wholesale call termination services.

A11.117 Currently, the costs of conversion are borne by the NGN, a point reasoned in our 2011 F&R Guidance. This was because the Benchmark FTR is based on the charge control set on BT in the 2009 NCC, where we used a hypothetical ongoing TDM cost model. Our reasoning also reflected the fact that because CPs could choose not to provide their own networks and instead purchase wholesale access and call conveyance services from BT on a regulated basis, it was unlikely to be appropriate for different networks to set higher wholesale call termination rates than BT. In the 2011 F&R Guidance we said we would consider conversion costs again in this review.⁵⁴²

A11.118 We recognise that we are changing an important part of the rationale underpinning the 2011 F&R Guidance, in particular, the view articulated in the 2011 F&R Guidance that the Benchmark FTR (then based on a hypothetical ongoing TDM network) was presumed to be sufficient to allow NGNs to recover conversion costs unless the NGN operator could demonstrate via the three stage test that a higher rate was justified.⁵⁴³ This would be the case if the NGN was efficient – as we would expect new technology to be – and if it was not, we considered that originating CPs should not have to pay more than they would if the call terminated on the BT network (i.e. if the terminating CP had chosen to rent wholesale access lines from BT rather than directly connect customers to its own NGN).

A11.119 But with conversion costs excluded from the wholesale call termination cost stack and with FTRs now proposed on the basis of the pure LRIC of an NGN, even an efficient NGN would no longer be able to recover its costs of termination, given that some calls will require TDM to IP conversion. We therefore need to consider how these costs should be recovered and whether we should impose regulatory obligations in relation to this.

A11.120 If conversion could only be provided by the terminating network, then there would be a strong case for including conversion costs in the wholesale call termination cost stack. However, NGNs currently undertake conversion both for calls sent to and calls received from TDM networks, which strongly suggests that the provision of conversion is potentially contestable in a way which wholesale call termination is not. In addition, TDM to TDM calls would not require conversion, whereas some form of conversion may be needed for certain NGN to NGN calls – for example, if different IP standards and/or codecs are used. Therefore, we propose to exclude the costs of conversion from the wholesale call termination cost stack.

⁵⁴² Paragraph 4.109. Ofcom, *Fair and reasonable charges for fixed geographic call termination*, 27 April 2011 <http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

⁵⁴³ Paragraph 4.80, Ofcom, *Fair and reasonable charges for fixed geographic call termination – Statement and final guidance*, 27 April 2011, <http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

A11.121 We also do not propose to mandate the particular arrangements for the provision of, and charging for, conversion activities. Instead, we prefer to allow commercial discussions between interconnecting parties to determine how conversion should be provided and charged for.

A11.122 We recognise that currently NGNs provide conversion and must recover the costs of doing so from their own subscribers. In the event that the commercial establishment of conversion charging arrangements between interconnecting parties may fail, CPs may raise the matter with us for resolution. We have considered how we might approach this question, although we would need to consider each dispute on the facts of the particular case.

A11.123 Since we have not concluded that NGNs are the MEA and because we consider that both NGN and TDM networks may represent efficient competing technologies, our view is that a cost-sharing approach to conversion may be preferable. For example costs could be shared on an equal basis (irrespective of which party owns the traffic) – a “50/50 rule” - or costs could be borne by the owner of the traffic – i.e. “traffic owner pays”.

Conclusion on conversion costs

A11.124 We propose that the costs of conversion are subject to commercial negotiation between interconnecting TDM networks and NGNs. Our view is that an approach based on costs being shared may be preferable. Options for cost sharing might include a 50/50 sharing rule regardless of the balance of traffic (or which CP “owns the traffic”) or a sharing rule based on conversion costs being borne by the owner of the traffic but we make no judgment in this respect.

Annex 12

NCC model approach and design

Introduction

A12.1 This annex sets out our proposed approach to building a cost model to forecast the efficient unit costs of narrowband conveyance (i.e. wholesale call origination and wholesale call termination) during the period from 1 October 2013 to 30 September 2016 and how we propose to set efficient charges for interconnect circuits.

A12.2 The structure of this annex is as follows:

- 12.2.1 a background section outlining both our previous approach to modelling the costs of narrowband conveyance services and the suggested approach of the 2009 EC Recommendation;
- 12.2.2 a discussion of the choice between building a bottom-up or top-down model, followed by a summary of responses to the September 2012 Consultation;
- 12.2.3 a discussion of our approach to calculating the LRIC of fixed wholesale call termination⁵⁴⁴, followed by a summary of responses to the September 2012 Consultation;
- 12.2.4 a discussion of how we will implement our approach to cost modelling including a summary of responses to the September 2012 Consultation,⁵⁴⁵ and
- 12.2.5 an explanation of our approach to setting efficient charges for interconnect circuits and the analysis that underlies our proposed approach.

Background and developments since the 2009 NCC statement

A12.3 Since the previous NCC was set in 2009, United Kingdom and European regulators have been changing their approach to regulation, specifically a shift towards using bottom-up LRIC models to set wholesale call termination rates. This approach lies at the heart of the 2009 EC Recommendation.

A12.4 We have applied a bottom-up approach to LRIC modelling for MTRs (and that approach has been upheld by the CAT).⁵⁴⁶ Other European NRAs have implemented LRIC for both MTRs and FTRs – and a summary of implementing the 2009 EC Recommendation in respect of FTRs accompanied our May 2012 CFI.⁵⁴⁷

⁵⁴⁴ The definition of LRIC (and specifically pure LRIC) is explained more fully later in this section.

⁵⁴⁵ We received a late response to the 2012 September consultation from Sky in December. We believe that our responses to other stakeholders in this annex and Annex 13 deal with the issues raised by Sky.

⁵⁴⁶ Competition Appeals Tribunal, BT et al v Ofcom, Judgement, 3 May 2012.

⁵⁴⁷ See the 15 May 2012 Analysys Mason report at

http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/annexes/analysys_mason.pdf

- A12.5 The 2009 NCC used a top-down accounting cost model using an FAC cost standard (equivalent to LRIC plus a contribution to common costs such that, overall, common costs are fully recovered). Therefore, adopting a bottom-up LRIC model, requires us to change our modelling approach.

Bottom-up and top-down modelling

- A12.6 A top-down model uses total network cost data and allocates these costs to services based on service usage factors. Typically, this top-down cost data is adjusted to make it suitable for regulatory price-setting (e.g. to take account of efficiency improvements and changes in the volume of network traffic), but this type of model will not rely on detailed assumptions about how the network is constructed. Instead, the modelled costs are calculated using cost-volume elasticities which reflect assumptions about the way the cost of high-level network components change as traffic rises or falls.
- A12.7 A bottom-up model estimates how much network equipment is needed based on the projected volumes for cost drivers such as subscribers, traffic, or other equipment installed in the network. The parameters which define these relationships between equipment quantities and the volume of cost drivers are sometimes referred to as “network build parameters”. The total cost of network equipment is then calculated (using evidence of the current cost of each piece of equipment).
- A12.8 The use of bottom-up models to set cost-based charge controls is established practice in the regulation of mobile termination rates (MTRs) since 2001.⁵⁴⁸
- A12.9 In the 2009 NCC, we used top-down modelling because (1) BT’s accounting data was available; and (2) this approach was consistent with the use of top-down modelling in NCCs since 1997.⁵⁴⁹ Top-down modelling is also consistent with the approaches taken to modelling in other fixed network charge controls such as the leased lines charge control and the controls on leased lines.

September 2012 Consultation

- A12.10 In our September 2012 Consultation, we explained that whilst bottom-up modelling is sometimes more complex, it has a number of advantages over top-down modelling:
- 12.10.1 By using network build parameters, bottom-up modelling allows us to more accurately model underlying cost/volume relationships.
- 12.10.2 Typically, it is also more transparent; the model can be published without redacting confidential information and it is more explicit how network components drive service costs.

⁵⁴⁸ See Ofcom 2001 Review of the charge control on calls to mobiles, <http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/ctm0901.htm#sum> A bottom-up approach was maintained by the CC during the subsequent inquiry (http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/ctm_2003/index.htm) and a bottom-up approach has been used in all subsequent MCT cost modelling.

⁵⁴⁹ We note that in 1997 there was also some use of bottom-up modelling.

12.10.3 Building a bottom-up model allows us to create an efficient forward looking network, without being unduly constrained in trying to precisely mimic the network of the regulated firm(s).

A12.11 Building a bottom-up model is also consistent with the 2009 EC Recommendation, which recommends that: "...the evaluation of efficient costs is based on current cost[s] and the use of a bottom-up modelling approach..."⁵⁵⁰

A12.12 Consequently, in the September 2012 Consultation we stated our preference for building a bottom-up model, based on a next generation network (NGN), to calculate the unit costs of fixed wholesale call termination and wholesale call origination.

Bottom-up modelling: Responses to the September 2012 Consultation.

A12.13 BT acknowledged that it would not be possible to produce a top-down NGN cost model, due to the absence of a national NGN operator. BT identified that if Ofcom were to use a bottom-up model, the volume forecasts for both voice and data services were crucial and that the bottom-up cost model should be verified against top-down data from a time division multiplexing (TDM) network.⁵⁵¹

A12.14 Virgin Media did not consider that using a bottom-up model was inappropriate in itself, but was concerned that the complexity of the modelling task could mean that some costs would be missed. Because of this concern, Virgin Media considered that cross-checks of bottom-up outputs were an important part of the modelling process.⁵⁵²

A12.15 Verizon⁵⁵³, TalkTalk⁵⁵⁴, Sky,⁵⁵⁵ H3G⁵⁵⁶, and [X]⁵⁵⁷ agreed with our use of a bottom-up model.⁵⁵⁸

A12.16 [X] did not state whether it agreed or disagreed with our use of bottom-up modelling, but believed that any change in approach from previous NCCs should be backed by evidence to show why it was preferable.⁵⁵⁹

A12.17 CWW agreed with our use of a bottom-up modelling approach on the proviso that the "checks and balances" for the model were clearly laid out.⁵⁶⁰

Ofcom's analysis and assessment of responses

A12.18 The majority of respondents agreed with our use of a bottom-up modelling approach. Where respondents raised concerns, they related to the implementation of our modelling approach rather than the approach itself. BT, Virgin Media and CWW were concerned that the model correctly captured all relevant costs and that its outputs were checked against other sources. We share this concern and have

⁵⁵⁰ 2009 EC Recommendation Recital (2).

⁵⁵¹ BT response to the September 2012 Consultation. Paragraph 5.1 to 5.3.

⁵⁵² Virgin Media response to the September 2012 Consultation. Pages 9 to 10.

⁵⁵³ Verizon response to the September 2012 Consultation. Pages 3 to 4.

⁵⁵⁴ TalkTalk response to the September 2012 Consultation. Page 5.

⁵⁵⁵ Sky response to the September 2012 Consultation. Paragraph 18.

⁵⁵⁶ H3G response to the September 2012 Consultation. Page 5.

⁵⁵⁷ [X] response to the September 2012 Consultation. Question 5.

⁵⁵⁸ Verizon response to the September 2012 Consultation. Pages 3 to 4.

⁵⁵⁹ [X] response to the September 2012 Consultation. Paragraph 3.

⁵⁶⁰ CWW response to the September 2012 Consultation. Page 16.

laid out in Annex 14 the verification process we intend to use to confirm the model outputs.

A12.19 We also agree with BT that volume forecasts are an important part of any bottom-up modelling exercise. Our volume forecasts for both voice and data traffic can be found later in this annex.

A12.20 A bottom-up modelling approach is particularly appropriate for the 2013 NCC modelling exercise. We are modelling a relatively new technology for which no robust top-down data is available for a network with national coverage. The 2009 EC Recommendation is also in favour of bottom-up modelling for fixed termination rates. Responses to the September 2012 consultation were generally supportive of a bottom-up modelling approach and so we have continued building a bottom-up model and propose to set charges based on the outputs from this model.

Calculating pure LRIC

A12.21 In the 2012 September Consultation, we consulted on a cost model that will enable us to estimate the unit costs of fixed wholesale call termination on a LRIC and a LRIC+ basis. When recommending the use of LRIC, the 2009 EC Recommendation uses the following definitions:⁵⁶¹

- i) “incremental costs” are the costs that can be avoided when a specific traffic increment is no-longer provided; and
- ii) “traffic-related costs” are those fixed and variable costs that vary with the level of traffic.⁵⁶²

A12.22 LRIC, as defined by the 2009 EC Recommendation, represents a particular form of LRIC modelling that estimates the unit costs of termination based on the avoidable costs of carrying a given quantity of traffic (termed the ‘increment’). The 2009 EC Recommendation states that the traffic increment should be treated as the final increment (i.e. the network equipment for carrying all other network traffic is present before the termination increment is added). Therefore, costs that are shared between fixed call termination and other services (common costs) are excluded from the LRIC of termination.⁵⁶³

A12.23 In the recitals to the 2009 EC Recommendation, the above definition of LRIC is referred to as “pure LRIC”.⁵⁶⁴ Hereafter, we use “LRIC” to mean pure LRIC, and where the context requires otherwise we will make this explicit.

Calculating LRIC

A12.24 In the September 2012 Consultation, we proposed a decremental approach to calculate LRIC, similar to that applied in our 2011 MCT model as supported by the CC in the 2012 CC Determination⁵⁶⁵ and upheld by the CAT.⁵⁶⁶

⁵⁶¹ See 2009 EC Recommendation paragraph 5.

⁵⁶² In this context the 2009 EC Recommendation refers to “fixed” costs in the sense of service-specific (i.e. traffic-related) costs. Fixed common costs would, by definition, be excluded from the incremental costs of the traffic increment.

⁵⁶³ See 2009 EC Recommendation paragraph 6.

⁵⁶⁴ 2009 EC Recommendation, recital 13

⁵⁶⁵ 2012 CC Determination, paragraph 3.68.

⁵⁶⁶ Competition Appeal Tribunal 2012 MCT Judgment.

A12.25 The decremental approach involves four stages:

- a) Run the bottom-up model with all traffic services included and calculate the total amount of network equipment required and the costs (both capex and opex) of that equipment;
- b) Run the bottom-up model with all traffic services excluding off-net call termination and calculate the total amount of network equipment required and the costs (both capex and opex) of that equipment;
- c) Calculate the difference in network costs between the two runs of the model; and
- d) Run these costs through the economic depreciation algorithm in order to recover them over time.

A12.26 The decremental approach to calculating LRIC is appropriate if the modelled relationship between traffic and costs is correct for the final traffic increment. When the call termination traffic increment is removed, the total network cost will be reduced by the avoidable costs of that increment.

Calculating Pure LRIC: Responses to the 2012 September Consultation

A12.27 BT agreed in principle that the decremental approach was the correct approach to take when calculating LRIC. However, BT believed that the design and implementation of the decremental approach needed revisiting due to the 2012 model's relative insensitivity to changes in volumes and the very low projected LRIC value.⁵⁶⁷

A12.28 Vodafone believed that the decremental approach should not be applied in a mechanical way. For the model to be fit-for-purpose, Vodafone considered that Ofcom must be calculating the correct volumes and costs on an asset by asset basis. In turn, the model must be able to identify which of these assets are incremental to incoming termination traffic when applied as the final increment.⁵⁶⁸

A12.29 Virgin Media did not consider the decremental approach to be theoretically objectionable, but noted that using the decremental approach raised the possibility of FTRs being set below the efficient cost level. Virgin Media was also concerned that, within the EU, the only other country that had used the decremental approach was France.⁵⁶⁹

A12.30 Verizon⁵⁷⁰, TalkTalk⁵⁷¹ and H3G⁵⁷² agreed with our use of the decremental approach for calculating LRIC.⁵⁷³

A12.31 EE did not make any explicit comment on the use of the decremental approach, but made a more general point that Ofcom should consider how to deal with the fixed market if Ofcom's 2011 MCT decision were to be overturned.⁵⁷⁴

<http://www.catribunal.org.uk/239-7143/1180-3-3-11-British-Telecommunications-PLC.html>

⁵⁶⁷ BT response to the September 2012 Consultation. Paragraph 6.1

⁵⁶⁸ Vodafone response to the September 2012 Consultation. Pages 2 to 3.

⁵⁶⁹ Virgin Media response to the September 2012 Consultation. Page 10.

⁵⁷⁰ Verizon response to the September 2012 Consultation. Page 4.

⁵⁷¹ TalkTalk response to the September 2012 Consultation. Page 5.

⁵⁷² H3G response to the September 2012 Consultation. Page 5.

⁵⁷³ Verizon response to the September 2012 Consultation. Page 4.

- A12.32 [X] found it difficult to justify an alternative to the decremental approach, but stated that it was not able to say if the approach was suitable until it saw a completed version of the model.⁵⁷⁵
- A12.33 CWW agreed that the decremental approach seemed sensible and stated that any departure from the approach taken in MCT would need to be justified. CWW also suggested that, for the purpose of model simplification, some assets that were clearly not incremental to incoming wholesale call termination should be considered for removal from the calculation.⁵⁷⁶

Ofcom's analysis and assessment of responses

- A12.34 In general, respondents to the September 2012 Consultation agreed with our use of the decremental approach to calculating LRIC. Nevertheless, there were concerns raised by certain stakeholders about the application of the decremental approach, and the assessment of which assets were incremental to fixed wholesale call termination. We will deal with non-network assets that may require special consideration as to whether they are incremental to the wholesale call termination increment later in this Annex.
- A12.35 We agree with Vodafone that, in principle, it would be useful to identify which assets are incremental to wholesale call termination. However, we can only do this to the extent that there are good reasons for believing that specific assets are incremental to wholesale call termination. We also seek to set the cost drivers in the model, so the costs in the model correctly change as traffic volumes change. When modelling using LRIC+, using the correct cost drivers will mean that costs change correctly as the volume of network traffic changes. Likewise, using the correct cost drivers will mean that when a traffic increment is removed, costs will change appropriately.
- A12.36 Given the responses to our September 2012 Consultation and our further consideration of this issue, we still believe that it is appropriate to use the decremental approach when calculating LRIC. However, we are aware that some assets do not appear as incremental to wholesale call termination, even though they are used to terminate incoming third party calls.
- A12.37 Assets may appear not to be incremental to wholesale call termination even if they are used to terminate incoming calls if:
- 12.37.1 the network only requires one, or a very small number, of these assets;
 - 12.37.2 the asset capacity is large enough that the addition of the wholesale call termination increment does not cause more assets to be purchased; and
 - 12.37.3 the asset cost driver is not traffic related (e.g. subscriber driven assets).
- A12.38 We have given careful consideration as to whether any of the assets that fall into the above categories should be considered incremental to wholesale call termination. In most cases, we believe that the capacity that would be installed for broadband and origination would be sufficient to also carry call termination traffic. Given that we would expect most networks to use standard capacity assets (which capacity we have defined, where possible, using CP responses to our information

⁵⁷⁴ EE response to the September 2012 Consultation. Paragraph 5.

⁵⁷⁵ [X] response to the September 2012 Consultation. Question 6.

⁵⁷⁶ CWW response to the September 2012 Consultation. Page 16.

requests), it is unlikely that smaller capacity units would be installed in the absence of the wholesale call termination increment.

- A12.39 The only asset where we believe it may be appropriate to take a different approach is the call server software licences (CSSLs). In the 2013 NCC model, the CSSLs are subscriber-driven costs and so do not appear as incremental to the incoming termination increment. Based on evidence from responses to our information requests, we believe that the number of subscribers is the appropriate cost driver for the deployment of CSSL. However, we also believe that the value of the licence may change when the call termination increment is removed.
- A12.40 CSSLs are a voice specific intangible asset. Unlike tangible network assets, CSSLs do not have capacity constraints and additional voice traffic (e.g. termination) can be carried at no greater cost. Moreover, CSSLs are a network asset for which there is no substitute input that could serve as a proxy for the value or cost.
- A12.41 In light of the above features of CSSL assets, even if CSSLs are typically priced on a per subscriber basis, this does not mean that the value of the CSSL should necessarily be seen as fixed or invariant to traffic. In particular, the willingness to pay for licences is likely to be driven by the amount of voice traffic generated by subscribers. Therefore, the value of a CSSL can be thought of as the discounted stream of revenues that the licence can earn. Removing an increment of traffic would then reduce the value of a licence.
- A12.42 We have captured this change in the value of the licence by introducing a reduction to the cost of each CSSL. We make the assumption that all voice traffic carries equal weight and so we decrease the unit cost (both capex and opex) of the licence by the ratio of termination traffic to total voice traffic when we remove the call termination increment.
- A12.43 We recognise that the value (and so the weight) of voice traffic might not necessarily be equal for each minute of traffic (for example, in this consultation we are proposing to set wholesale call origination rates above wholesale call termination rates). However, we believe that this is a necessary simplifying assumption to avoid the circularity that occurs from the fact that we regulate a large part of the wholesale revenues that can be earned by CSSLs and we consider that CSSLs are voice specific assets (and so should appear in the cost of voice services).

Model implementation

- A12.44 In the September 2012 Consultation, we set out our proposal to model the costs faced by a hypothetical efficient NGN (the 2012 NCC model). In the discussion above and Annex 11 we considered responses from stakeholders to this proposal and concluded that it was still appropriate to set charges based on the costs projected by a bottom-up hypothetical efficient NGN model.
- A12.45 Since the September 2012 Consultation, our model has gone through a number of changes as a result of points raised in response to the September 2012 consultation, new data becoming available, the collection of data using S135 power, and our own further consideration of the issues raised. This annex and Annex 13 explains how the model (the 2013 NCC model) has developed since the September 2012 Consultation.

A12.46 At a high level, the structure of the model is the same as the version published alongside the September 2012 Consultation:

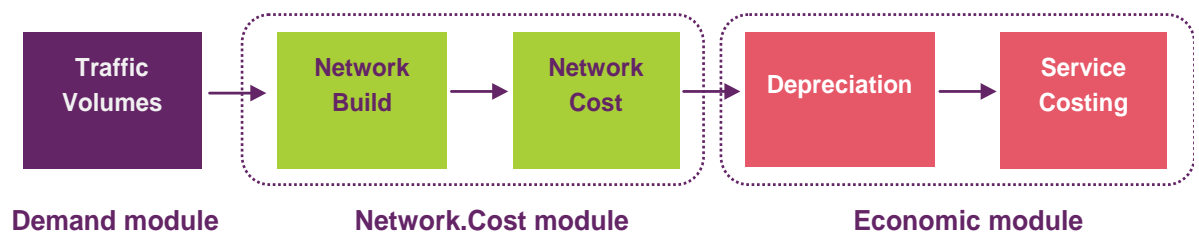
12.46.1 The model builds a hypothetical efficient NGN that can meet all the traffic volumes that are forecast to pass over it.

12.46.2 The model then calculates the costs (capital and operating) of this network and how these costs should be recovered over time using an economic depreciation algorithm.

12.46.3 The final stage in the modelling is to allocate the yearly costs across traffic services based on how much each service uses the network.

A12.47 Figure A12.1 below shows the high level structure of the model.

Figure A12.1: NCC model structure



A12.48 The remainder of this section describes each section of the 2013 NCC model in turn and how we have addressed the points raised in responses to the September 2012 Consultation. Most issues relating to the network build and network equipment costs are discussed in Annex 13

Traffic forecasts

A12.49 Telecommunications networks are characterised by economies of scale: more traffic, caused by market growth or increased market share, leads to a smaller proportionate increase in total cost than in total volume. Similarly, telecommunications networks can benefit from economies of scope: i.e. common costs can be recovered from a range of services which results in lower unit costs compared to a stand-alone provider of one of those services.

A12.50 In a TDM network, voice calls use dedicated circuits within the network between the calling and called parties for the duration of the call. Therefore, voice traffic volumes will tend to drive switching-related costs – that is, the cost of establishing the connections at voice exchanges (i.e. switches) to create these circuits (although other assets will be shared between voice, broadband and leased lines – e.g. duct, fibre, property and some transmission equipment).⁵⁷⁷

A12.51 However, in an NGN, because voice calls are one service amongst a number that are all provided using a common transport medium (packets routed using the Internet Protocol (IP)), the equipment routing calls will, to a greater extent, be shared between voice and data services. The common transport protocol creates greater scope for sharing equipment. Given the considerable growth in packet data traffic (and expected future growth), we expect that data service volumes will be a significant cost-driver in an NGN. It is therefore necessary not only to produce forecasts for voice services but also for data services.

⁵⁷⁷ For example, Synchronous Digital Hierarchy (SDH) systems could be shared by multiple services.

A12.52 In the September 2012 Consultation, we described how we modelled a range of services that pass over the hypothetical efficient NGN in order to produce traffic forecasts. We forecast the traffic carried by all fixed networks and then assigned a proportion of this traffic to our modelled network (reflecting our market share assumption – also explained later in this annex). The 2012 NCC model used these traffic forecasts to calculate how much network infrastructure will be required.

A12.53 We created a range of forecasts for the following services:

- Incoming voice calls from off-net;
- Outgoing off-net voice calls;
- On-net voice calls;
- Transit; and
- Packet data.

A12.54 In the 2012 NCC model, we based our forecasts on extrapolated trends in the number of active phone/broadband lines⁵⁷⁸ and the usage per line of different traffic types.⁵⁷⁹ The amount of traffic that passed over the network was determined by the average use per line.⁵⁸⁰

Voice traffic forecasts: Responses to the September 2012 Consultation

A12.55 In its response to the consultation, BT argued that Ofcom's forecasts were not based on the latest information available. BT stated that the model only used actual data for 2010/11 but should also use actual data for 2011/12.⁵⁸¹

A12.56 BT believed that line forecasts should have been exhibiting a gradual decline, whereas the 2012 NCC model showed a U shape. BT also believed that total minutes should exhibit a gradual decline, whereas the 2012 NCC model showed total minutes increasing.⁵⁸²

A12.57 BT argued that there was no justification for using 3 years of historical data to establish trends and all the historic data should be used.⁵⁸³ BT disagreed with the dampening factor used in the 2012 NCC model. BT suggested that no dampening factor should be used.⁵⁸⁴

⁵⁷⁸ We have not included a separate forecast for featurenet lines.

⁵⁷⁹ We have also cross-checked our forecasts against other sources such as: Analysys Mason: Telecoms Market Trends and Forecasts 2011-2016

http://www.analysysmason.com/Research/Content/Forecasts/RDDF0_Western_Europe_forecast_2011-2016_Jul2011/

and Enders Analysis: UK fixed line market analysis

<http://www.endersanalysis.com/content/publication/uk-broadband-and-telephony-trends-june-2010>

⁵⁸⁰ The network will also calculate transit traffic, which is calculated based on an estimate of the ratio of the transit traffic to non-transit traffic that a hypothetical network would carry.

⁵⁸¹ BT response to the September 2012 Consultation. Paragraph 8.3.

⁵⁸² BT response to the September 2012 Consultation. Paragraph 8.2.

⁵⁸³ BT response to the September 2012 Consultation. Paragraph 8.5.

⁵⁸⁴ BT response to the September 2012 Consultation. Paragraph 8.6.

- A12.58 BT stated that non-geographic calls had been omitted from the volume forecasts and considered that these volumes should be included.⁵⁸⁵
- A12.59 BT stated that a 25% market share assumption would imply around three-quarters of calls will be terminated on a different network and therefore Ofcom's model should have considerably fewer on-net calls.⁵⁸⁶
- A12.60 BT also believed that the model did not appear to identify calls from mobile networks. BT argued that the model did not reflect the imbalance between outgoing F2M calls and incoming M2F calls.⁵⁸⁷
- A12.61 Additionally, BT commissioned a report from Deloitte on volume forecasts. The key findings of this report in relation to voice traffic forecasts were:
- 12.61.1 To avoid a U shape in the profile of the number of lines, Ofcom should calculate lines independently from the number of households;⁵⁸⁸
 - 12.61.2 The model documentation does not correctly reflect the volume of originating minutes per line used in the model;⁵⁸⁹
 - 12.61.3 Non geographic minutes should be included in the dimensioning of the model and should be reconciled with data from the CMR;⁵⁹⁰
 - 12.61.4 Ofcom should have used the latest data from the 2012 CMR;⁵⁹¹
 - 12.61.5 Ofcom's calculation of historic volume trends should be based on a longer time series of data and should justify its use of the geometric average for forecasting. Ofcom should also justify the choice of dampening factors - which Deloitte saw as a particular problem for the trend in the number of fixed lines and the expectation of lower adoption of fixed lines;⁵⁹² and
 - 12.61.6 Ofcom should calculate incoming minutes directly rather than the implied volumes from the number of originating minutes.⁵⁹³
- A12.62 Vodafone considered that the volume forecasts lacked detail. Vodafone was concerned by the lack of a sensitivity analysis around the different traffic volumes. Vodafone did not consider the traffic services in the model necessarily matched the services that would be regulated. Vodafone considered that the regulated wholesale call termination service would only include the cost of calls from the single aggregation node (defined later in this annex) to the final destination. This would mean that for some of our call types, only part of the cost of the call should be included. Vodafone had the same concern for wholesale call origination costs.⁵⁹⁴

⁵⁸⁵ BT response to the September 2012 Consultation. Paragraphs 8.12 to 8.13.

⁵⁸⁶ BT response to the September 2012 Consultation, Paragraph 8.14.

⁵⁸⁷ BT response to the September 2012 Consultation. Paragraph 8.15.

⁵⁸⁸ Deloitte report in support of BT's response to the September 2012 Consultation. Pages 22, 41 and 42.

⁵⁸⁹ Deloitte report in support of BT's response to the September 2012 Consultation. Page 23.

⁵⁹⁰ Deloitte report in support of BT's response to the September 2012 Consultation. Page 25.

⁵⁹¹ Deloitte report in support of BT's response to the September 2012 Consultation. Pages 24 to 25.

⁵⁹² Deloitte report in support of BT's response to the September 2012 Consultation. Pages 19 to 20.

⁵⁹³ Deloitte report in support of BT's response to the September 2012 Consultation. Pages 42 to 43

⁵⁹⁴ Vodafone response to the September 2012 Consultation. Page 7.

- A12.63 Virgin Media believed that given the lack of real world cross checks, Ofcom needed to proceed with caution when producing traffic forecasts.⁵⁹⁵
- A12.64 Verizon believed that it was not possible to state whether it agreed with Ofcom's forecasts due to the lack of detail in the September 2012 Consultation. Verizon believed that Ofcom should have released its forecasts showing the breakdown in usage between residential and business lines.⁵⁹⁶
- A12.65 TalkTalk made no general points regarding traffic forecasts.
- A12.66 The [X] report supporting [X] submission believed that traffic volumes should be consistent with the market share assumption that we use (i.e. fewer on-net calls and a greater proportion of incoming traffic).⁵⁹⁷
- A12.67 [X] agreed that we should model an NGN that carried both data and voice traffic. [X] cautioned that there were a range of factors that influence the management of data and voice services on an NGN. [X] warned that voice codecs, quality of service and other transmission factors can vary between networks.⁵⁹⁸
- A12.68 EE was unclear why Ofcom was expressing voice traffic on the basis of usage per line but data on a peak bandwidth basis. EE was concerned that this inconsistency lacked transparency.⁵⁹⁹ EE believed that our average voice usage per line forecasts seemed reasonable.⁶⁰⁰

Ofcom's analysis and assessment of responses

- A12.69 We agree with BT and Deloitte that the most recent data available should be used when we produce our forecasts and have now updated our forecasts to include data from 2011/12.^{601 602}
- A12.70 BT's forecasts of a gradual decline in line numbers and a gradual decline in total minutes may be reasonable. However, as with any forecast, it constitutes one amongst a range of possibly reasonable predictions. In order to attempt to capture this uncertainty, we have introduced a number of scenarios and tested their impact on the model's outputs. As explained below, we have selected a base case of what we believe to be the most reasonable assumptions.
- A12.71 We do not agree with BT or Deloitte that a "U-shaped" chart for the number of lines is counter-intuitive. Although the total number of lines is broadly flat, since 2009/10 the number of residential fixed voice lines has been increasing and the latest Ofcom data has this increase continuing into 2012.⁶⁰³ The forecasts for residential lines

⁵⁹⁵ Virgin Media response to the September 2012 Consultation. Page 11.

⁵⁹⁶ Verizon response to the September 2012 Consultation. Page 5.

⁵⁹⁷ [X] report in support of [X] response to the September 2012 Consultation. Section 2.3.

⁵⁹⁸ [X].

⁵⁹⁹ EE response to the September 2012 Consultation. Page 3.

⁶⁰⁰ EE response to the September 2012 Consultation. Page 3.

⁶⁰¹ The 2011/12 data was not made available in sufficient time for us to include in the September 2012 Consultation

⁶⁰² In some cases, we have also changed the historic volume data in response to the restatement of data traffic data provided to Ofcom by CPs.

⁶⁰³ Ofcom Telecommunications market data tables Q2 2012 Table 7 shows the number of residential moving above 24 million lines.

cited by Deloitte would appear to be moving in the wrong direction compared to the actual data.⁶⁰⁴

- A12.72 We disagree with Deloitte that Figure 3 in the September 2012 Consultation shows the incorrect volume of traffic. Deloitte incorrectly identify this chart as showing originated calls per residential line.⁶⁰⁵ Figure 3 in the 2012 September Consultation actually shows total calls (incoming and outgoing) per residential line. We also disagree that Figure 17 in Deloitte's report shows the correct voice usage originated minutes per line from the 2012 NCC model. Figure 17 appears to show the sum of average originated calls per line for business and residential, rather than the average originated calls per line for a particular business or residential line.⁶⁰⁶
- A12.73 We disagree with BT and Deloitte that we should use more than 3 years of historic data when producing trends. The fixed telecommunications market has changed significantly over the last 10 years, which have led to decreases in volumes that we would not necessarily expect to continue. The number of residential lines increasing since 2009/10 after declines in earlier years is one such example. We believe that a 3 year period is long enough to avoid the risk of a single year distortion, but short enough not to capture out-of-date trends. We believe a geometric mean correctly captures the yearly percentage change for our historic mean. We do not see any reason to use an arithmetic mean.
- A12.74 We also disagree with BT and Deloitte that it is inappropriate to use dampening factors. Traffic forecasts are inherently uncertain and to reflect this we assume that traffic volumes will flat-line by 2024/25. Where traffic or line volumes have been decreasing (or increasing) quickly, dampening factors are used to smooth this trend and allow forecasts to become flat by 2024/25. We accept that there is a degree of judgement in selecting dampening factors and have explored different values for the dampening factors as part of our sensitivity analysis. However, we believe that the dampening factor we have selected sits within a reasonable range.
- A12.75 We agree with BT and Deloitte that non-geographic calls should be included in our traffic forecasts and we have included them in the February 2013 NCC model as part of the "other" call category. We disagree with BT that the model did not include calls from mobile networks, however, we do accept that the 2012 NCC model does not adequately capture the relatively greater number of incoming calls from mobile compared to outgoing. We have amended the traffic forecasts to account for this difference.
- A12.76 We agree with Vodafone that the model should have multiple sensitivity analyses and we have included these in the February 2013 NCC model. We disagree with Vodafone on the definition of the service that is being regulated. As discussed in Section 6, we believe the correct definition of the wholesale call termination service on an NGN is from the point of handover nearest the called party. As there are only 20 points of interconnection in the modelled network, some calls will need to pass through a core node and so will use more network resources than calls that pass from the interconnection node directly to the final destination. These costs should be included as part of the LRIC of wholesale call termination.

⁶⁰⁴ See Deloitte report in support of BT's response to the September 2012 Consultation. Figure 35.

⁶⁰⁵ See Deloitte report in support of BT's response to the September 2012 Consultation. Figure 16, Page 23.

⁶⁰⁶ See Deloitte report in support of BT's response to the September 2012 Consultation. Figure 16, Page 23.

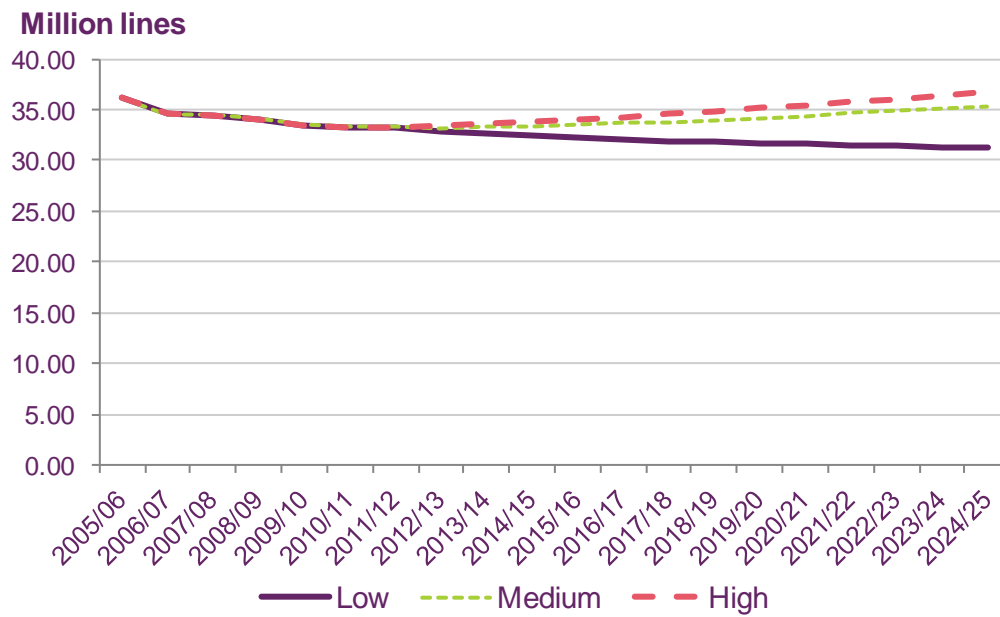
- A12.77 We agree with Virgin Media that real world cross-checks are necessary and we have outlined in Annex 14 how we will deal with these cross-checks.
- A12.78 The 2012 NCC model showed how our forecasts were calculated – including the split of traffic between business and residential users – this addresses the concern raised by Verizon.
- A12.79 We agree with the BT and [X] comments that the on-net/off-net split of traffic should be consistent with the assumed market share. We have made an adjustment to the on-net/off-net traffic split so that it is linked to the market share. An operator with a 50% share of lines (and fixed calls), will now have a 25% on-net market share (i.e. 25%⁶⁰⁷ of industry fixed originated traffic will be on-net for our modelled network).⁶⁰⁸
- A12.80 We accept [X] point that there is not one single way to transmit voice and data over an NGN and that different operators may use different transmission factors. We have sought to model a hypothetical NGN operator and have gathered data from our stakeholders in order to determine appropriate transmission factors. Further detail on our choice of voice codec can be found in Annex 13 page 17.
- A12.81 We do not agree with EE that it is inconsistent for us to use usage per line for voice and peak usage for data. The assets in the NGN will be dimensioned on the peak busy hour traffic for each asset. Where our traffic forecast includes the total traffic we therefore derive busy hour usage from this. We base our choice on whether to forecast peak usage data directly or to start with total traffic data when producing forecasts on the quality and availability of the data.

Updated voice forecasts

- A12.82 In light of responses to the September 2012 Consultation, and taking account of more recent data, we have updated our line forecasts and average usage per line forecasts.
- A12.83 Figure A12.2 below shows our high, medium and low forecasts for total number of lines (residential + business). The medium scenario is our base case and assumes a slight increase in the number of lines until 2024/25, after which the number of lines is held constant. The growth in the number of lines is primarily driven by two factors:
- a) Growth in the forecast number of households; and
 - b) A small increase in the number of lines per household, which is a continuation of a trend observed over the last 3 years.

⁶⁰⁷ 25% = 50% share of originated fixed calls x 50% of calls stay on-net.

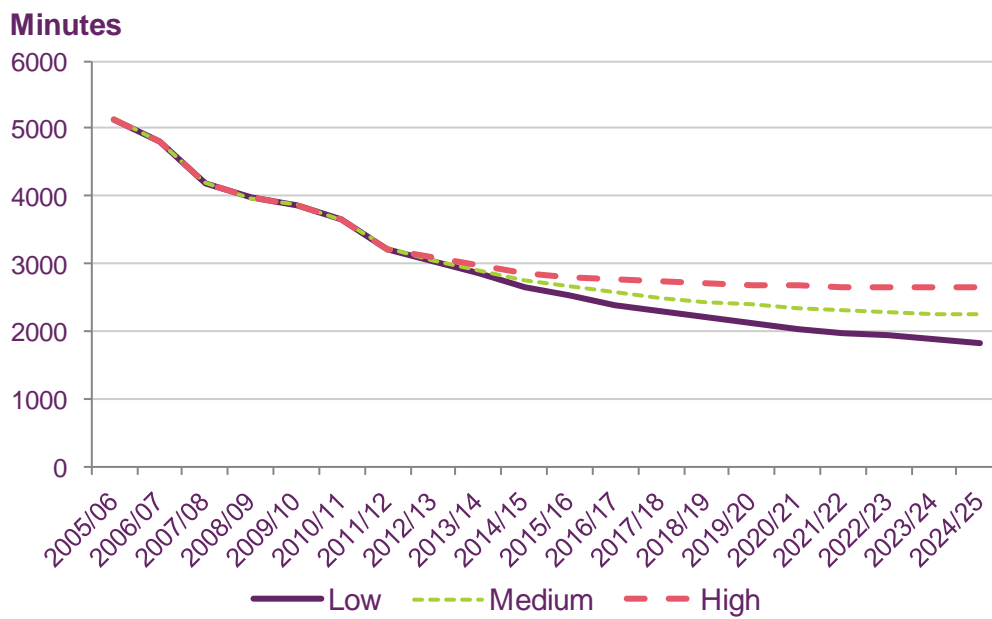
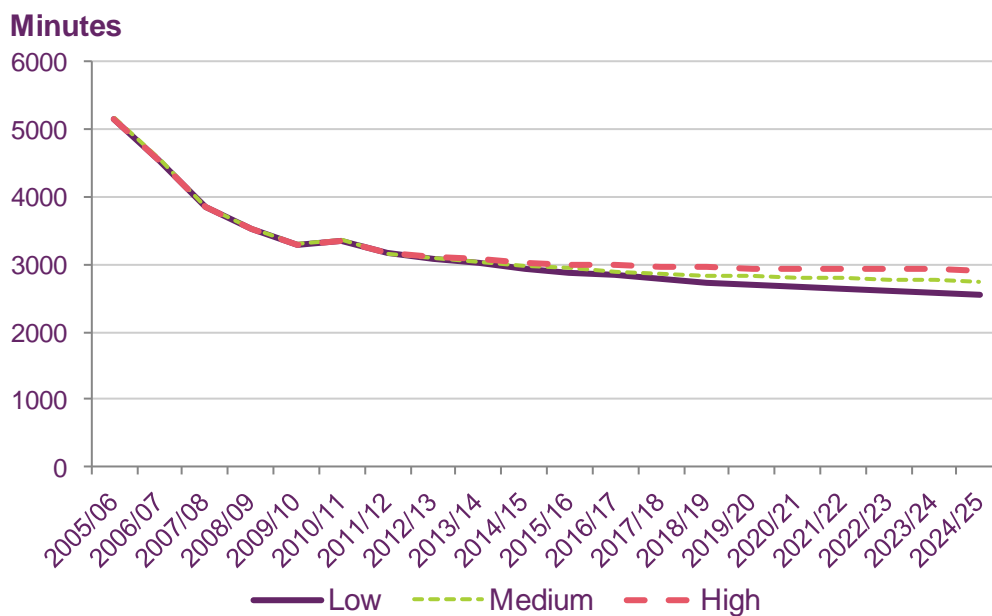
⁶⁰⁸ We then make adjustments to these on-net/off-net proportions to reflect observed traffic patterns (e.g. total industry fixed call termination is greater than total industry fixed call origination).

Figure A12.2: Forecast for total number of lines (ex ISDN)⁶⁰⁹

A12.84 Figures A12.3 and A12.4 below show our forecasts for the average annual outgoing voice usage per line for residential and business users respectively. The medium scenario is our base case and we have forecast a very gradual decline in voice usage per line until 2024/25 at which point we hold the forecast volume constant.⁶¹⁰

⁶⁰⁹ Source: Ofcom forecasts based on data collected from fixed operators.

⁶¹⁰ We have assumed the same voice usage per line for lines and ISDN channels.

Figure A12.3: Forecast for annual average residential outgoing voice usage per line⁶¹¹**Figure A12.4: Forecast for annual average business outgoing voice usage per line**

A12.85 We perform a sensitivity analysis on voice lines and usage in Annex 14. We find that the LRIC of wholesale call termination is relatively insensitive to changes in traffic volumes. The LRIC+ of wholesale call origination is more sensitive changing from 0.310ppm in the low voice traffic sensitivity to 0.285ppm in the high voice traffic sensitivity.

⁶¹¹ Source: Ofcom forecasts based on data collected from fixed operators.

Broadband forecasts: Responses to the September 2012 Consultation

- A12.86 BT and Deloitte, in their responses to the September 2012 Consultation argued that Ofcom should link its forecast of lines to market developments. They argued that as 4G phones provide high bandwidth data and there is an increase in the number of households that use fibre-based access, so there will be a decreasing number of copper lines. BT believed our forecast of fixed broadband penetration reached too high a level.⁶¹²
- A12.87 BT considered that the peak broadband capacity per line assumption in the 2012 NCC model was too high. BT agreed that growth would slow over time, but considered a smoother profile to be more appropriate. BT and Deloitte also argued that the growth in fibre based broadband will reduce the volumes on copper based broadband. They argued that high usage subscribers will switch to fibre, lowering the average broadband use of copper access subscribers.^{613 614}
- A12.88 Deloitte supported BT with two additional points:
- 12.88.1 Ofcom's assumption that broadband penetration of households will reach 84.5% is not supported by historic growth rates or by analysts' predictions. Ofcom should instead assume maximum broadband penetration of 82%.⁶¹⁵
 - 12.88.2 Deloitte also identified that the values used in the 2012 NCC model for historic broadband lines were different from those in the 2012 Ofcom CMR. Deloitte suggests that we should use the values in the CMR.⁶¹⁶
- A12.89 EE generally agreed with the increase in peak data usage per line. However, EE did not believe that the rapid increase in 2019 was justified.⁶¹⁷

Ofcom's analysis and assessment of responses

- A12.90 We have sought to base our forecast of number of broadband lines and usage on historic trends and data from fixed operators. We have now gone through a process of collecting data from fixed operators. In light of that evidence, we agree with BT that the assumption for the current level of peak broadband usage should be lower than in the 2012 NCC model. We also agree that, because of this lower starting point, a smoother increase in broadband traffic is more appropriate.
- A12.91 We agree with BT that there are number of market developments that will change the way consumers use broadband services. Both the deployment of 4G services and the roll-out of fibre-based access will impact on the use of copper-based broadband. However, we do not necessarily agree that these market developments should change our broadband growth assumptions.
- A12.92 4G services are currently being deployed by one United Kingdom mobile network operator. Additional spectrum to run 4G services is currently being auctioned. The impact that 4G services will have on fixed broadband is currently uncertain and will depend on the eventual pricing, coverage and quality of 4G services. We therefore

⁶¹² BT response to the September 2012 Consultation. Paragraphs 8.7 to 8.8.

⁶¹³ BT response to the September 2012 Consultation. Paragraphs 8.10 to 8.12.

⁶¹⁴ Deloitte report in support of BT's response to the September 2012 Consultation. Pages 30 to 36

⁶¹⁵ Deloitte report in support of BT's response to the September 2012 Consultation. Page 28.

⁶¹⁶ Deloitte report in support of BT's response to the September 2012 Consultation. Page 17.

⁶¹⁷ EE response to the September 2012 Consultation. Page 3.

do not consider that we can accurately model the impact (if any) that the introduction of 4G will have on the demand for fixed broadband services.

- A12.93 The introduction of fibre-based access is a relatively recent development which will have an uncertain impact on future broadband volumes. BT suggests reducing the peak traffic on our modelled network to account for high usage users switching to fibre-based access, which would in turn increase the unit cost of fixed wholesale call origination and wholesale call termination.
- A12.94 We do not believe that the approach suggested by BT would be appropriate. The introduction of a new more efficient technology should not cause an increase in the prices of existing services. Therefore, prices of voice services in the presence of fibre-based access should be no higher than if we did not include fibre-based access in our model. On this basis, we propose to avoid capturing fibre-based access in our model. But, we must nevertheless ensure that our broadband forecasts are consistent with our exclusion of fibre-based access services (i.e. the copper-based access network technology is capable of carrying the peak traffic that we forecast to pass over it). Given we have reduced the peak data rates in the model, we are confident that the terminal value peak level of broadband traffic per line that we are forecasting can be carried by copper-based access technologies.⁶¹⁸
- A12.95 We believe that Deloitte's estimate of peak household broadband penetration is reasonable, however, given the uncertainty that exists over forecasts it is only one amongst a range of possibly reasonable predictions. As part of our sensitivity analysis we have introduced a range of peak penetration. Given the available evidence we have used a slightly lower peak penetration level than in the 2012 NCC model.
- A12.96 We disagree with Deloitte that we have been inconsistent between the historic number of broadband lines in the 2012 CMR and in the 2012 NCC Model. The historic number of broadband lines in the 2012 CMR are in calendar years, but the model is in financial years. We have taken quarterly data from Ofcom's telecoms data tables to calculate the historic number of broadband lines in each financial year.^{619 620}

Updated broadband forecasts

- A12.97 In light of responses to the September 2012 Consultation, and the availability of more up-to-date data, we have revised our forecasts of the number of broadband lines and peak usage per line. We have not included leased line services in the model. Leased line services would increase the modelled packet data volumes, but we believe it would be disproportionate to include leased line services given the impact that they have on the final model outputs.⁶²¹
- A12.98 Figure A12.5 below shows our low, medium and high forecasts for the total number of broadband lines. The medium scenario is our base case and we forecast a

⁶¹⁸ BT currently achieves an average of between 8Mbits/s and 10Mbit/s during weekday evenings. Ofcom news release: Network upgrades boost average broadband speeds. August 15 2012, Table 2. <http://media.ofcom.org.uk/2012/08/15/network-upgrades-boost-average-broadband-speeds/>

⁶¹⁹ The data in the Telecoms data tables matches the calendar year values from the 2012 CMR.

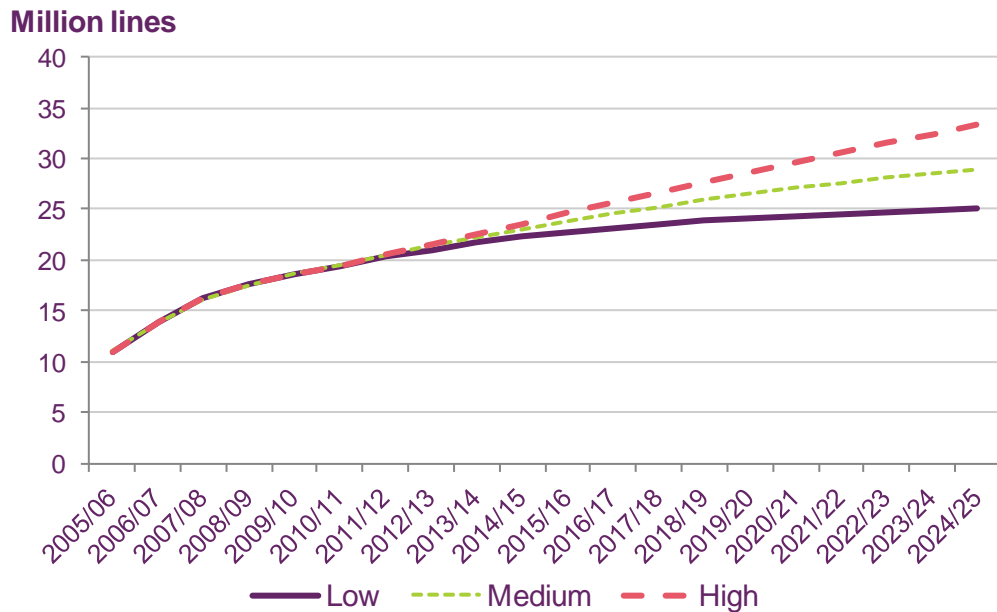
⁶²⁰ We have changed some of the historic line volumes in response to the restatement of data traffic data provided to Ofcom by CPs.

⁶²¹ We tested this impact by running much higher amounts of packet data traffic over those assets that we believed would be shared between leased lines and NCC services.

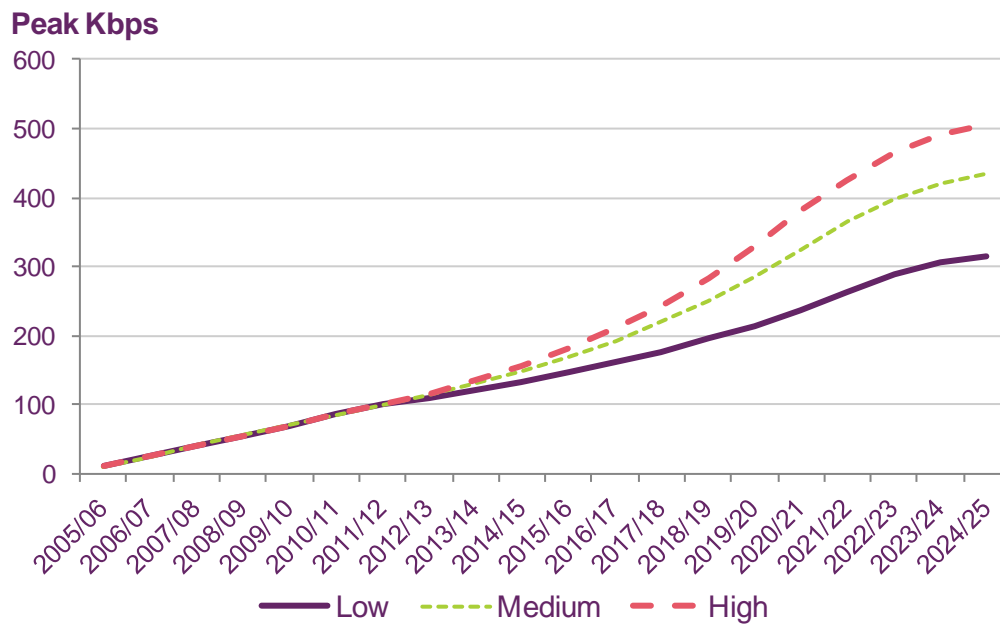
gradual increase in the number of broadband lines, with a terminal value of 29 million, which translates to a peak of 82% broadband penetration.

A12.99 Figure A12.6 below shows our low medium and high forecast of peak bit rate per broadband line (measured in kilobits per second (kbps)). We expect to see peak broadband usage continue to increase for some time. However, this increase is not as steep as we were predicting in the 2012 NCC model. The medium scenario is our base case and we assume that the growth in peak broadband usage levels off and is flat from 2025/26.

Figure A12.5: Forecast number of broadband lines⁶²²



⁶²² Source: Ofcom forecasts based on data collected from fixed operators.

Figure A12.6: Forecast peak kbps per line⁶²³

A12.100 We perform a sensitivity analysis on broadband lines and usage in Annex 14. As with voice traffic, we find that the LRIC of wholesale call termination is relatively insensitive to changes in traffic volumes. The LRIC+ of wholesale call origination is more sensitive changing from 0.323ppm in the low data traffic sensitivity to 0.283ppm in the high data traffic sensitivity.

Market share and NGN deployment assumptions

A12.101 We have described above our approach to projecting industry-wide traffic. The quantity of traffic that is carried by the modelled network is also determined by the market share of voice and broadband lines for the hypothetical CP over time. In the September 2012 Consultation, we used a based case scenario of a 25% market share.

A12.102 We used a 25% market share because the cost model that we propose is based on a competitively neutral market share for a national NGN operator. While we accept that today only BT has a network with national coverage, other major fixed CPs have close to full national coverage.

A12.103 Additionally, the 2009 EC Recommendation is not specific in the approach to apply to determining the market share for FTR cost modelling – as compared with MTR cost modelling. In respect of fixed networks, the Annex to the 2009 EC Recommendation states that:

“To determine the efficient scale of an operator for the purposes of the cost model, NRAs should take into account that in fixed networks operators have the opportunity to build their networks in particular geographic areas and to focus on high-density routes and/or to rent relevant network inputs from the incumbents. When defining the single efficient scale for the modelled operator, NRAs should therefore take into account the need to promote efficient entry while also recognising that under certain conditions smaller operators can produce at low unit costs in smaller geographic areas. Furthermore, smaller operators that cannot match the largest operators' scale

⁶²³ Source: Ofcom forecasts based on data collected from fixed operators.

*advantages over broader geographic areas can be assumed to purchase wholesale inputs rather than self-provide termination services.*⁶²⁴

A12.104 Although we used a base case of 25% in the September 2012 Consultation, we envisaged three possible scenarios for market shares:

12.104.1 A market share of 50% of wholesale fixed lines nationwide for all years in the model.

12.104.2 A market share based on BT's historic market share and then a projected market share of access lines from BT's current level.

12.104.3 A market share based on an even split of the market between the largest direct access operators in recent years. To date, BT, Virgin Media, Sky, and TalkTalk have accounted for the vast majority of directly connected residential customers across the country.⁶²⁵ An even split between these operators would suggest a 25% market share for the modelled operator.

A12.105 For all three scenarios, we assume that the modelled operator has the same market share for all network services (i.e. voice and broadband).

A12.106 In the September 2012 Consultation, we preferred the third scenario (market share of 25%) because we attached more weight to the desire to mimic a competitive market outcome. It is in effect a model of competition in which there is competing direct access (e.g. cable and/or LLU) across United Kingdom fixed lines. In practice, we modelled the overall market share to reach 25% once all exchanges are migrated to NGN. That is, the modelled operator is assumed to capture 25% of lines at each NGN capable exchange. In its response to the May 2012 CFI, BT also favoured a 25% market share assumption, on the grounds that this was more consistent with the 2011 MCT cost modelling.⁶²⁶ From the survey we commissioned of other NRAs' approaches to modelling NGNs and implementing the 2009 EC Recommendation,⁶²⁷ we found that different methods had been used:

12.106.1 OPTA used a 1/n approach, where (n) is the number of fixed operators. OPTA set n=2.

12.106.2 BIPT set the market share of the model equal to the market share of the incumbent network operator (Belgacom).⁶²⁸

A12.107 The market share assumption is only one element that determines the amount of traffic that passes over the network, the coverage (or deployment) of the network is another. Deployment of an NGN should not be assumed to be immediate; evidence from real-world network deployments suggests that an assumption that it will occur over a number of years is more reasonable (see Annex 13). Given that we are modelling the costs of an NGN, we will only wish to include the traffic carried by that NGN. The 3 market share scenarios described above only apply to the lines that

⁶²⁴ A similar wording is set out in the Explanatory Note to the 2009 EC Recommendation, see section 5.1.3.

⁶²⁵ Over [X] of directly connected customers are accounted for by these operators.

⁶²⁶ BT response to the May 2012 CFI question 25

<http://stakeholders.ofcom.org.uk/consultations/narrowband-market-review-call/?showResponses=true>

⁶²⁷ http://stakeholders.ofcom.org.uk/binaries/consultations/narrowband-market-review-call/annexes/analysys_mason.pdf

⁶²⁸ The precise market share of Belgacom is not reported by BIPT.

are on an NGN exchange (i.e. if 50% of lines are on local exchanges that are NGN enabled and the modelled operator has a market share of 25%, the modelled operator has a share of total lines equal to $50\% \times 25\% = 12.5\%$).

Response to the 2012 September Consultation: Market Shares

A12.108 Virgin Media agreed that the appropriate approach was to model an operator with a 25% market share.⁶²⁹

A12.109 Verizon disagreed with the use of a 25% market share assumption. Verizon identified that BT's market share was 37% of originated retail call volumes. Verizon argued that the market share assumption should reflect reality.⁶³⁰

A12.110 TalkTalk believed that it did not seem realistic to use a 25% market share. TalkTalk considered that it was unrealistic for the United Kingdom market to develop such that there would be four large operators of equal size. TalkTalk had calculated that BT terminates over 60% of fixed geographic traffic in the United Kingdom.⁶³¹

A12.111 In the document supporting [X] response to the September 2012 Consultation, [X] argued that it would not be realistic for BT to have a 25% market share in the short-term. It considered that an initially high market share that falls to 25% would be more realistic. [X] found that a higher market share significantly reduces the LRIC estimate of incoming termination.⁶³²

A12.112 H3G requested that Ofcom provide a more detailed explanation of how a 25% market share was consistent with:

12.112.1 Avoiding cost over-recovery as BT benefits from economies of scale; and

12.112.2 What has been done in other markets such as leased lines.

A12.113 H3G was also concerned with the way the 2012 NCC model responded to changes in the market share. H3G observed that different market shares led to very different LRIC outputs.⁶³³

A12.114 [X] agreed with our approach to modelling market share. [X] believed that our approach was the most consistent with the 2009 EC Recommendation, EC Directives generally and was the closest to reality.⁶³⁴

A12.115 Sky disagreed with our choice of a 25% market share. Sky noted that BT had a much higher market share than 25% and so, if it had deployed an NGN, BT would have much lower costs than those produced by the model due to economies of scale. Sky suggested that we use a market share assumption that was more representative of BT's market share.⁶³⁵

⁶²⁹ Virgin Media response to the September 2012 Consultation. Page 11.

⁶³⁰ Verizon response to the September 2012 Consultation. Page 6.

⁶³¹ TalkTalk response to the September 2012 Consultation. Pages 1 & 6.

⁶³² [X] report supporting [X] response to the September 2012 Consultation. Section 2.3.

⁶³³ H3G response to the September 2012 Consultation. Section 7.

⁶³⁴ [X] response to the September 2012 Consultation. Response to Question 8.

⁶³⁵ Sky response to the September 2012 Consultation. Section 21.b.

Ofcom's analysis and assessment of responses

A12.116 Respondents to the September 2012 Consultation took a range of views regarding the appropriate market share. In light of responses to the September 2012 consultation and developments in our own analysis, we now believe that using a market share of 50% is most appropriate. However, we recognise that there are arguments in favour of the three different market share assumptions.

A12.117 In the September 2012 Consultation, we believed a 25% market share best reflected our aim of mimicking the prices that would be charged in a competitive market, which also fitted with our use of economic depreciation. However, economic depreciation does not itself require us to use a particular market share, economic depreciation only requires contestability (i.e. the prospect of entry not necessarily actual entry). Although we preferred a 25% market share in the September 2012 Consultation, we now believe that this assumption is inconsistent with our finding of SMP in the wholesale call origination market.

A12.118 In Section 5 we discuss our finding of SMP in the wholesale call origination market. Although not the only factor, market share is an important consideration in our finding of SMP and it would not be appropriate for us to use a market share assumption that was inconsistent with this finding. We believe that it is highly unlikely that we would find SMP in wholesale call origination if the largest operator had a market share of 25%.

A12.119 Although we believe that a 25% market share is too low to be consistent with SMP in the wholesale call origination market, a finding of SMP itself does not tell us what the market share should be. The SMP guidelines state that:⁶³⁶

"In the Commission's decision making practice, single dominance concerns normally arise in the case of undertaking with market share of over 40%, although the Commission may in some cases have concerns about dominance even with lower market shares..."

A12.120 In this case, we have found that BT has market share considerably higher than 40% in the wholesale call origination market.⁶³⁷ Therefore, an alternative practical solution would be to base the market share assumption on BT's market share of exchange lines in historic periods. In future periods, we could have the market share trending towards the level that we believe would prevail in a competitive market.

A12.121 Using traffic volumes for BT is the same approach as was taken in previous NCC modelling. This was also the approach suggested by Verizon, TalkTalk and [X]. H3G also correctly noted that BT would have an advantage from economies of scale and so using a lower market share to set regulated rates could allow BT to recover more than it would based on its actual market share and if it ran an NGN. However, we believe that basing the market share assumption on BT's market share would be inconsistent with our approach to the rest of the modelling.

A12.122 In building this modelling, we have not sought to mimic a particular network or business case. We have collected cost and network dimensioning data from 7

⁶³⁶ Commission guidelines on market analysis and the assessment of significant market power (2002/C165/03) – 11 July 2002, Paragraph 75, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>

⁶³⁷ As discussed in Section 5, we found BT had market share of 67%.

network operators including both NGN and TDM operators. In constructing our model, we have sought to create a model of a hypothetical national NGN. We have not sought to model BT's network. If we were trying to model the costs of BT's hypothetical NGN, we would have put considerably more weight on data provided by BT, but this may not represent our best view of a hypothetical efficient national NGN.

A12.123 An alternative solution is to assume a 50% market share. An operator with a market share of 50% of lines would almost certainly have SMP. As stated in the SMP Guidelines.⁶³⁸

"According to established case-law, very large market shares – in excess of 50% - are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position..."

A12.124 Using a 50% market share also sufficiently abstracts away from BT's market share and so is more consistent with our hypothetical national NGN modelling approach. Using a 50% market share for the entire modelling period would also be consistent with SMP in call origination for the entire modelling period.

A12.125 Therefore, our view is that 50% market share scenario is likely to be the most satisfactory. However, as part of our sensitivity analysis we have examined the impact of different market shares on the model outputs. Our low market share sensitivity uses a 25% assumption. Our high market share sensitivity is based on BT's market share of wholesale exchange lines.⁶³⁹

A12.126 We find that market share is a key parameter in calculating the level of LRIC+ charges. Between our low and high market share sensitivities, the estimate of wholesale call origination changes by 0.343ppm. The LRIC of wholesale call termination is less sensitive to a change in this parameter with the cost estimate only varying by 0.012ppm between the high and low market share assumptions. These results are discussed in more detail in Annex 14.

Network costs

Scorched node assumptions

A12.127 Our bottom-up network model is based on a 'scorched node' approach. A scorched node approach takes account of a network's existing topology. Although we are building a hypothetical NGN, we have used the location and serving area of BT's existing exchanges. In the September 2012 Consultation, we explained why BT's existing local exchange topology provides an acceptable proxy for an efficient network and our cost model is predicated on competitive entry using LLU and NGN deployment at BT's local exchanges.

⁶³⁸ Commission guidelines on market analysis and the assessment of significant market power (2002/C165/03) – 11 July 2002, Paragraph 75, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>

⁶³⁹ We use a single value for BT's market share at 65%. For the purposes of this sensitivity analysis, the market share is held constant between voice and broadband lines. We also do not adjust the average usage per line to match BT.

Network design choices

A12.128 The modelled NGN consists of a number of interconnected nodes. Each node includes a number of different pieces of network equipment and performs a specific function as follows:⁶⁴⁰

- Basic access node: The basic access node is the node closest to the end-user at which the copper access lines terminate.
- Remote access node: The remote access node is a specific kind of basic access node, serving remote and/or hard-to reach locations.
- Super access node: The super access nodes are co-located aggregate traffic from basic access nodes before passing it on to the aggregation node.
- Aggregation node: The aggregation node aggregates traffic from the super access nodes and passes it on to the core node or to other CP networks via the interconnect nodes (see below).
- Interconnect node: The interconnect node supports voice interconnection between the modelled NGN and other CP networks on both a TDM and an IP basis. As explained in Annex 13, we propose to model a network with 20 Pols. These 20 Pols are assumed to be co-located with the core nodes described below (which in turn are co-located with aggregation nodes).
- Core node: The core node transports traffic between aggregation nodes. There are 20 core nodes.
- Service node: The service nodes house the servers providing the service functionality, such as call servers, directory servers, etc.

Treatment of “passive” network elements

A12.129 In addition to NGN specific assets, there are assets that are shared between an NGN network and other services. In the September 2012 Consultation we proposed not to model these assets on a bottom-up basis, but rather use the cost of the assets that are currently allocated to NCC services. We added a mark-up to voice services based on the proportional contribution that these assets make to the unit cost of NCC services on a TDM network from BT’s RFS. The cost categories of interest here are:

12.129.1 Duct: The pipes, tubes and conduits through which underground cables are passed.

12.129.2 Land and Buildings: Including both corporate offices and network buildings.

12.129.3 Transmission: The core transmission used to link exchanges.

Non-network costs

A12.130 In addition to network costs, other non-network costs are included (as ‘administration costs’). In previous NCCs, administration costs have been charged

⁶⁴⁰ For a full description of the nodes see Section 3 of Annex 13

for as a separate service, i.e. PPP. In the September 2012 Consultation, we proposed to model administration costs as a cost item within the cost stack for the modelled conveyance services (consistent with the approach used in our MCT model), rather than as a separate charge controlled service as previously done in NCC cost models.⁶⁴¹ This was because, to the extent that there are any administration costs incremental to the provision of the fixed wholesale call termination service, we should include them in the pure LRIC model. Those costs that are not incremental should be excluded from the costs of fixed wholesale call termination and recovered on other services.

A12.131 In the September 2012 Consultation, we proposed to allocate administration costs in each year across all network activities in proportion to those activities' share of total network costs. These costs are included in the cost model and are used to calculate the LRIC+ for the call conveyance services modelled (i.e. wholesale call origination and wholesale call termination).

A12.132 We also did not propose to include administration costs within the LRIC wholesale call termination cost stack. An initial assessment of the evidence suggested no clear link between termination traffic volumes and the cost of administration services.

A12.133 Similarly, we found no clear relationship between administration costs and traffic volumes in our 2011 MCT Statement.⁶⁴² We considered that if there were traffic sensitive administration costs – when call termination was modelled as the final increment – these were likely to be immaterial. The CC supported Ofcom's approach to administration costs in its 2012 Determination of EE and Vodafone's appeal noting that:

*“there is considerable complexity involved in assessing the true relationship between voice termination as the final increment and administration costs”*⁶⁴³; and

*“...Ofcom's judgement that it was not proportionate to calculate the incremental administration costs has not shown to be an error.”*⁶⁴⁴

Responses to the September 2012 Consultation: Non-network costs and passive network elements

A12.134 BT argued that if it built an NGN, it would purchase services from Openreach on an Eol (equivalence of inputs) basis. BT believed that the model should include the price of these elements. These prices would include the cost of duct and transmission. BT believed that it would only be appropriate to include BT's costs where network elements are not included in the Openreach prices. BT also believed that it was important to incorporate operating costs associated with adequate customer service support.⁶⁴⁵

A12.135 BT considered that part of PPP costs should be treated as incremental to the provision of call termination. In its response, BT identified a number of different PPP sub-services that it believed were incremental to termination even though the cost

⁶⁴¹ The administration costs are included in the OSS/BSS asset.

⁶⁴² See 2011 MCT Statement, Section A9.93.

⁶⁴³ 2012 CC Determination, paragraph 3.612.

⁶⁴⁴ 2012 CC Determination, paragraph 3.613.

<http://www.catribunal.org.uk/239-7143/1180-3-3-11-British-Telecommunications-PLC.html>

⁶⁴⁵ BT response to the September 2012 Consultation. Para 9.1 to 9.3.

of these services may not vary with volumes. BT termed this type of cost as “increment specific fixed costs”.⁶⁴⁶

A12.136 Virgin Media noted that by calculating passive network costs using top-down data, Ofcom was taking more of a hybrid approach to modelling. Virgin Media considered that using this type of top-down data should apply more generally to perform checks on the bottom-up model.⁶⁴⁷

A12.137 Verizon believed that more consideration should be given to the scorched earth approach. Verizon believed that this approach would better reflect reality because BT is planning to close inefficient exchanges as it reconfigures its network.⁶⁴⁸

A12.138 TalkTalk agreed with our approach to passive network elements. TalkTalk did not believe that passive network elements were incremental to wholesale call termination. TalkTalk also agreed with our approach to the treatment of PPP. TalkTalk believed there was no clear link between traffic volumes and administration services.⁶⁴⁹

A12.139 H3G noted that administration costs had not been considered to be incremental to incoming termination when setting mobile termination rates and this point had been upheld by the CC. H3G considered that there was no reason to treat mobile and fixed networks differently.⁶⁵⁰

A12.140 [X] agreed that passive network element costs should be included in the model. However, [X] believed that an efficient operator would have lower costs than BT. [X] considered that it would be very difficult to identify the incremental relationship between traffic and non-network costs. [X] also believed that the level of BT's PPP charges did not reflect the costs of an efficient operator.⁶⁵¹

A12.141 CWW agreed that non-network costs were unlikely to vary with volumes and they should be excluded from LRIC for call termination if it can be demonstrated that this is the correct action to take. CWW did not understand how reducing PPP charges could be a justification for excluding them from the LRIC calculation. CWW believed that if no PPP costs were dedicated to termination then it was correct to exclude them from LRIC. CWW also agreed with our approach to passive network elements.⁶⁵²

Ofcom's analysis and assessment of responses

A12.142 We have considered the use of Openreach service prices in Annex 13. We do not believe that using Openreach inputs on an EoI basis is a better approach to network costs than we used in the September 2012 Consultation. By using a top-down mark-up, we are able to capture the decrease in unit costs of voice that would occur as data volumes increase. We would not be able to capture this effect if we used Openreach prices.

A12.143 Since we published the September 2012 Consultation, we have performed further analysis on whether administrative costs should be considered incremental to

⁶⁴⁶ BT response to the September 2012 Consultation. Para 9.4

⁶⁴⁷ Virgin Media response to the September 2012 Consultation. Page 12.

⁶⁴⁸ Verizon response to the September 2012 Consultation. Page 7.

⁶⁴⁹ TalkTalk response to the September 2012 Consultation. Page 7.

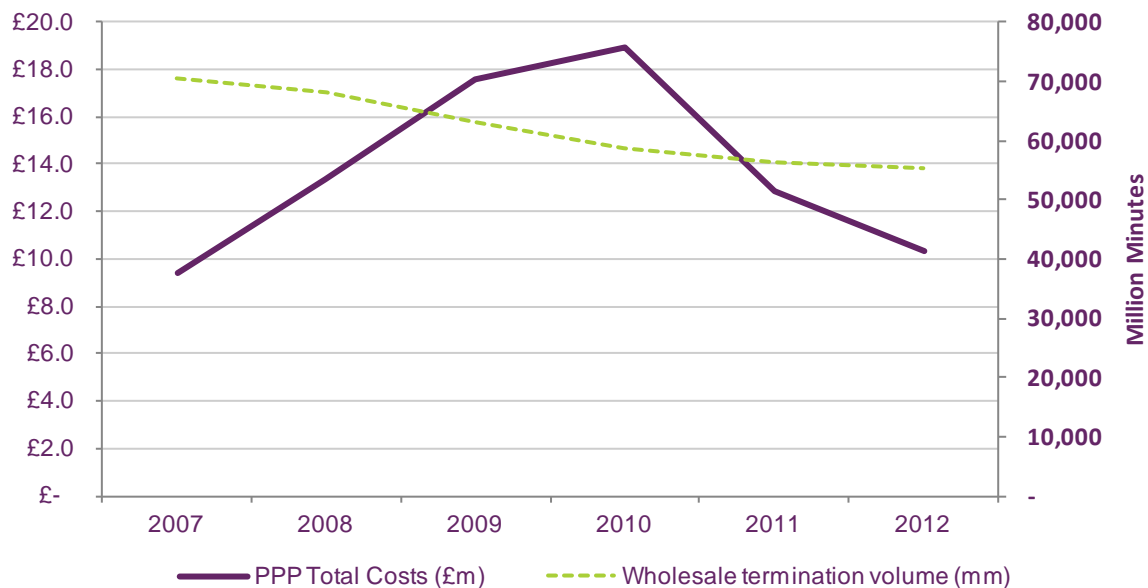
⁶⁵⁰ H3G response to the September 2012 Consultation. Pages 6 to 7.

⁶⁵¹ [X] response to the September 2012 Consultation. Response to Question 10.

⁶⁵² CWW response to the September 2012 Consultation. Page 19.

wholesale call termination. We have examined the relationship between BT's external fixed wholesale termination minutes and total PPP costs. Over the last 6 years, despite external wholesale call termination volumes falling by almost 22%, PPP total costs have increased by almost 9%. Over a shorter period between 2007 and 2010 external wholesale call termination volumes fell by 17% but PPP total costs increased by over 100%. These results would suggest that PPP costs are driven by factors other than the external wholesale call termination increment. Figure A12.7 below shows the changing total cost of PPP against the volume of wholesale call termination.

Figure A12.7: Comparison of PPP costs and wholesale call termination volumes



A12.144 We accept that it is possible that some parts of the activities covered by the PPP charge might be incremental to external termination but fixed for the subset of traffic variation considered in our analysis. However, for these PPP related activities to be incremental to wholesale call termination, they should not be used by any other service (since incoming wholesale call termination is modelled as the final increment). From the list in BT's response, we do not believe that any of these activities are specific to only external termination.

A12.145 In response to [3], we have not taken a view as to whether PPP costs are at the efficient level. Where we have included administration costs in the model to determine wholesale call origination charges, we have done so on a bottom-up basis. We agree with CWW that PPP reducing over time should not be a consideration in whether it is incremental to wholesale call termination and this has not formed part of our analysis.

A12.146 Given the support we have from the majority of respondents and the further reasoning summarised above, we do not propose to change our approach to passive network assets or to include any administration costs in the LRIC model to determine fixed wholesale call termination charges.

Cost of capital

A12.147 In the September 2012 Consultation we outlined our approach to estimating the weighted average cost of capital (WACC). This approach was originally developed

in a statement in August 2005 covering a number of issues relating to risk and return.⁶⁵³ In that statement, we set out our approach to estimating disaggregated WACCs for different parts of BT to reflect variations in systematic risk between different activities. We concluded that it was appropriate to estimate a disaggregated WACC for BT's copper access business and to have another rate for 'the rest of BT'.

A12.148 This disaggregated approach has since been used in a number of charge controls, including the 2005 and 2009 NCCs. In the 2005 NCC we concluded that it was appropriate to use a rate for 'services on BT's core network', which is analogous to the 'rest of BT' rate. In the 2005 NCC we used a value of 11.4% pre-tax nominal.⁶⁵⁴ We also used the 'rest of BT' rate in the 2009 NCC, which we calculated as 11% pre-tax nominal.⁶⁵⁵ We continue to believe that this 'rest of BT' rate is appropriate when looking at the BT services considered in this market review.

A12.149 In the 2012 September Consultation, we proposed that the WACC for the 'rest of BT' estimated in the 2011 WBA Charge Control Statement at 9.7% pre-tax nominal, 6.5% pre-tax real, remained appropriate without the need to update the estimates.

Responses to the 2012 September Consultation: Cost of capital

A12.150 BT believed that the use of the 'rest of BT' WACC was inappropriate because we were building a model for an NGN operator with a 25% market share. BT believed that our modelled operator would find it more difficult to raise debt finance than BT due to a lower credit rating. BT also believed that the modelled operator would have a lower gearing ratio and so a higher proportion of the business would be supported by equity. BT argued that these factors would increase the WACC and a more appropriate value would be a real pre-tax rate of 8% for the entire modelling period.⁶⁵⁶

A12.151 BT also disagreed with Ofcom converting historic nominal WACC rates to real values using forecast inflation. BT argued that Ofcom should have used actual inflation. BT noted that using actual inflation would cause the real inflation to change considerably from year-to-year which could distort the ED algorithm. BT used this point to support its call for an 8% pre-tax real WACC over the entire modelling period.⁶⁵⁷

A12.152 Virgin Media agreed with our use of the 'rest of BT' WACC. Virgin Media also noted that Ofcom had indicated that a review of BT's WACC would take place in 2012. Virgin Media requested clarification on what this would mean for the narrowband market review.⁶⁵⁸

A12.153 H3G identified that the 2012 September Consultation incorrectly stated that the 2011/12 WACC was 8.3% rather than the 6.5% used in the model.⁶⁵⁹

⁶⁵³ http://stakeholders.ofcom.org.uk/binaries/consultations/cost_capital2/statement/final.pdf

⁶⁵⁴ Para 6.72 of

http://stakeholders.ofcom.org.uk/binaries/consultations/charge/statement/statement_ncc.pdf

⁶⁵⁵ Para A2.67 of

http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf

⁶⁵⁶ BT response to the September 2012 Consultation. Section 10.7.

⁶⁵⁷ BT response to the September 2012 Consultation. Section 10.8 to 10.9.

⁶⁵⁸ Virgin Media response to the September 2012 Consultation. Page 12.

⁶⁵⁹ H3G response to the September 2012 Consultation. Annex, Section 2a.

A12.154 [X] suggested removing the nominal cost of capital from the model as only the real rate was used.⁶⁶⁰

Ofcom's analysis and assessment of responses

A12.155 We disagree with BT that we should use a different WACC from the value that we have calculated for the "rest of BT". It is the nature of a bottom-up modelling exercise that the model will differ from any real world network. We do not believe that this is a reason not to use BT's WACC. Using BT's WACC in this case is consistent with our approach when building the 2011 MCT model where our beta analysis drew on asset returns for Vodafone, even though the MCT model network design and market share differs from that attributable to Vodafone.⁶⁶¹ Additionally, we have now set our base case market share at 50%, which is much closer to BT's market share.

A12.156 Even if we thought that a higher WACC was appropriate, it is by no means clear why BT's suggestion of holding the WACC constant at 8% for the entire modelling period would be appropriate.⁶⁶² In particular, it would imply that the cost of equity and debt finance as well as gearing was constant over the entire modelling period from 2005/06 to 2045/46. In reality, we know that various WACC parameters have varied from 2005 to date. Comparing Figure 8.4 from the August 2005 Cost of Capital Statement⁶⁶³ with Table A8.2 from the 2012 WLR and LLU Charge Control Statement⁶⁶⁴, it can be seen that every parameter relevant to calculation of the WACC has varied. Not surprisingly, the 'rest of BT' WACC has fallen markedly over that period.

A12.157 We have observed declining values for the WACC across both the mobile⁶⁶⁵ and fixed CPs over the last 10 years and it is not clear why we would not also see a declining WACC for our hypothetical NGN operator.

A12.158 We also do not agree with BT's approach to converting from the nominal to the real WACC. When we calculate a WACC figure, we do so by including an assumption for inflation, however, it is the real WACC that we are interested in calculating. It is incorrect to believe that if, ex-post, actual inflation turns out differently from what was forecast, then the real WACC changes. If inflation was high enough, this could lead to the perverse outcome that the real WACC became negative.

A12.159 The approach we took in the 2012 NCC model was also consistent with what we did in the 2011 MCT model for converting the nominal WACC to a real WACC. In the 2011 MCT modelling, we calculated the real WACC at the same time as the nominal WACC and used the real WACC in the model.

A12.160 We agree with the points made by H3G and [X] and have corrected our cost of capital table below and removed the nominal WACC from the 2013 NCC model.

⁶⁶⁰ [X] report is support of [X] response to the September 2012 Consultation. Page 7.

⁶⁶¹ The beta of an asset (e.g. company) measures the variability of the returns on that asset with those of the benchmark market as a whole – e.g. as against the FTSE all share index. Beta measures the systematic risk associated with the asset in question.

⁶⁶² Given the way the WACC interacts with the Original ED algorithm, using a constant WACC will cause less cost to be recovered in the past than with a declining WACC

⁶⁶³ http://stakeholders.ofcom.org.uk/binaries/consultations/cost_capital2/statement/final.pdf

⁶⁶⁴ http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc/statement/LLU_WLR_CC_annexes.pdf

⁶⁶⁵ Our estimates of the mobile WACC have declined from a real pre-tax value of 13.77% in 2002/03 to 6.2% by 2009/10.

Conclusion on the WACC

A12.161 We are not proposing to change our approach to calculating the WACC as a result of the responses to the September 2012 Consultation. We are currently reviewing our estimate of BT's WACC and expect to publish the revised 'rest of BT' WACC as part of the leased lines charge control statement. Our 2013 NCC statement will reflect Ofcom's latest calculation on the WACC.

A12.162 In this consultation, we will continue to use the same WACC values as we used in the September 2012 Consultation. Although the updated WACC calculation has not yet been finalised, we have reviewed the inputs to this calculation and do not believe that there will be a significant change in the WACC. However, in our sensitivity analysis, we have used a range of forward looking values of WACC from 6% to 7%.

Figure A12.8: Real pre-tax WACC series ⁶⁶⁶

| | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Real WACC | 8.7% | 8.7% | 8.7% | 8.7% | 8.3% | 8.3% | 8.3% | 6.5% |

Cost recovery

Cost recovery over time

A12.163 Once the total costs of the hypothetical NGN have been calculated, we must determine how these costs are recovered over time. In the 2012 September Consultation, we proposed to adopt economic depreciation, rather than accounting depreciation, to recover costs over time. Economic depreciation better reflects the forward looking economic value of an asset than accounting approaches to depreciation and so better mimics the outcome of a competitive market. Economic depreciation considers costs over the whole economic life of the network and in particular avoids the inverse relationship between in-year utilisation and unit costs prevalent under accounting approaches to depreciation.⁶⁶⁷

A12.164 Using economic depreciation in bottom-up cost modelling is consistent with the 2009 EC Recommendation, which states that: "*The recommended approach for asset depreciation is economic depreciation wherever feasible.*"⁶⁶⁸

A12.165 Economic depreciation has been used in MCT cost models since 2001. In recent MCT cost models, such as the 2011 MCT Cost Model,⁶⁶⁹ we used a form of economic depreciation known as Original ED.⁶⁷⁰ This method matches the cost of equipment to its actual and forecast usage over the long term. Consequently, there is relatively little depreciation in years when utilisation is low and relatively high depreciation in years of full, or almost full, equipment utilisation.

⁶⁶⁶ From 2011/12, the WACC is held constant at 6.5% in perpetuity.

⁶⁶⁷ An accounting approach to depreciation would usually involve taking the price that would be paid for equipment (or was paid under historic cost accounting) and dividing this value by the expected equipment life to reach a depreciation charge for that year. As a result, in periods of low utilisation unit costs are relatively high and in periods of high utilisation unit costs are low.

⁶⁶⁸ 2009 EC Recommendation, Recital (7).

⁶⁶⁹ We also used this form of economic depreciation in the 2005 MCT Cost Model and the 2007 MCT Cost Model.

⁶⁷⁰ Original ED was developed as a depreciation approach by Oftel see

<http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/depr0901.htm>

A12.166 An alternative way to characterise economic depreciation is as a cash flow analysis to answer the question: what time series of prices, consistent with trends in the underlying costs of production and given forecast traffic, yield an expected present value equal to the capital and operating cash flows arising from building and running the network? In order to answer this question, the Original ED calculation is performed in three stages:

- **Stage 1:** A constant unit cost is calculated as if the final year utilisation and input costs applied over the entire lifetime of the network.
- **Stage 2:** A second component is added to recover the additional costs caused by earlier under-utilisation of the network compared to the final year level.⁶⁷¹ This step is also applied as a constant unit price for all years.
- **Stage 3:** A third component is added to recover the remaining un-recovered (or over-recovered) costs due to input costs, including the WACC, being above (or below) the final year level. The shape of this component is determined by the arithmetic difference between in-year and final-year input costs,⁶⁷² and is therefore zero in the final year (or any year that shares the same level of input costs and WACC as the final year). More costs are recovered in years when asset prices and the WACC are higher than the final year.

A12.167 When traffic levels are not relatively stable, we believe that Original ED is likely to produce a more satisfactory path of unit costs than accounting forms of depreciation. This is because it smoothes the path of unit costs and is not subject to large variation due to short-term asset under-utilisation. We also consider Original ED to be a better depreciation approach to other forms of economic depreciation because we consider it better mimics a competitive market. For example, other forms of economic depreciation, such as “Simplified ED”,⁶⁷³ do not calculate the terminal price based on mimicking a hypothetical competitive market; rather, the terminal price is a by-product of scaling the shape of the cost recovery profile to achieve full cost recovery.

A12.168 As noted above, this approach to economic depreciation has been widely applied by Ofcom in previous bottom-up MCT cost models⁶⁷⁴ and has been supported by the CC each time it has been appealed; most recently in the 2012 CC Determination.

Response to the 2012 September Consultation: Cost recovery

A12.169 BT criticised our use of Original ED in the model. BT believed that the unit costs calculated from the 2012 NCC model were not consistent with Ofcom’s explanation of how costs should be recovered over time.

⁶⁷¹ If under-utilisation is increasing then this could be a negative value.

⁶⁷² The “input costs” for a particular year are the asset price (or operating cost) for that year and the WACC. The arithmetic difference between in-year and final year inputs cost can be written as = $(\text{Asset price}_t \times \text{WACC}_t) - (\text{Asset price}_n \times \text{WACC}_n)$. Where (t) is the current year and (n) is the final year.

⁶⁷³ We have included Simplified ED in the model to enable us to perform a cross check against the Original ED algorithm.

⁶⁷⁴ See <http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/depr0901.htm> for an explanation.

A12.170 BT did not agree with the way Original ED recovers the costs of assets over time. In particular, BT did not believe that costs should be recovered from output that has occurred before the asset has been purchased.⁶⁷⁵ BT also considered that the Original ED algorithm was not behaving correctly because it recovered costs as if assets were under-utilised in early periods even though utilisation was increasing.⁶⁷⁶

A12.171 BT disagreed with the recovery of operating costs using the Original ED algorithm. BT believed that operating costs should be recovered in the year in which they are incurred.⁶⁷⁷

A12.172 BT believed that the model did not appear to recover a return on capital employed. BT stated that this was a significant part of network costs and should be included in the model.⁶⁷⁸

A12.173 BT also identified two inconsistencies in the treatment of asset price trends:

12.173.1 The opex asset price trend was incorrectly calculated in the Original ED algorithm;⁶⁷⁹ and

12.173.2 The starting price for the capex asset price trend used for part of the Original ED algorithm referred to the asset implementation price rather than the total price.⁶⁸⁰

A12.174 Virgin Media made no comment on our use of Original ED.⁶⁸¹ TalkTalk⁶⁸² and [X]⁶⁸³ agreed with our use of economic depreciation. CWW was not aware of any reason to justify a departure from the method we used in the MCT models.⁶⁸⁴

A12.175 H3G generally agreed with our use of Original ED. H3G identified four issues with the implementation of the Original ED algorithm that it believed should be addressed:

12.175.1 As also noted by BT, the starting capex asset prices used in parts of the algorithm was only the capex implementation rather than the total capex;⁶⁸⁵

12.175.2 The way yearly asset price changes were calculated was inconsistent between the Cost module and Economic module;⁶⁸⁶

12.175.3 The opex based on the final year asset prices was incorrectly referenced;⁶⁸⁷ and

⁶⁷⁵ BT response to the September 2012 Consultation 10.3 to 10.5.

⁶⁷⁶ BT first email Section 4.

⁶⁷⁷ BT response to the September 2012 Consultation. Paragraph 10.10

⁶⁷⁸ BT response to the September 2012 Consultation. Paragraph 10.11

⁶⁷⁹ BT first email Section 1.

⁶⁸⁰ BT first email Section 5

⁶⁸¹ Virgin Media response to the September 2012 Consultation. Page 12.

⁶⁸² TalkTalk response to the September 2012 Consultation. Page 7.

⁶⁸³ [X] response to the September 2012 Consultation. Question 10.

⁶⁸⁴ CWW response to the September 2012 Consultation. Page 19.

⁶⁸⁵ H3G response to the September 2012 Consultation. Annex Section 2b.

⁶⁸⁶ H3G response to the September 2012 Consultation. Annex Section 2c.

⁶⁸⁷ H3G response to the September 2012 Consultation. Annex Section 2d.

- 12.175.4 The Original ED algorithm does not correctly recover retirement costs when they were included as opex.⁶⁸⁸

Ofcom's analysis and assessment of responses

A12.176 As noted above, Original ED has been used by Ofcom (and Oftel) for previous MCT cost modelling and endorsed by the CC in previous appeals. In the 2012 MCT appeals the CC also supported the use of Original ED in the context of calculating termination rates based on LRIC (i.e. not just LRIC+).

A12.177 We disagree with BT that costs should not be recovered from output that has occurred before the asset has been purchased. When calculating pure LRIC, there will be periods of time when no incremental assets are required for incoming calls, but incoming calls are still being carried. It would be inappropriate for this traffic not to contribute to cost recovery.

A12.178 A similar issue was raised by EE in the 2012 MCT appeals.^{689 690} As we argued in the MCT appeals: *"In so far as cash inflows and outflows did not match, the 2011 Model behaved in the first instance much like any NPV calculation."*⁶⁹¹ This means that the algorithm will equalise the present value of costs and the present value of volumes.

A12.179 We also disagree with BT that operating costs should not be included in the economic depreciation algorithm. We see no reason why operating costs should not be recovered via the Original ED algorithm. Additionally, recovering operating costs via the Original ED algorithm is consistent with our approach to economic depreciation in the last 12 years of MCT modelling.

A12.180 We disagree with BT that the 2012 NCC model does not allow a return on capital employed. The Original ED algorithm works in a similar way to a discounted cash flow analysis and the return of capital is captured by equalising the discounted cash outflows and the discounted revenue (each discounted at the WACC).⁶⁹²

A12.181 We agree with BT that a negative utilisation component should not occur when utilisation is increasing over time. We have included a fix for this issue so when the model is running the LRIC calculation the Original ED algorithm is forced to treat the values in 2045/46 as the terminal utilisation.⁶⁹³

A12.182 We agree with BT and H3G that the opex is not correctly referenced in the 3.Economic.xlsm worksheets. We have corrected this referencing error.⁶⁹⁴

A12.183 We agree with H3G that the capex value used in part of the Original ED algorithm is the capex implementation rather than the total capex. We have corrected this error in the 3.Economic.xlsm workbook.⁶⁹⁵

⁶⁸⁸ H3G response to the September 2012 Consultation. Annex Section 2e.

⁶⁸⁹ 2012 CC Determination, Section 3.485.

⁶⁹⁰ EE's specific point related to the discount rate that should be applied to revenue earned (and carried forward) before incremental assets are "purchased".

⁶⁹¹ 2012 CC Determination, Section 3.492.

⁶⁹² In subsequent correspondence, BT agreed that the 2012 NCC model does include a return on capital employed.

⁶⁹³ See Cells AV12 and AV16 in worksheets E1 to E200 of the 3.Economic.xlsm workbook

⁶⁹⁴ See Rows 73 to 79 in worksheets E1 to E200 of the 3.Economic.xlsm workbook.

⁶⁹⁵ See Range H435 to H634 in the "Other inputs" worksheet of the 3.Economic.xlsm workbook.

A12.184 We agree with H3G that there is an inconsistency between the way asset prices are calculated between the 2.Network.Cost module and the 3.Economic module. We have changed the way yearly unit opex and capex trends are calculated in the 2.Network.Cost module to make them consistent with the 3.Economic module.⁶⁹⁶

A12.185 Although retirement costs will still be recovered if they are included as opex, we agree with H3G that capitalising the retirement cost and including it in the total capex will be more consistent with the application of Original ED. The costs incurred for assets should match the asset price trend so that costs can be correctly recovered over time. In the 2.Network.Cost module the retirement costs are capitalised and added to the asset price.⁶⁹⁷

Cost recovery between assets

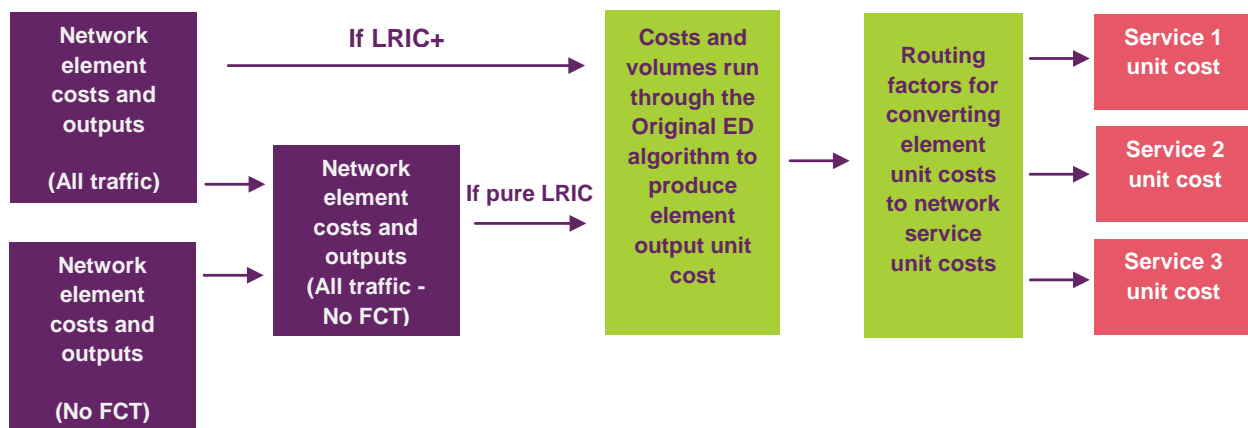
A12.186 In the September 2012 Consultation we described how the costs of a particular network element should be recovered over time from different network services. The costs recovered by a particular service are linked to the costs that are driven by that network service. Each network service will have a routing factor relating to each piece of network equipment, which will drive the amount of network equipment needed to carry a unit of the service.

A12.187 We went on to explain how these routing factors are adjusted so that they reflect different proportions of traffic in the busy hour (i.e. if data traffic has a greater proportion of total traffic in the busy hour than voice traffic, data services should recover more of the costs). These adjusted routing factors will be used to determine the network element output from which costs are recovered and in turn to allocate costs to network services.

A12.188 Using these routing factors, the economic depreciation algorithm allows us to calculate the yearly unit element output cost for each network element. The unit element output cost is then multiplied by the adjusted routing factor to give the service unit cost. The outputs of this algorithm allow full cost recovery and thereby it follows that the service unit costs represent the LRIC+ for each service (in each year modelled). Figure A12.9 below shows the flow of calculations when costs are being allocated across time and between services.

⁶⁹⁶ See "Input_cost Trends" worksheet in the 2.Network.Cost.xlsm workbook.

⁶⁹⁷ See "Calc_UnitOpex" worksheet of the 2.Network.Cost.xlsm workbook

Figure A12.9: Cost recovery over time and across services^{698 699}

Responses to the September 2012 Consultation: Cost recovery between assets

A12.189 Verizon wished to know how Ofcom would define the busy hour and how companies that have different busy hours during the day would be treated.⁷⁰⁰

A12.190 CWW did not believe that it was clear that model correctly recovered costs across services. CWW believed that the model recovered costs on the basis of total annual traffic rather than busy hour traffic. CWW did not believe that this was appropriate where data and voice have different busy hours.⁷⁰¹

Ofcom's response to specific points raised by stakeholders

A12.191 A further more detail description of how we implement busy hour dimensioning can be found in Annex 13 sections 4.5 and 7.17. In response to Verizon, it is true that different CPs will have different network busy hours, but we are not attempting to model a particular CP. Rather, we are attempting to model a hypothetical national network operator and to do this we have built a network that serves both residential and business customers. The network busy hour coincides with the residential data busy hour in our modelling.

A12.192 We disagree with CWW that network dimensioning and cost recovery routing factors are based on the sum of the busy hour traffic. Our use of non-concurrent busy hours is explained in more detail in Annex 13 section 4.5.

A12.193 We have made an adjustment to the cost recovery routing factors for outgoing calls and international calls. Given our definition of the wholesale call termination and wholesale call origination services in Section 5, we believe that the cost allocated to these services should include no-more than the cost of transit across one core node. Transit across one core node is sufficient to reach a point of interconnection and leave the network.

A12.194 Outgoing off-net calls may cross more than one core node as the network operates "far end handover", but the cost of multiple core transits should not be recovered from the origination service. International calls (both incoming and outgoing), may need to pass multiple core nodes due to the lower number of international

⁶⁹⁸ For illustration only, the figure shows a 3 service model.

⁶⁹⁹ Fixed Call Termination (FCT).

⁷⁰⁰ Verizon response to the September 2012 Consultation. Page 7.

⁷⁰¹ CWW response to the September 2012 Consultation. Section 3.5

interconnection points, but again the cost of these multiple core transits should not be recovered from the wholesale call origination or the wholesale call termination service. In the model, we have still allowed the traffic to pass over multiple core nodes, but we do not allow these costs to be recovered through the cost recovery routing factors. Consequently, the routing factors we use for outgoing calls and international calls are different between network build and cost recovery for some core network assets.

Verifying the model outputs

A12.195 In building our bottom-up model, we have relied on data collected from stakeholders to establish assets costs. We have also relied on data from stakeholders, alongside practical and theoretical evidence, to establish the cost causation relationships in the model.

A12.196 We also believe that it is desirable to check the reasonableness of the model outputs. When we have built other bottom-up models⁷⁰² in the past we have calibrated the outputs against actual operator data. This calibration looked at the total quantity of network equipment and accounting cost outputs provided by those CPs active in the market(s) in question.

A12.197 It is not possible to calibrate the 2013 NCC model in this way because we have no national NGN against which to calibrate it. While recent NGN entrants now have significant national deployments they do not cover the whole of the United Kingdom, in particular the less densely populated and/or more costly geographic areas.

A12.198 In the September 2012 Consultation, we laid out a possible approach for verifying the cost model outputs. In particular:

- i) Costs over the next charge control period should be no higher than the cost of a hypothetical ongoing TDM network (i.e. based on the modelling approach of the 2009 NCC);
- ii) The model should not recover more costs in historic periods than was possible given the level of regulated charges;⁷⁰³ and
- iii) The unit costs from the model should allow BT to recover efficiently incurred costs.

A12.199 We do not now believe that that the first of these conditions is appropriate. In order to compare the costs of two technologies, we would need to compare the total cost of interconnection (both the termination/origination rate and the cost of interconnection services). However, we do not have the costs for all interconnection services in order to make the comparison.

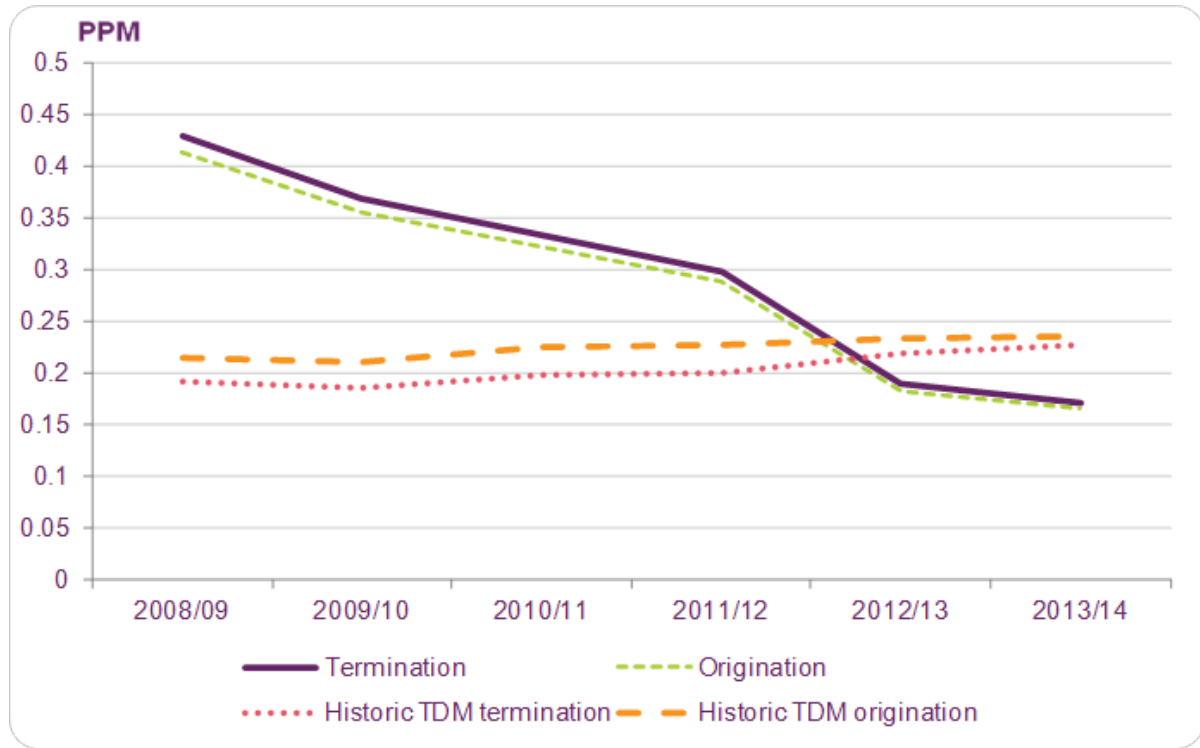
A12.200 In line with condition (ii), we have set a constraint on the model that for the historic period, the path of unit costs for wholesale call origination and wholesale call termination produced by the model should not recover more costs than an operator would have been able to recover given the regulated charges prevailing during most

⁷⁰² See Mobile call termination market review 2011 Annex 10.

⁷⁰³ We performed a similar exercise when building the 2011 MCT model to check if operators were able to recover costs based on historic regulated charges as we changed some of the model parameters. We believe this cross-check is particularly important in the 2013 NCC modelling exercise due to our adoption of a new modelling approach.

of the historic period. Figure A12.10 below shows a comparison of the unadjusted LRIC+ outputs for wholesale call origination and wholesale call termination in our base case against the historic average prices from BT's RFS.

Figure A12.10: Comparison of model outputs against BT RFS prices⁷⁰⁴

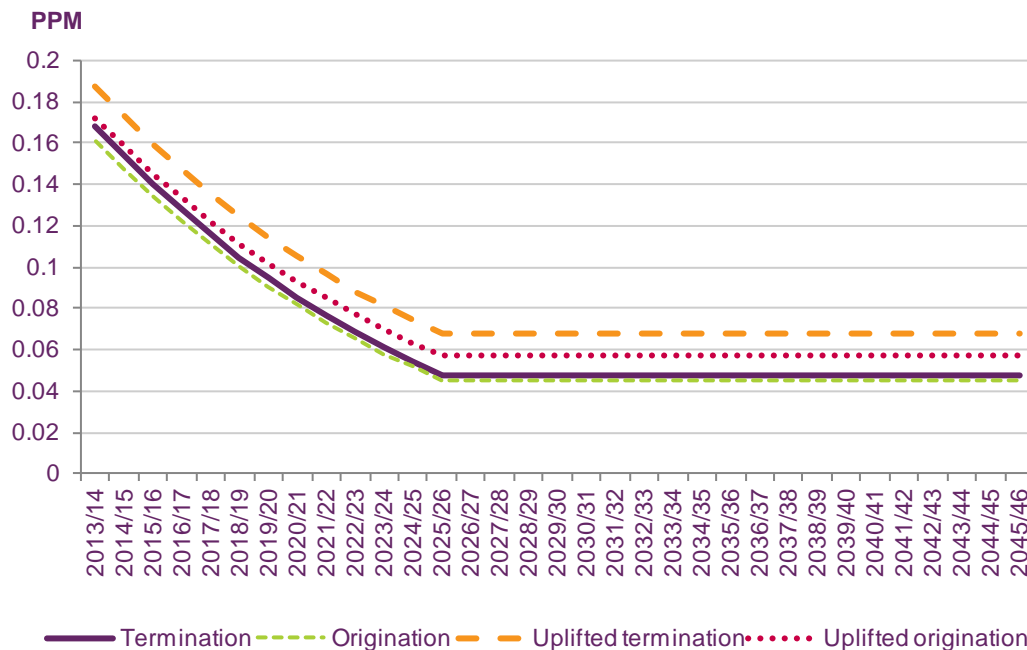


A12.201 The above demonstrates that the unadjusted model allows for greater cost recovery than would have been achievable for the period 2008/09 to 2013/14⁷⁰⁵, given the regulated prices of wholesale call origination and wholesale call termination during that period. We seek to recover the difference between the costs that the unadjusted model allows to be recovered and those that it was actually possible to recover (given past regulation) by increasing future charges.

A12.202 We calculate the discounted total under-recovered costs from termination and origination services separately in the historic period and allocate these costs as a mark-up on voice services in all future periods. This leads to a mark-up of 0.017ppm to the LRIC+ of wholesale call origination and 0.026ppm to the LRIC+ of wholesale call termination. Figure A12.11 shows the resultant LRIC+ for the years after 2012/13 when including the mark-up for wholesale call termination and wholesale call origination in the base case (referred to as “uplifted termination” and “uplifted origination” in the figure).

⁷⁰⁴ Wholesale call termination unit cost estimates from the NGN model are above origination unit costs due to the recovery of the cost of voicemail equipment.

⁷⁰⁵ There is a 1 year lag after network build before traffic is run over the network (i.e. services start in 2006/07).

Figure A12.11: LRIC+ outputs including mark-up⁷⁰⁶

A12.203 In line with condition (iii) above, we believe that the unit cost estimates produced by the model should allow BT the opportunity to recover its efficiently incurred TDM investments (i.e. recover the costs of its near fully depreciated TDM assets) for the period to 2016/17. In order to do this, we have used the 2009 NCC model to project costs forwards, but using 2011/12 cost data from BT and the actual traffic volumes. In doing so, we have not made the hypothetical ongoing network adjustments that were made in the 2009 NCC model.⁷⁰⁷ By updating the 2009 NCC model in this way, we have estimated the unit costs from a TDM network that is depreciated to the same extent as BT's.

A12.204 Although we have used an updated version of the 2009 NCC TDM model, we recognise the high level of uncertainty that exists in relation to the future cost of BT's network. We therefore believe that the results of this cross-check should be treated with caution. We therefore have not treated condition (iii) as binding in the same way that condition (ii) is binding.

A12.205 In any case, in present value terms, the combined cost recovery across termination and origination in the NGN model exceeds that from the depreciated TDM model, such that cost recovery across both wholesale call origination and wholesale call termination would be achieved. We therefore propose no further adjustment to the NGN modelled costs to comply with condition (iii).

Other cross-checks

A12.206 The cross-checks and adjustments discussed thus far only relate to LRIC+ outputs. We are also interested to see if our LRIC outputs for wholesale call termination fall

⁷⁰⁶ Wholesale call termination has a higher mark-up due to the difference between the NGN wholesale call termination unit cost estimates and the TDM wholesale call termination historic prices being greater than the difference between the NGN wholesale call origination unit cost estimates and TDM wholesale call origination historic prices.

⁷⁰⁷ The hypothetical ongoing network adjustments included decreasing the Gross Replacement Cost of assets, increasing the Net Replacement Costs and reducing the asset lives.

within a reasonable range. Other European NRAs are also currently implementing fixed LRIC cost models. It would not be appropriate for us to try and match the outputs of other NRAs' models.⁷⁰⁸ However, the outputs produced by models from other NRAs are informative. In Figure 12.12 below, we have reviewed the estimate of LRIC for wholesale call termination for a range of countries that have already set regulated FTRs on the basis of LRIC.⁷⁰⁹

Figure A12.12: European NRA LRIC estimates

| | Reported LRIC termination targets (€cpm) |
|---------|--|
| France | 0.080 |
| Ireland | 0.098 (1/7/13 - 30/6/14) 0.085 (1/7/14 - 30/6/15) 0.072 (1/7/15 - 30/6/16) |
| Malta | 0.044 |
| Denmark | 0.06 peak 0.032 off-peak 0.063 set-up fee |

A12.207 As can be seen from this table, our estimate of the LRIC for wholesale call termination is towards the bottom end of current estimates from other NRAs being approximately 0.046€ (in 2011/12 prices)⁷¹⁰.

Recovery of common costs

A12.208 When wholesale call termination rates are set at LRIC, they will no longer provide a contribution to the recovery of common costs. In Section 8, we discuss why we believe these costs should be recovered from other regulated services and our preference for recovering them through a mark-up on wholesale call origination.

A12.209 When calculating the mark-up on wholesale call origination, in each year we have sought to recover the under-recovered costs for that year. By calculating the mark-up in this way, we ensure that the total amount of costs recovered by the model in each year is the same whether wholesale call termination is set using LRIC or LRIC+.

A12.210 In the model, we calculate the mark-up in 3 steps:

- i) Step 1: In each year of the charge control, calculate the difference between our estimate of LRIC+ and LRIC for wholesale call termination;

⁷⁰⁸ In its 2012 Determination Section 3.576, the CC stated that "We do not consider that methods applied by other regulators are a determining factor for Ofcom's decision. Ofcom is not bound by how other regulators have implemented their own charge controls."

⁷⁰⁹ These values have been taken from the BEREC opinion on a phase II investigation in relation to the market for call termination at a fixed location in the Czech Republic. http://berec.europa.eu/eng/news_consultations/whats_new/1358-berec-adopted-a-new-opinion-on-a-phase-ii-investigation-in-relation-to-the-market-for-call-termination-at-a-fixed-location-in-the-czech-republic

⁷¹⁰ Assuming an exchange rate of 1.15€ to the £. This estimate does not include inflation to 2013/14 and so we can expect the nominal value to be slightly higher.

- ii) Step 2: Multiply the output of Step1 by the total incoming minutes of traffic for that year to calculate the total cost under-recovery;
- iii) Step 3: Calculate the in-year mark-up by dividing the total under-recovery of costs by the total outgoing minutes of traffic (both on-net and off-net).

A12.211 Figure A12.13 below shows the yearly mark-up on wholesale call origination charges required to recover the common costs no longer recovered from termination in our base case scenario.

Figure A12.13: Common-cost mark-up on origination (ppm 2011/12 prices)

| | 2013/14 | 2014/15 | 2015/16 |
|------------------------|---------|---------|---------|
| Mark-up on origination | 0.123 | 0.111 | 0.100 |

Efficient charges for interconnect services

A12.212 In Annex 11 we explain why we are proposing not to charge control IP interconnect and in Section 10 and Annex 11 we outline our proposal to apply a charge control on the interconnect basket. We wish to restrict the charges for TDM interconnection services because we recognise that BT has the ability and incentive to price excessively

A12.213 We have identified three options for capping the charges for ISB services:

- i) build a cost model for ISB services;
- ii) allow charges to remain at their current level but indexed each year by RPI (i.e. an RPI+0% cap); or
- iii) control charges at their current level in nominal terms (i.e. an RPI-RPI cap)

A12.214 In deciding on the appropriate basis for charge controlling interconnect circuits, we have examined a number of factors:

- 12.214.1 how volumes of the interconnect services have developed over time;
- 12.214.2 whether charges for interconnect circuits are significantly different from costs; and
- 12.214.3 whether the current costs are reflective of the ongoing costs of offering interconnect circuits.

A12.215 In addition, within this section we consider whether to impose a cost orientation obligation or a sub-cap to protect interconnecting CPs from the risk of significant prices increases on individual services.

Assessment of ISB costs and volumes

A12.216 Over the course of the current NCC period, we have seen a large decline in the number of interconnection circuits. Figures A12.14 and A12.15 show the decline in connection volumes and fixed rental volumes over the period. Since 2008/09, the total volume of connections has decreased by 39% and the volume of fixed rentals has fallen by over 38%, although much of the reduction in rentals occurred at the

start of the period with total rental volumes subsequently being flatter between 2009/10 and 2011/12.

Figure A12.14: ISB connection volumes

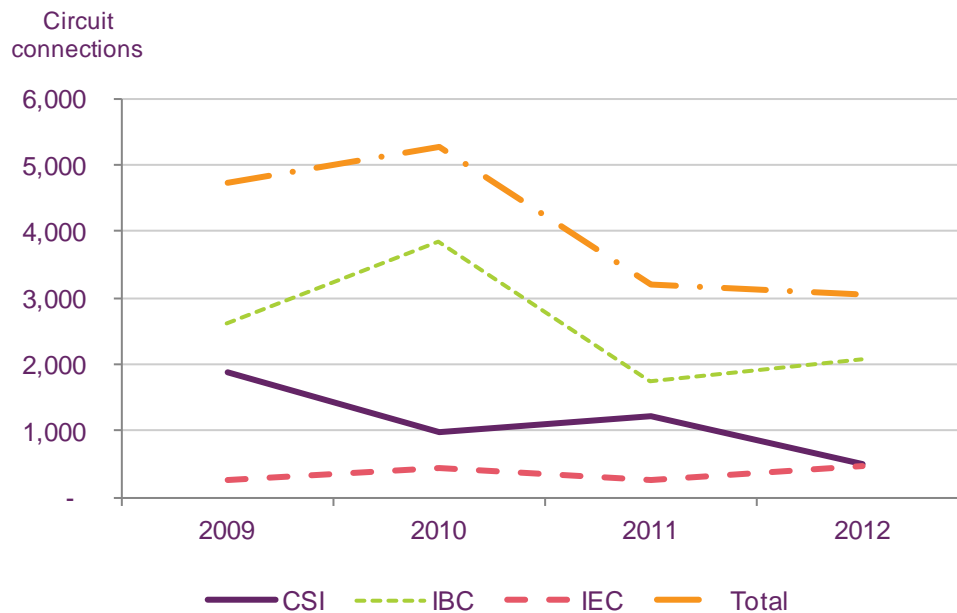


Figure A12.15: ISB rental volumes



Service costs and charges

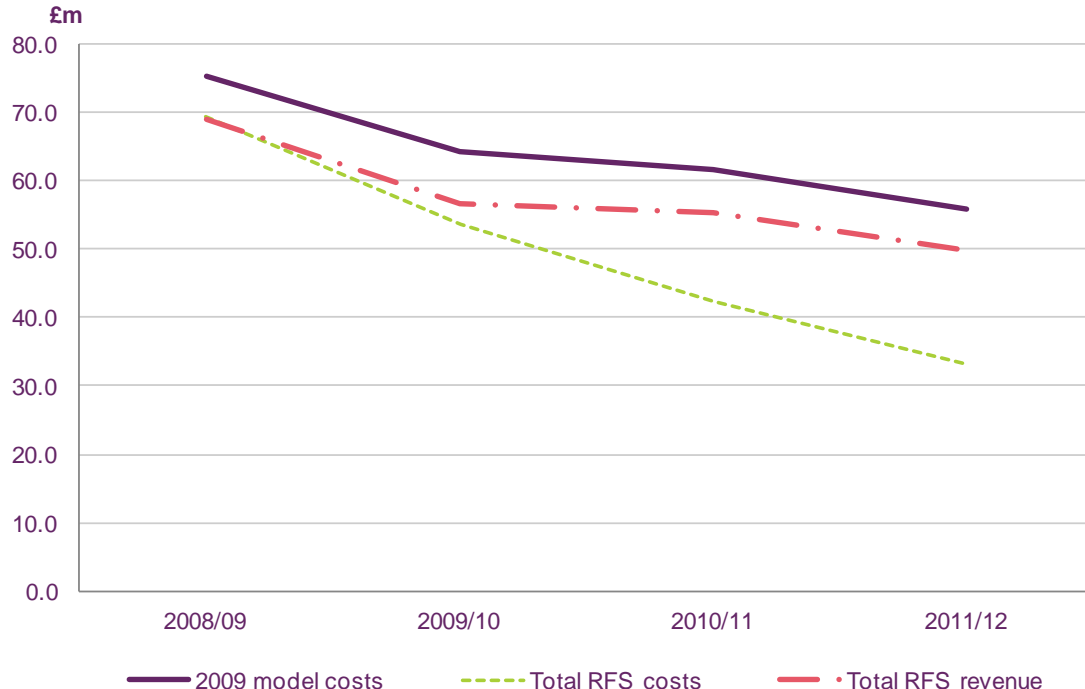
A12.217 Evidence from BT's regulatory financial statements (RFS) suggests that the charges for interconnect circuits are now significantly above reported costs. The return on capital employed (ROCE) for interconnect circuits has increased from under 10% in 2008/09 to almost 40% in 2011/12. However, other evidence

suggests that these ROCE figures are misleading. In previous NCC reviews, we have forecast an increase in the unit cost of interconnect circuits as the volumes of interconnect circuits declined. However, since then and despite the fall in volumes of interconnect circuits, we have seen very little change in their reported unit costs.⁷¹¹

A12.218 Reported costs for interconnect circuits have been falling at a similar rate to volumes, which suggests much higher asset volume and cost volume elasticities (AVEs and CVEs) than have been used in previous modelling of interconnect circuit costs. We can see from BT's RFS data that a large part of the decline in costs of interconnect circuits has come about because of a reduction in the mean capital employed (MCE). Over the last 4 years, the MCE for interconnect circuits has declined by 47%, a reduction that exceeds the percentage reduction in volumes. A reduction in MCE of this type implies that interconnect assets are becoming fully depreciated. Consistent with our approach in the previous NCC, we would not wish to base charge controls on a heavily depreciated asset base, because these costs will not reflect the costs of a hypothetical ongoing network.

A12.219 We have attempted to remove the impact of assets becoming fully depreciated by using the 2009 NCC model and updating our cost estimates with the actual interconnect circuit connection and rental volumes. By using the 2009 NCC model, we have a better reflection of the costs of a hypothetical ongoing network. Figure A12.16 below compares the total interconnect circuit costs from BT's RFS, the total revenue from interconnect circuits and the estimate of total interconnect circuit costs from the 2009 NCC model.

Figure A12.16: Comparison of interconnect circuit costs and revenues



A12.220 As can be seen above, the cost analysis from the 2009 NCC model shows costs falling much more slowly than in BT's RFS. The 2009 NCC model predicts that total

⁷¹¹ On a fully allocated cost (FAC) basis.

interconnect circuit costs are currently above interconnect circuit revenues, whereas revenues are above costs based on the RFS data.

A12.221 We have only performed a simple update of the 2009 NCC model, however, the above evidence suggests that the BT's current revenue from ISB services may lie within a reasonable range for a hypothetical ongoing network. Our view is that this analysis points towards keeping the charges for interconnect circuits relatively stable. This would point towards either a constant nominal (i.e. RPI-RPI) or a constant real cap (i.e. RPI-0%).

A12.222 Given the significant margin over RFS reported costs (i.e. a ROCE of nearly 40%) and because there may be a concern over how accurate the CVEs and AVEs in the 2009 NCC model are given the significant volume declines seen since the last NCC was set (i.e. nearly a 40% decline), we propose a control based on RPI-RPI as our base case.

Assessment of cost orientation vs. sub-caps

A12.223 When constructing a charge control basket, we wish to give BT enough pricing freedom to respond to changes in market conditions, but also to ensure that pricing freedom is not used in a way that might harm competition. In assessing the choice between cost orientation and sub-caps for the ISB basket, we have considered three factors:

- 12.223.1 The current level of charges in relation to their distributed stand alone cost (DSAC) ceilings – the DSAC ceiling forming part of the basis by which we assess cost-orientation;
- 12.223.2 The option that gives CPs the greatest regulatory certainty; and
- 12.223.3 What we have done in other similar charge controls.

A12.224 As can be seen from BT's 2012 RFS,⁷¹² all the prices for interconnect circuits are below the DSAC ceiling. The service with its prices closest to its DSAC level would still need to see prices increase by over 20% before it reached the DSAC level.⁷¹³ On this basis, and depending on the level at which it is set, we consider that a sub-cap can be expected to provide at least as good a protection to customers from the risk of large price increases as a cost orientation obligation.

A12.225 Although all the prices are currently below the DSAC level, we have observed large variations in the DSAC for certain interconnect circuit charges over the current control period.⁷¹⁴ These large variations do not appear to be occurring in a predictable manner. Consequently, we believe that sub-caps, pre-specified for the duration of the control, are likely to provide interconnecting CPs with greater regulatory certainty than potentially variable cost orientation ceilings and floors (the latter being based on distributed LRIC (i.e. DLRIC)).

A12.226 Given the relative stability of interconnect circuit prices over the last 3 years, and the current level of prices relative to the DSAC ceiling, we believe that an RPI+10% sub-cap on interconnect circuits is appropriate to ensure that pricing flexibility within

⁷¹² 2012 Regulatory Financial Statement. page 68.

⁷¹³ Internal wholesale standard CSI rental fixed prices.

⁷¹⁴ For example between 2008/09 and 2011/12, the DSAC for CSI per KM rentals increased by 154% and the DSAC for wholesale IBC connections decreased by 86%.

the overall interconnect basket is not used by BT in such a way that prices of certain services are increased disproportionately to the detriment of customers.

A12.227 Finally, we note that the LLCC proposals set out in our July 2012 consultation⁷¹⁵ propose sub-caps to mitigate potential competition concerns from large changes in the price of some services. Although some of the economic issues at stake in leased lines are different from the present context, leased lines involve capacity based circuits with similar tariff structures to the interconnect circuits considered in the NCC.

Conclusion on ISB services

A12.228 On the basis of the analysis above, we do not believe that it would be proportionate to build a new interconnect circuit cost model on which to set charges. Rather, we believe that it is appropriate for the duration of the next NCC for BT to hold the cost of interconnect circuits constant in nominal terms and so we propose an RPI-RPI cap. In order to prevent excessive changes in the price of services within that basket, we propose to set sub-caps on each ISB service of RPI+10%.

⁷¹⁵ See section 5 of <http://stakeholders.ofcom.org.uk/consultations/llcc-2012/>

Annex 13

CSMG report on NGN modules of NCC model

A13.1 This annex has been published separately.

Annex 14

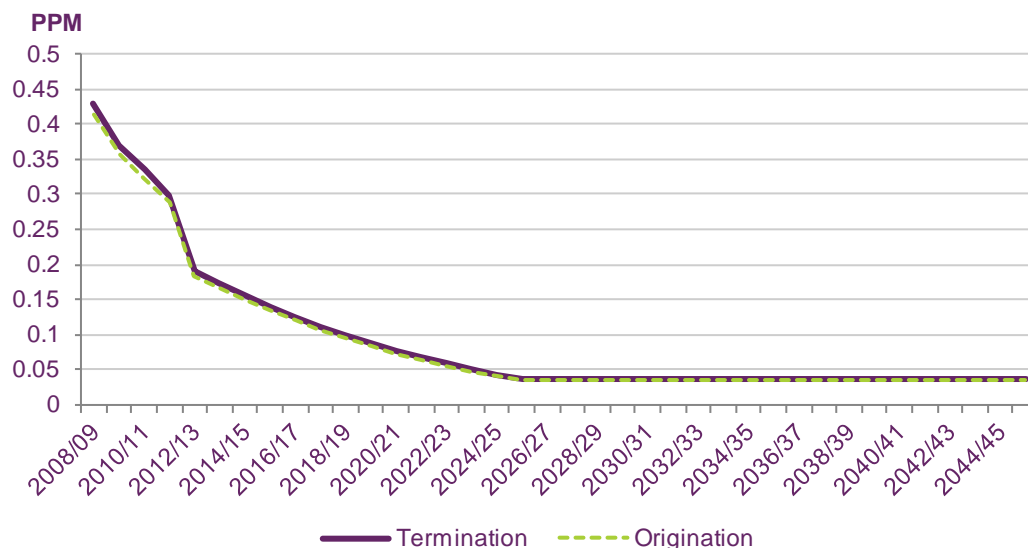
Network cost model outputs and crosschecks

Introduction

A14.1 We have used the 2013 NCC model to calculate the unit costs of voice wholesale call termination using both LRIC+ and LRIC, and LRIC+ for voice wholesale call origination.⁷¹⁶ The detailed assumptions underlying the model have been discussed in Annex 11, Annex 12 and Annex 13. This annex summarises the results of the model.

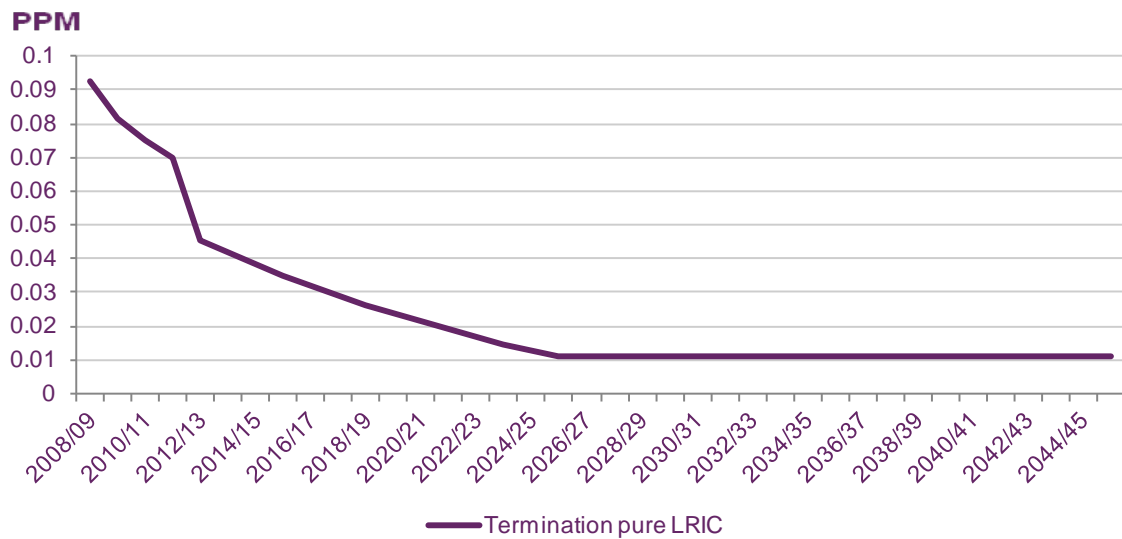
A14.2 Figures A14.1 and A14.2 below show the unadjusted⁷¹⁷ wholesale call termination and wholesale call origination outputs across the modelling period.

Figure A14.1: Wholesale call origination and wholesale call termination LRIC+ outputs (ppm 2011/12 prices)



⁷¹⁶ 'Incoming voice' and 'outgoing voice' are the terms used to describe wholesale call termination and wholesale call origination respectively in the model. Incoming voice is used interchangeably with wholesale call termination in this annex. Similarly, outgoing voice is used interchangeably with wholesale call origination in this annex.

⁷¹⁷ Before the adjustment made as part of the cost verification, or as part of the common cost recovery from wholesale call termination services.

Figure A14.2: Wholesale call termination LRIC outputs (ppm 2011/12 prices)

Model outputs and sensitivities

A14.3 This section deals with the model outputs under the base case scenario, it shows the sensitivity of the model to changes in certain assumptions and it also shows the model outputs under low cost and high cost scenarios in order to illustrate a range of possible unit cost outputs. The remainder of this section is laid out as follows:

- i) We first describe the assumptions used in the base case and present the corresponding results calculated using LRIC+ and LRIC for wholesale call termination and LRIC+ only for wholesale call origination.
- ii) We have also used the model to examine the sensitivity of the unit costs of wholesale call termination under a wide range of assumptions. We have carried this out by conducting sensitivity analyses. We present these sensitivity analyses in two sections, one examining the sensitivity of the results to changes in demand assumptions, and one discussing other assumptions such as technology.
- iii) After the sensitivity analyses, we present the results of the model under two other scenarios (in addition to the base case), high cost and low cost. These scenarios vary the most significant assumptions, as identified by the sensitivity analyses.

A14.4 The LRIC+ wholesale call termination estimates shown from this point onwards includes the mark-up following the historic cost recovery check described in Annex 12. The LRIC+ wholesale call origination estimates shown from this point onwards includes the mark-up described in the historic cost recovery check and the common cost recovery mark-up described in Annex 12.

Model results for the base case

A14.5 The base case scenario has the following assumptions:

- i) An operator with 20 points of interconnect;

- ii) 1 voice server node⁷¹⁸;
- iii) NGN services start to be offered in 2008/09 with full migration lasting 4 years⁷¹⁹;
- iv) Our medium demand forecast (as described in Annex 12) is used for all line and usage per line assumptions;
- v) Long-term market share for the efficient operator is 50%;
- vi) Voice wholesale call termination is the weighted average of off-net incoming calls (passing over a single aggregation node), off-net incoming calls (passing across the core) and off-net incoming international calls.
- vii) Voice wholesale call origination is the weighted average of off-net outgoing call (passing over a single aggregation node), off-net outgoing calls (passing across the core) and off-net outgoing calls (to international);
- viii) WACC is set at a real pre-tax rate of 6.5% on a forward looking basis⁷²⁰; and
- ix) Costs are in real terms for 2011/12 prices.

Sensitivity analysis: demand assumptions

A14.6 We have carried out a number of sensitivity analyses to explore the impact of varying assumption on the model results. This section examines the effect of changes in demand parameters, while the following sections consider the impact to changes in technology and cost inputs. The four demand sensitivities are:

- 14.6.1 **Voice traffic:** high, medium and low values for all voice traffic inputs;
- 14.6.2 **Data traffic:** high, medium and low values for number of broadband lines and peak bandwidth use;
- 14.6.3 **Market share:** 25%, 50% and 65% market share assumption (other network traffic assumptions are held at the base case scenario level);⁷²¹ and
- 14.6.4 **All traffic:** high, medium, and low values for voice traffic, data traffic and market share.

A14.7 In the following subsections we consider the impact of changing each of these groups of parameters. In the final section we consider these parameters as part of the low, high and medium scenarios. The different levels of voice and data parameters are discussed in more detail in Annex 12.

Voice usage

A14.8 Figure A14.3 below shows the impact on the estimated wholesale call termination and wholesale call origination unit cost of changing the forecast usage of voice services and the growth in the number of lines. It can be seen that when using

⁷¹⁸ In order to maintain resilience, 1 voice server node equates to 2 voice call servers.

⁷¹⁹ Network build starts in 2007/08 and deployment takes 4 years. However, there is a 1 year lag before services are run over the network.

⁷²⁰ The historic WACC is taken as given and not flexed in the sensitivity analysis.

⁷²¹ As discussed in Annex 12, we assume a 50% market share in the base case.

LRIC+, higher levels of voice usage and numbers of lines leads to lower unit costs for both wholesale call origination. Figure A14.4 shows that when using LRIC for wholesale call termination, there is very little change to the model outputs under different voice usage scenarios.

Figure A14.3: Wholesale call origination LRIC+ - analysis for different voice usage forecasts

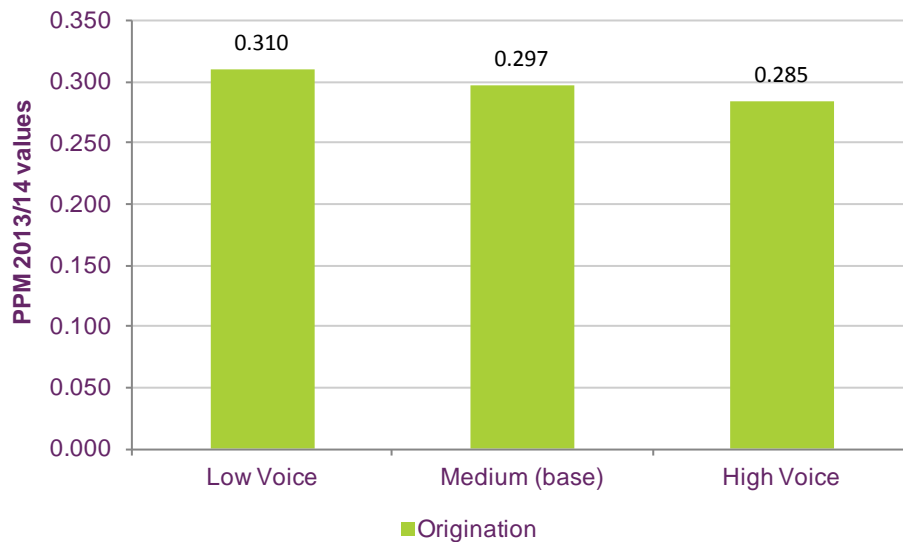
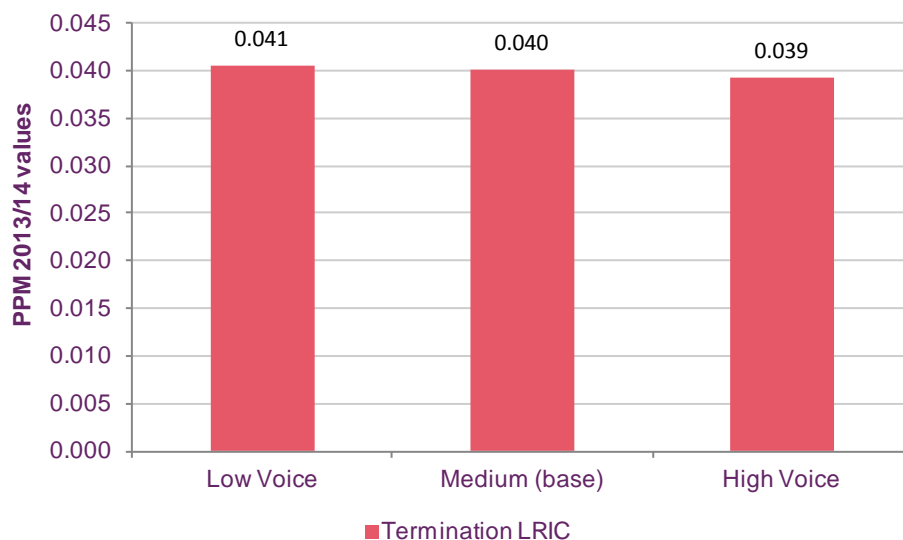


Figure A14.4: Wholesale call termination LRIC - analysis for different voice usage forecasts



Data traffic forecasts

A14.9 Figure A14.5 shows the LRIC+ unit costs of wholesale call origination when we change the growth in broadband lines and peak broadband usage. As we would expect, under LRIC+ a greater amount of data traffic passing over the network will decrease the unit cost of voice. Figure A14.6 shows the impact on the LRIC of wholesale call termination when we change the data forecast parameters. The LRIC

of wholesale call termination is relatively insensitive to changes in the amount of data traffic, but does increase slightly in the high data traffic sensitivity.⁷²²

Figure A14.5: Wholesale call origination LRIC+ - sensitivity analysis of data usage forecasts

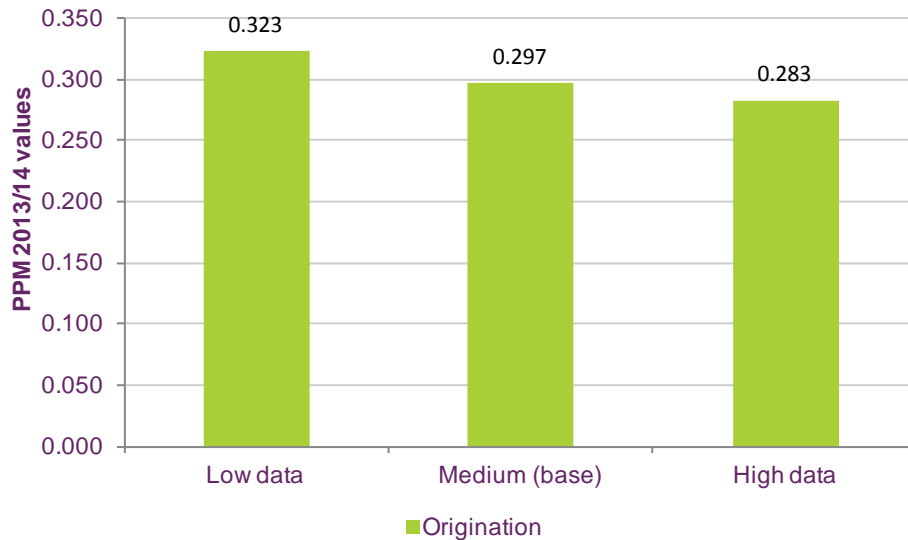
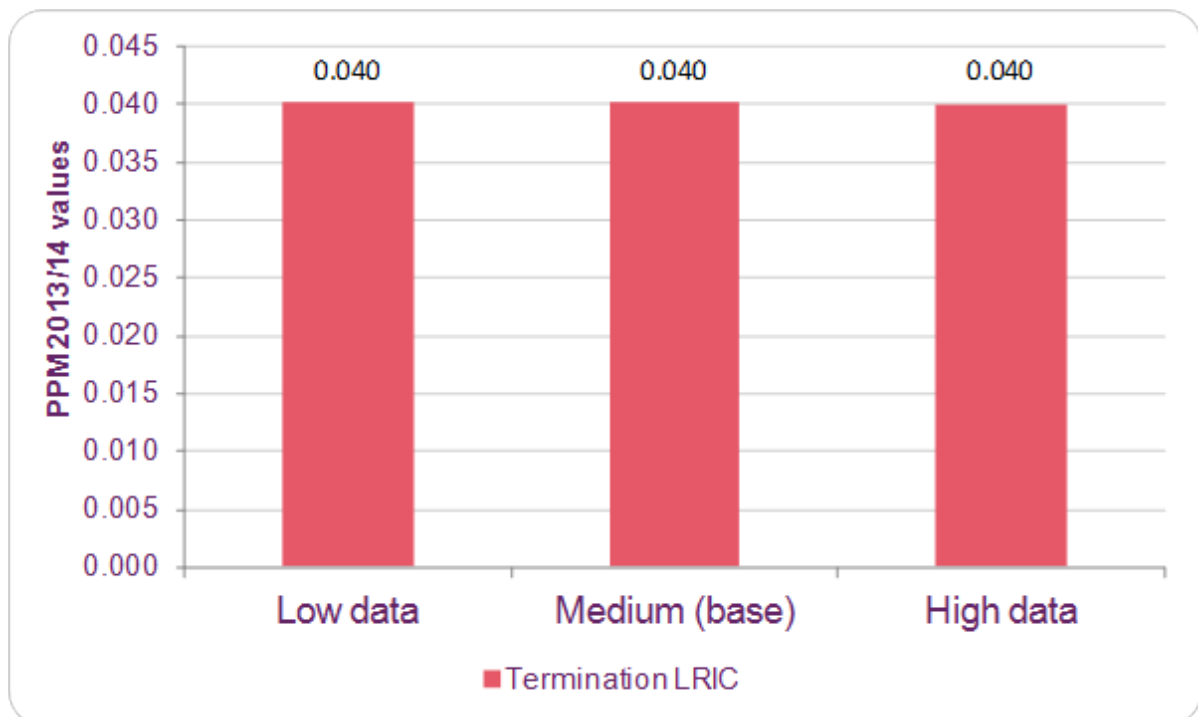


Figure A14.6: Wholesale call termination LRIC - Sensitivity of data usage forecasts



Market share

A14.10 Figure A14.7 and A14.8 below show the change in model outputs if we use the market shares (as described in Annex 12). As with other demand related

⁷²² The higher data traffic leads to more assets becoming capacity constrained and consequently the termination increment to incur additional cost.

sensitivities, increasing the market share causes the LRIC+ unit costs to fall. Figure A14.8 shows that as market share increases, the LRIC of wholesale call termination also increases.⁷²³ Decreasing the market share to 25% will lead to a halving of network traffic, which as we would expect causes a large increase in the LRIC+ of wholesale call origination.

Figure A14.7: Wholesale call origination LRIC+ - sensitivity to changes in market shares

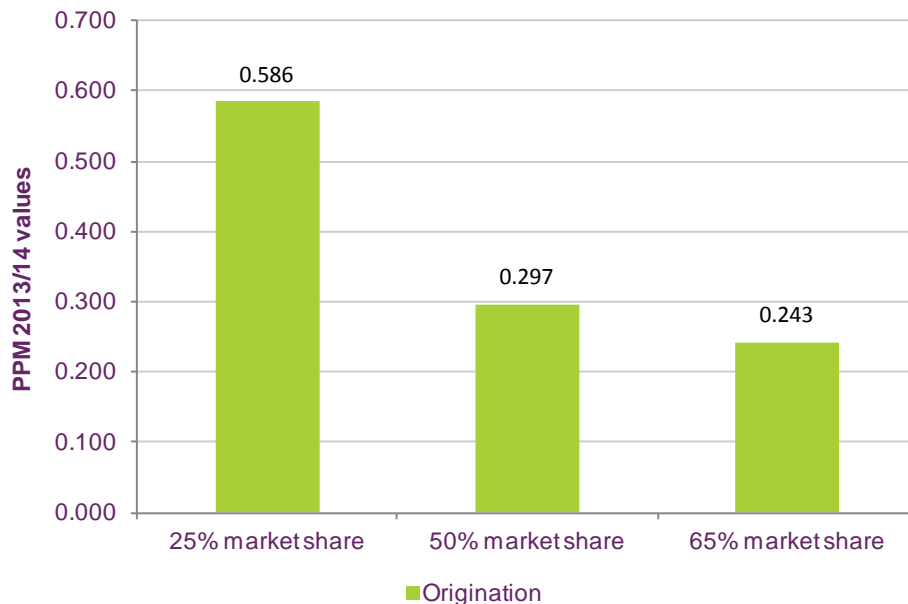
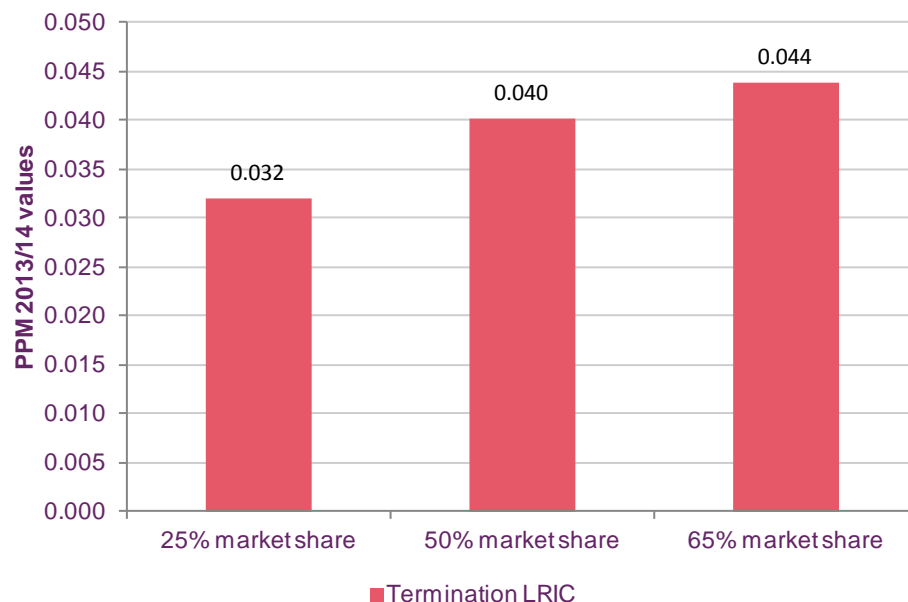


Figure A14.8: Wholesale call termination LRIC - sensitivity to market share



⁷²³ The inverse relationship between market share and LRIC is due to the greater amount of termination causing more asset capacity boundaries to be reached. This means that more assets will become incremental to termination.

Combination of multiple demand assumption

A14.11 The effect of changing the main demand parameters together (including the market share) is shown in Figure A14.9 for LRIC+ outputs and Figure A14.10 for the LRIC of wholesale call termination. The LRIC of wholesale call termination is relatively insensitive to changes in all demand parameters combined. However, it does increase as the demand parameters increase.

Figure A14.9: Wholesale call origination LRIC+ - sensitivity to all demand parameters

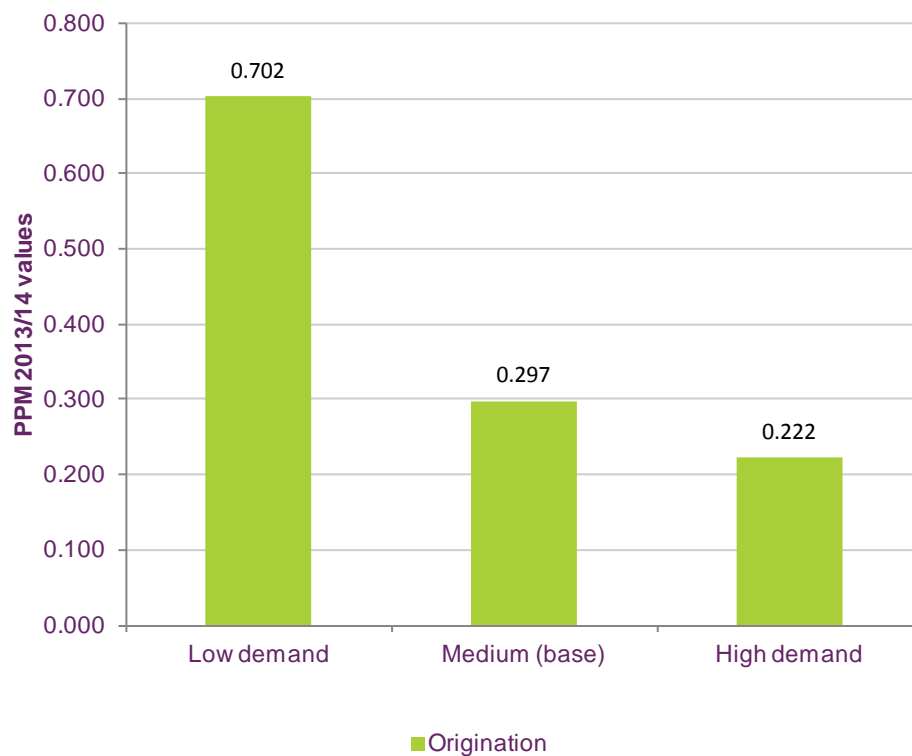
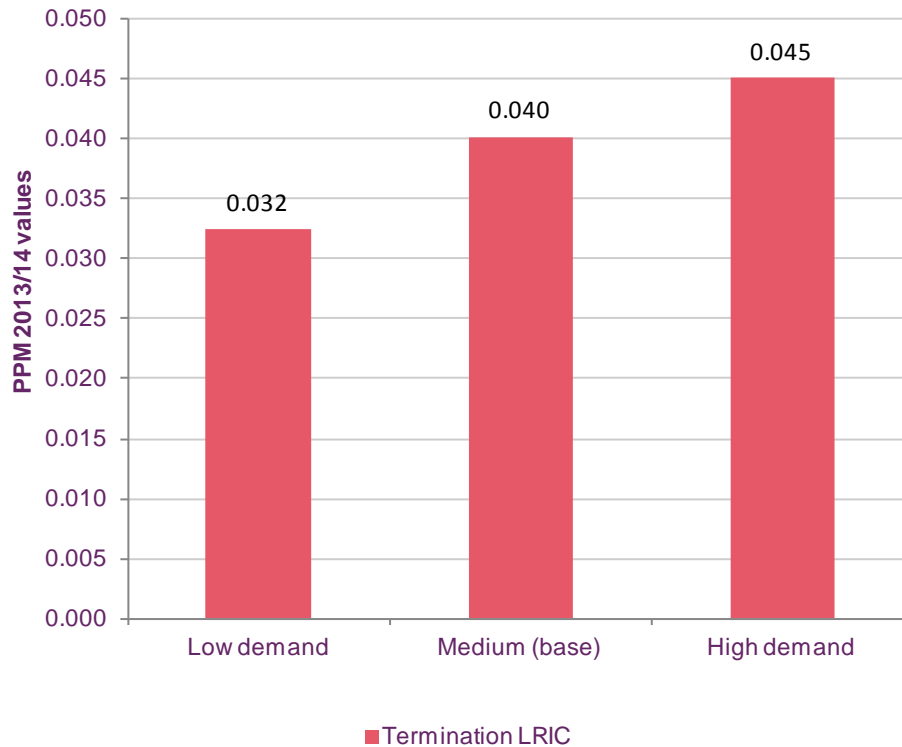


Figure 14.10: Wholesale call termination LRIC - sensitivity to all demand scenarios

Sensitivity analysis: network and input cost assumptions

A14.12 In this section we study the impact of a number of non-demand related assumptions on the unit cost outputs of the 2013 NCC model. These assumptions cover both network build parameters and cost inputs:

- i) Speed of network roll-out;
- ii) Start of network roll-out;
- iii) Number of points of interconnect;
- iv) Cost of the voice software licence;
- v) Asset utilisation;
- vi) WACC for the modelled operator; and
- vii) Length of the average busy hour call;

Speed of network deployment

A14.13 As discussed in Annex 13 we assume that deployment of the NGN starts in 2007/08 and lasts for 4 years. We have run sensitivities to examine the impact of a different length of deployment period. The shortest deployment period is 4 years. The longest deployment period is 8 years and we also run a 6 year sensitivity.

A14.14 Figures A14.11 and A14.12 show the impact of changing the deployment period on the LRIC+ outputs and LRIC outputs respectively. Increasing the speed of

deployment decreases the LRIC+ outputs for both wholesale call origination. Likewise, increasing the speed of roll-out lowers the wholesale call termination LRIC estimate.

Figure A14.11: Wholesale call origination LRIC+ - sensitivity to NGN deployment period

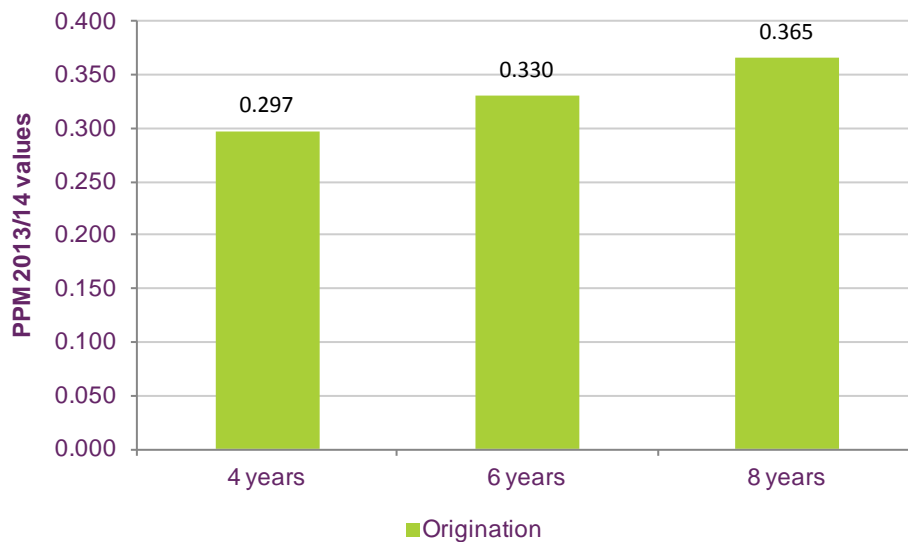
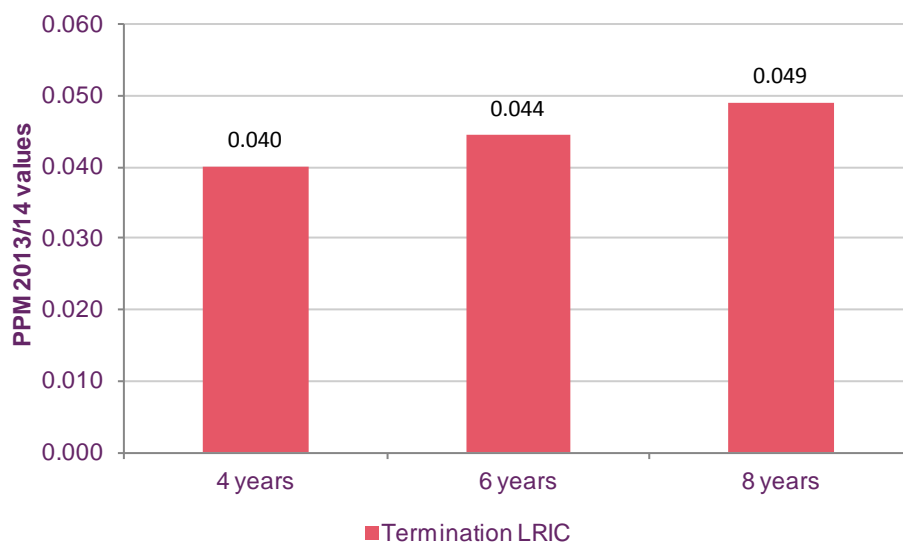
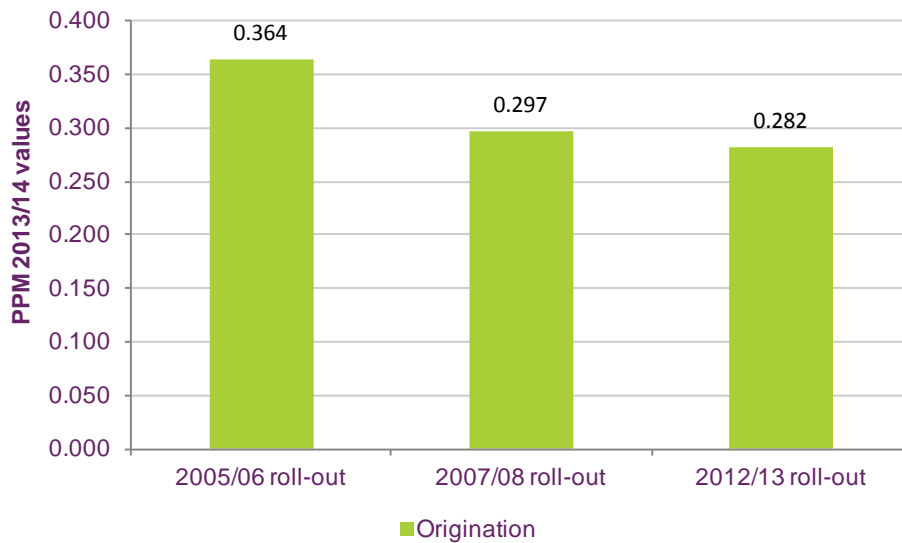
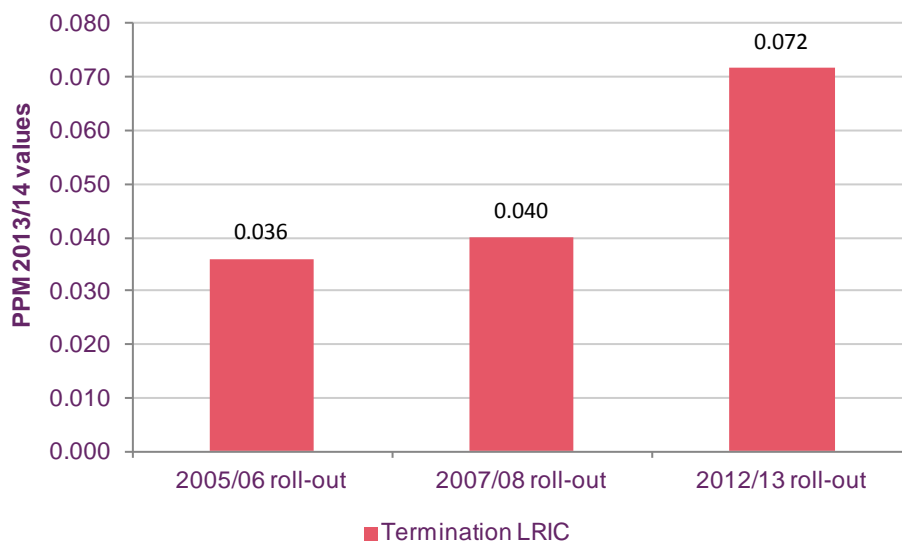


Figure A14.12: Wholesale call termination LRIC - sensitivity to NGN deployment period



Start of network roll-out

A14.15 In Annex 13, we discuss our decision to start network deployment in 2007/08. We have created sensitivities to look at the impact of changing the deployment of the network. The earliest date we use for the start of deployment is 2005/06. The latest date is 2012/13. In Figures A14.13 and A14.14 below, we show the results of these sensitivity analyses.

Figure A14.13: Wholesale call origination LRIC+ - sensitivity to a change in the start of deployment**Figure A14.14: Wholesale call termination LRIC - sensitivity to a change in the start of deployment**

A14.16 We find that the LRIC output is particularly sensitive to a change in the start of deployment. The large increase in unit cost when we move to a 2012/13 start date is due to the way Original ED recovers the costs of assets over time. By moving the deployment start date to 2012/13, the first year of cost recovery is 2013/14. Consequently, this is the point at which input costs are highest and the Original ED algorithm seeks to recover relatively more costs (in unit cost terms) in this period – compared to what it would do if the deployment date were earlier. The terminal unit cost estimates under the base case scenario and 2012/13 start date scenario are very similar

Number of Points of Interconnect

A14.17 As we explain in Annex 11, we have based our network on 20 points of interconnect (PoI). We have also explored the sensitivity of the model to a higher number of

Pols. We have looked at the impact of 30 Pol and 100 Pol. The use of 30 Pol more closely reflects BT's initial plan for 21CN of 27 (+2) Pols. The use of 100 Pols reflects almost all of the aggregation nodes being used as Pols.

A14.18 Figures A14.15 and A14.16 show the impact of changing the number of Pol on LRIC+ and LRIC outputs respectively. Changing the number of Pols has no consistent impact on the LRIC of wholesale call termination. Changing the number of Pol has a relatively small impact which does not move in a particular direction. This is to be expected as increasing the number of Pol will increase the amount of interconnection assets required, but decrease the amount of assets required for carrying the call around the network.

Figure A14.15: Wholesale call origination LRIC+ - sensitivity to number of Pols

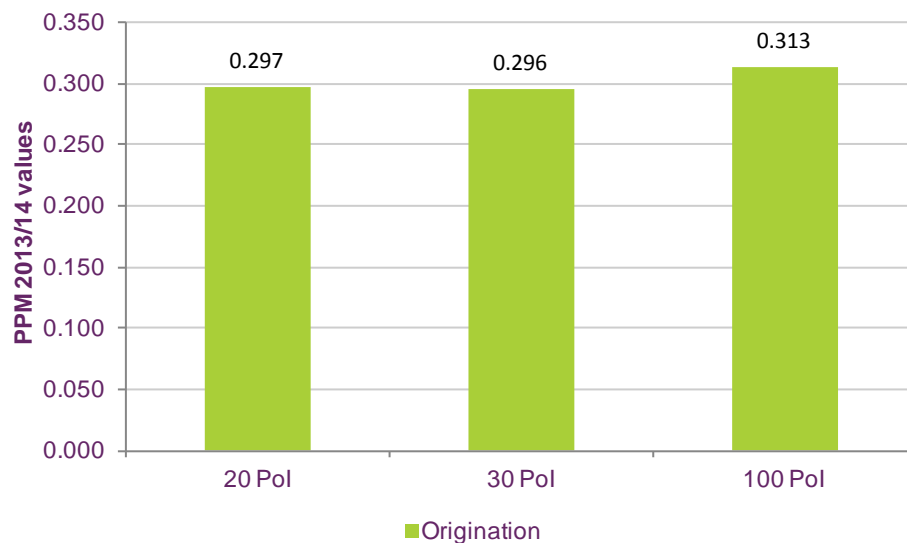
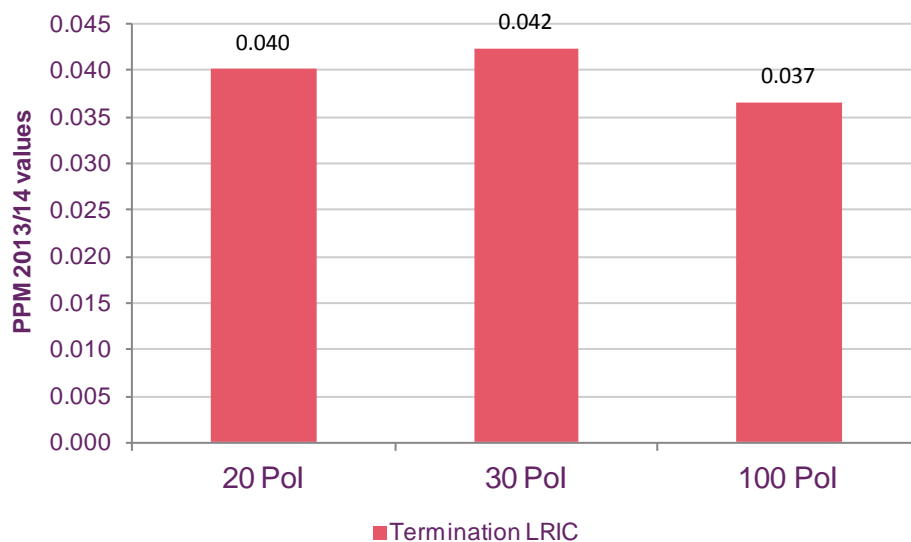


Figure A14.16: Wholesale call termination LRIC - sensitivity to the number of Pols



Cost of voice software licences

A14.19 Voice software licences make up a large part of the LRIC wholesale call termination unit cost. Consequently, the cost of call server software licences (CSSL) is an

important parameter in the model. Our base case value for a CSSL is £4 per subscriber. We have used a low value of £3 per licence and a high value of £8 per licence.⁷²⁴

A14.20 Figures A14.17 and A14.18 show the impact on LRIC+ and LRIC of changing the cost of voice call server software licences (CSSL). Both LRIC+ and LRIC outputs increase as the cost of CSSLs increase. The LRIC of wholesale call termination is particularly sensitive to the cost of a CSSL.

Figure A14.17: Wholesale call origination LRIC+ - sensitivity to voice call server software licence costs

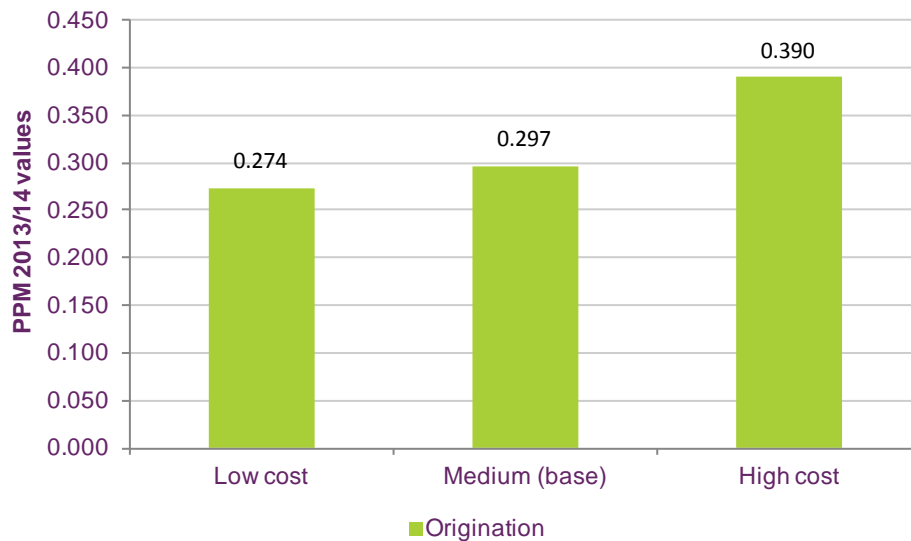
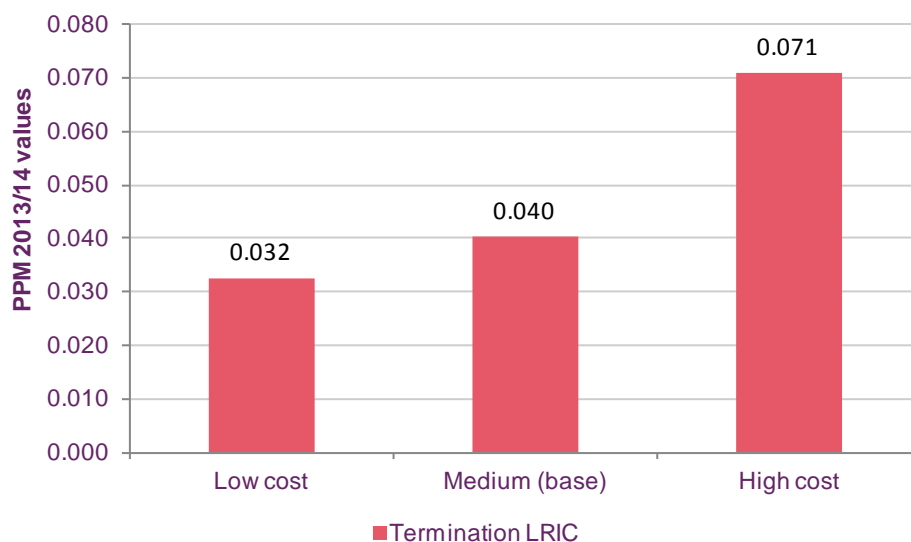


Figure A14.18: Wholesale call termination LRIC - sensitivity to voice call server software licence costs



⁷²⁴ These values fall within the range provided to us by stakeholders.

Asset utilisation

A14.21 As we explain in Annex 13, we assume that the maximum asset utilisation value in the model is 70%. To test the sensitivity of this parameter, we use a low value of 65% and a high value of 75%. Figures A14.19 and A14.20 below show the results from these sensitivity analyses.

Figure A14.19: Wholesale call origination LRIC+ - Maximum asset utilisation sensitivity

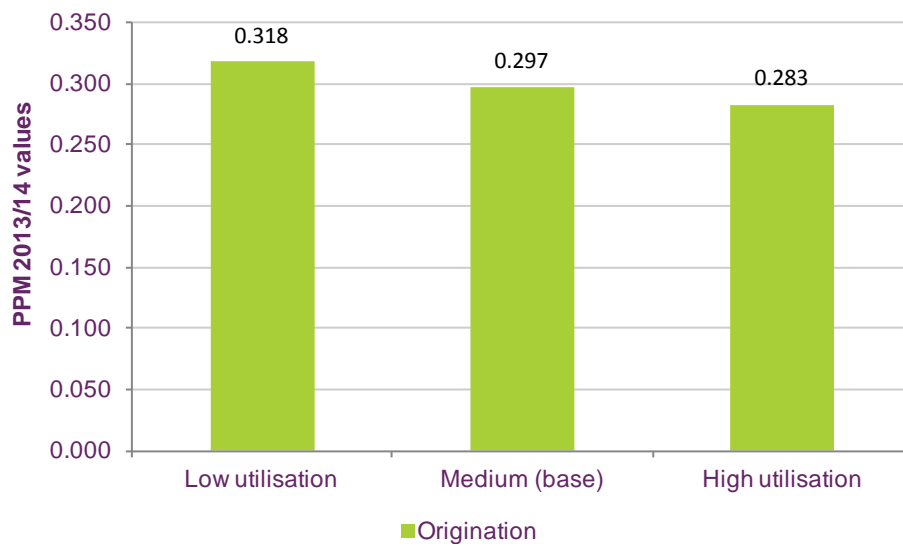
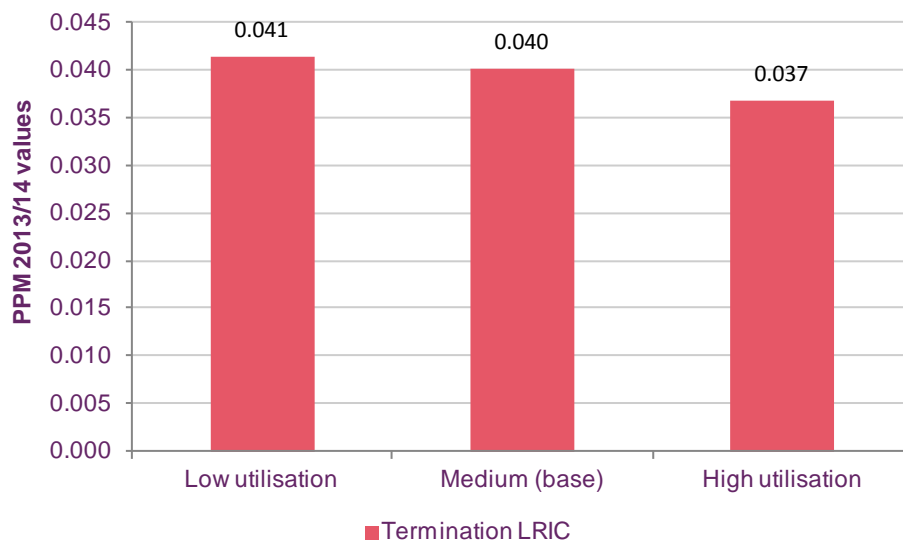


Figure A14.20: Wholesale call termination LRIC - Maximum asset utilisation sensitivity



A14.22 The LRIC+ outputs are relatively insensitive to changes in asset utilisation. The LRIC outputs are more sensitive with unit costs falling as utilisation increases. The LRIC of wholesale call termination ranges from 0.037ppm in the high utilisation scenario to 0.041ppm in the base case scenario.

WACC

A14.23 The base case assumes a pre-tax real WACC of 6.5%. We have carried out a sensitivity analysis examining the impact of a higher rate (7%) and a lower rate (6%) for the WACC. As we would expect, increasing the WACC causes a small increase in both the LRIC and LRIC+ outputs.

Figure A14.21: Wholesale call origination LRIC+ - sensitivity to changes in WACC

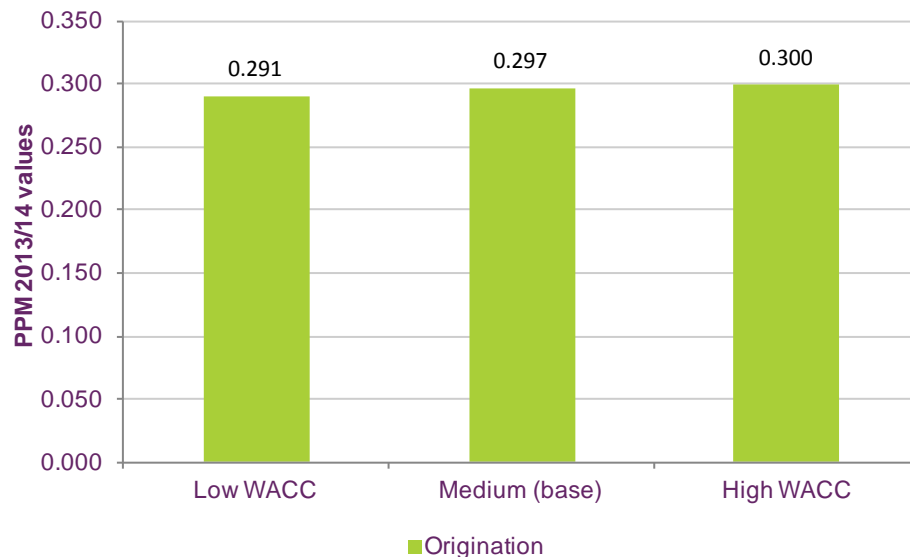
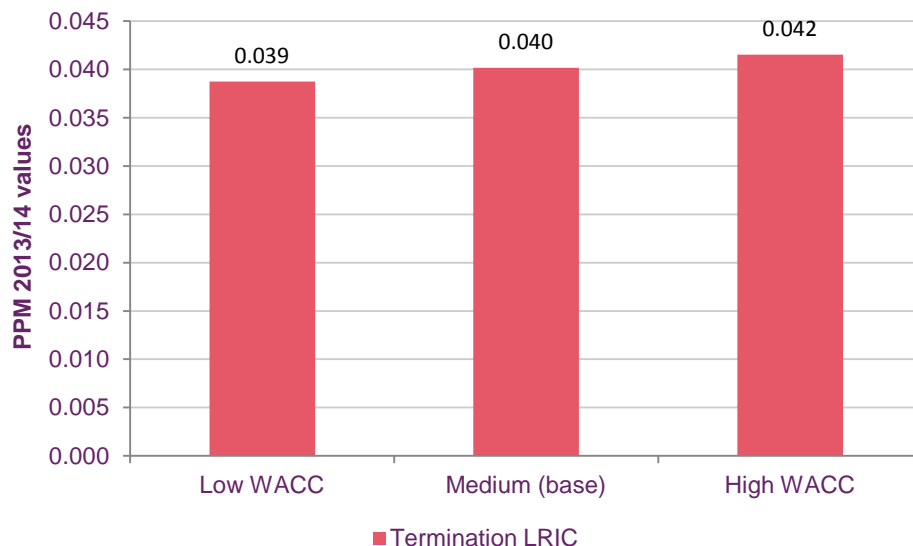


Figure A14.22: Wholesale call termination LRIC - sensitivity to changes in WACC



Base case, high cost and low cost scenarios

A14.24 In order to define a range of possible values for the unit cost of wholesale call origination and wholesale call termination, we have defined high cost and low cost scenarios alongside the base case. These scenarios combine different assumptions that we believe fit together as scenarios. The different sets of assumptions for the three scenarios are summarised below:

Figure A14.23: Summary of assumptions for the three scenarios

| | Base Case | High cost scenario | Low cost scenario |
|-----------------------|-----------|--------------------|-------------------|
| Demand | Medium | Low | High |
| Busy hour call length | 1.3 | 1.0 | 4.0 |
| WACC | 6.5% | 7.0% | 6.0% |
| Asset utilisation | 70% | 65% | 75% |
| CSSL cost (£) | 4 | 8 | 3 |
| CSSL cost incremental | TRUE | TRUE | FALSE |

A14.25 The resulting unit costs for wholesale call termination using LRIC and wholesale call origination using LRIC+ (including the contribution to common costs no longer recovered from FTRs at LRIC) can be seen in Figures A14.24 and A14.25 below. The wholesale call origination LRIC+ ranges between 0.240ppm and 0.490ppm. The wholesale call termination LRIC ranges between 0.002ppm and 0.077ppm.

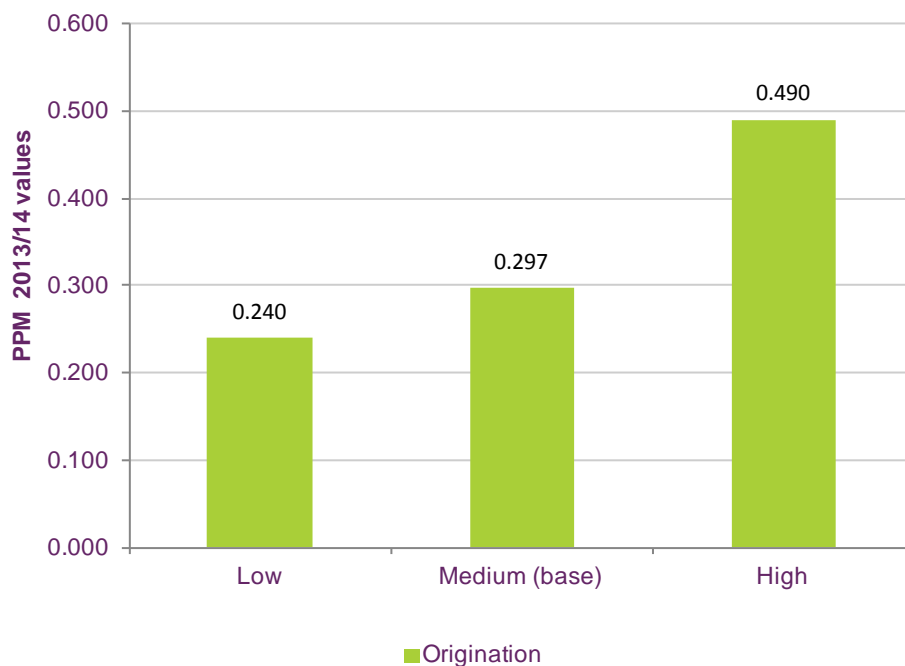
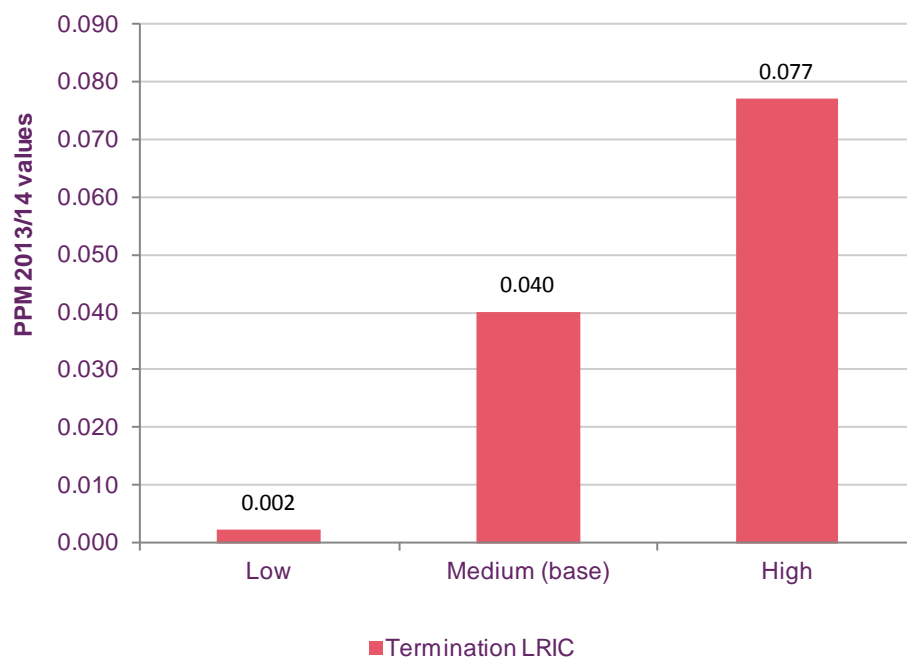
Figure A14.24: Wholesale call origination LRIC+ scenarios

Figure 2: Wholesale call termination LRIC scenarios

Annex 15

Proposed guidance on the setting of fair and reasonable fixed termination rates

Introduction

- A15.1 In this section, we set out our proposed guidance on fair and reasonable charges for the termination of calls to fixed geographic numbers⁷²⁵ in the United Kingdom for the review period starting on 1 October 2013.
- A15.2 This proposed guidance substantially mirrors the guidance issued in our April 2011 Statement *Fair and reasonable charges for fixed geographic call termination* (2011 F&R Guidance).⁷²⁶ Where it does, our reasons for proposing this guidance are those set out in the 2011 F&R Guidance, and the 2011 F&R Guidance should be read alongside this.
- A15.3 Where necessary, we have revised the 2011 F&R Guidance to reflect the proposals in this consultation. This is the case, notably, in respect of our proposals for the application of this draft guidance to KCOM and our proposals on conversion costs between networks with different technical standards. Our reasons for proposing such guidance in relation to our proposals for KCOM is set out at Section 6 and the issues around conversion are set out Annex 11.
- A15.4 As far as possible, this proposed guidance is set out as we would expect the final guidance to be should we adopt the proposals in relation to wholesale call termination set out in this consultation.

DRAFT GUIDANCE

Scope of guidance

- A15.5 This [draft] guidance concerns SMP Condition 1 as set out in Schedule 3 of Annex 6 which requires, amongst other things, that communications providers' ("CPs") charges for call termination services (hereafter referred to as fixed termination rates ("FTRs")) in the United Kingdom (including the Hull area) should be fair and reasonable. This [draft] guidance therefore applies to all CPs subject to that condition.
- A15.6 This [draft] guidance applies only to FTRs for wholesale fixed geographic call termination as defined in the Narrowband Market Review. It does not apply to charges for other services that a fixed network may perform in switching and

⁷²⁵ A geographic telephone number is one where part of its digit structure contains a Geographic Area Code (identifies a particular geographic area) that is used for routing calls to the physical location of the network termination point of the subscriber to whom the telephone number has been assigned, or where the network termination point does not relate to the Geographic Area Code but where the tariffing remains consistent with that Geographic Area Code. It starts with either '01' or '02'. *The National Telephone Numbering Plan*, 19 December 2011.

<http://stakeholders.ofcom.org.uk/binaries/telecoms/numbering/numplan201210.pdf>

⁷²⁶ Fair and reasonable charges for fixed geographic call termination, 27th April 2011.

<http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf>

conveying calls from other networks to its customers. Ofcom considers that charges for services which fall outside markets subject to SMP regulation are matters for commercial negotiation between CPs.

Reciprocal charging as a continued basis for fair and reasonable charges

A15.7 Ofcom considers that, in principle, reciprocal charging, whereby the FTRs for wholesale fixed geographic call termination on other CPs' networks are based on the charges paid to BT for wholesale call termination on BT's network (as per the charge control), remains a fair and reasonable basis, consistent with SMP Condition 1 as set out in Schedule 3 of Annex 6, for all operators of fixed networks to set their termination charges in the United Kingdom.

Presumption that FTRs which are no higher than the Benchmark FTR are fair and reasonable

A15.8 FTRs for wholesale fixed geographic call termination are presumed to be fair and reasonable where the 24 hour average FTR is no higher than the charge control rate as applied to BT (hereafter referred to as the "Benchmark FTR"), as set out in *[reference to statement to be inserted for Final Guidance]*. Subject to the guidance on transitional arrangements set out below, Ofcom's rebuttable presumption is that 24 hour average FTRs for wholesale fixed geographic call termination that are higher than the Benchmark FTR are unlikely to be fair and reasonable.

A15.9 Each CP subject to this guidance has flexibility over its time of day (ToD) profile⁷²⁷, as we do not discount that different CPs may have different profiles which could still be considered fair and reasonable (for example, if justified based on differences in traffic profiles). FTRs are presumed fair and reasonable where the 24 hour average FTR is no higher than the Benchmark FTR. Therefore, where a CP sets a higher rate than other CPs in a particular time period, we would expect that CP to demonstrate that its 24 hour average FTR across all of its traffic did not exceed the Benchmark rate in order to be presumed fair and reasonable.

Framework for the assessment of exceptions (the "three-stage test")

A15.10 Any disputes pursuant to sections 185 to 191 of the Communications Act 2003 ("the Act") regarding FTRs above the Benchmark FTR will be resolved on the relevant facts.

A15.11 However, Ofcom considers that FTRs above the Benchmark FTR for the period to September 2016, are only likely to be consistent with SMP Condition 1 as set out in Schedule 3 of Annex 6 where a CP is able to demonstrate that:

- a) charging a FTR equal to the Benchmark FTR would deny it recovery of its actual costs of providing fixed geographic call termination; and
- b) its actual costs of providing fixed geographic call termination are efficiently incurred; and

⁷²⁷ Whereby a CP charges different rates at different times of the day or week (e.g. daytime, evening and weekend).

- c) charging a higher FTR than the Benchmark FTR would generate demonstrable consumer benefit. Such benefits might include lower overall end-to-end call costs (not just in particular cases but in general for calls to the CP's network) or other benefits to calling parties related, for example, to the quality of the service provided.

Application and transitional arrangements

A15.12 This [draft] guidance applies to all CPs subject to Condition 1 as set out in Schedule 3 of Annex 6 as of 1 October 2013.

Different network technologies and conversion costs

- A15.13 This guidance applies irrespective of the technology used by the network providing termination of calls to geographic numbers, i.e. whether Internet Protocol (IP) or variants thereof (as used by next generation networks (NGN)) or Time Division Multiplexing (TDM), as used by incumbent operators and earlier entrants. That is, FTRs charged by such networks will be presumed fair and reasonable if they are no higher than the Benchmark FTR. Claims for objectively justifiable higher rates would need to consider the cumulative three-stage test set out above.
- A15.14 Competition between CPs using NGNs and CPs using TDM networks is likely to continue for some time. Therefore, costs of conversion between different technical standards will continue to be incurred for calls between certain CPs for some time.
- A15.15 We do not consider that conversion is an activity or service that falls within the fixed geographic call termination market. Therefore, the cost stack which underpins the Benchmark FTR does not include such costs of conversion which should be agreed between CPs where appropriate.

Annex 16

Regulatory framework

Introduction

- A16.1 This Annex provides an overview of the market review process, to give some additional context and understanding of the matters discussed in the main body of this document and the legal instruments (statutory notifications) published at Annex 6, 7, 8 and 9.
- A16.2 Market review regulation is technical and complex, including the legislation and the recommendations and guidelines that we need to consider as part of the process. There may be many relevant documents depending on the market and/or issues in question. This overview does not purport to give a full and exhaustive account of all such materials that we have considered in reaching our preliminary views on this market. Key aspects of materials relevant to this market review are, however, discussed in this document.

Market review concept

- A16.3 The concept of a market review refers to procedures under which we at regular intervals identify relevant markets appropriate to national circumstances, carry out analyses of these markets to determine whether they are effectively competitive and then decide on appropriate remedies (known as Significant Market Power (SMP) obligations or conditions). We explain the concept of SMP below.
- A16.4 In carrying out this work, we act in our capacity as the sector-specific regulator for the United Kingdom communications industries, particularly relating to our role as the regulator for telecommunications. Our functions in this regard are to be found in Part 2 of the Act⁷²⁸. We exercise those functions within the framework harmonised across the European Union for the regulation of electronic communications by the Member States (known as the Common Regulatory Framework or the 'CRF'), as transposed by the Act. The applicable rules⁷²⁹ are contained in a package of five EC Directives, of which two Directives are immediately relevant for these purposes, namely:
- Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services (the Framework Directive); and
 - Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities (the Access Directive).
- A16.5 The Directives require that NRAs (such as Ofcom) carry out reviews of competition in communications markets to ensure that SMP regulation remains appropriate and proportionate in the light of changing market conditions.
- A16.6 Each market review normally has three stages, namely:

⁷²⁸ <http://www.legislation.gov.uk/ukpga/2003/21/contents>

⁷²⁹ The Directives have recently been reviewed and amendments were adopted on 19 December 2009. The amendments have been transposed into the national legislation and applied with effect from 26 May 2011.

- the procedure for the identification and definition of the relevant markets (the market definition procedure);
- the procedure for the assessment of competition in each market, in particular whether the relevant market is effectively competitive (the market analysis procedure); and
- the procedure for the assessment of appropriate regulatory obligations (the remedies procedure).

A16.7 These stages are normally carried out together.

Market definition procedure

A16.8 The Act provides that, before making a market power determination⁷³⁰, we must identify the market, which is, in our opinion, the one which, in the circumstances of the United Kingdom, is the market in relation to which it is appropriate to consider making such a determination and to analyse that market.

A16.9 The Framework Directive requires that NRAs shall, taking the utmost account of the 2007 EC Recommendation and SMP Guidelines⁷³¹ published by the European Commission, define the relevant markets appropriate to national circumstances, in particular relevant geographic markets within their territory, in accordance with the principles of competition law.

A16.10 The 2007 EC Recommendation identifies a set of product and service markets within the electronic communications sector in which *ex ante* regulation may be warranted. Its purpose is twofold. First, seeking to achieve harmonisation across the single market by ensuring that the same markets will be subject to a market analysis in all Member States. Secondly, providing legal certainty by making market players aware in advance of the markets to be analysed. However, NRAs are able to regulate markets that differ from those identified in the 2007 EC Recommendation where this is justified by national circumstances taking account of the three cumulative criteria referred to in the 2007 EC Recommendation⁷³² (the “three-criteria test”) and where the European Commission does not raise any objections.

A16.11 Under the three-criteria test, when identifying markets other than those set out in the Recommendation, the NRA needs to ensure that the following three criteria are cumulatively met:

- a) The presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature;

⁷³⁰ The market power determination concept is used in the Act to refer to a determination that a person has SMP in an identified services market.

⁷³¹ Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services. Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>

⁷³² The 2007 EC Recommendation states that, “[w]hen identifying markets other than those set out in the Annex, national regulatory authorities should ensure that the following three criteria are cumulatively met: (a) the presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature; (b) a market structure which does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry; (c) the insufficiency of competition law alone to adequately address the market failure(s) concerned.”

- b) a market structure which does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry; and
- c) the insufficiency of competition law alone to adequately address the market failures concerned.

A16.12 The SMP Guidelines make clear that market definition is not a mechanical or abstract process. It requires an analysis of any available evidence of past market behaviour and an overall understanding of the mechanics of a given sector. As market analyses have to be forward-looking, the Guidelines state that NRAs should determine whether the market is prospectively competitive, and thus whether any lack of effective competition is durable, by taking into account expected or foreseeable market developments over the course of a reasonable period. They clarify that NRAs enjoy discretionary powers that reflect the complexity of all the relevant factors that must be assessed (economic, factual and legal) when identifying the relevant market, and assessing whether an undertaking has SMP.

A16.13 The SMP Guidelines also describe how competition law principles may be used by NRAs in their analyses. In particular, there are two dimensions to the definition of a relevant market: the relevant products to be included in the same market and the geographic extent of the market. Ofcom's approach to market definition follows that used by the United Kingdom competition authorities, which is in line with the approaches adopted by the European Commission.

A16.14 While such principles are being used in identifying the *ex ante* markets, they will not necessarily be identical to markets defined in individual competition law cases. This may be the case, especially as the former is based on an overall forward-looking assessment of the structure and the functioning of the market under examination. Accordingly, the economic analysis carried out for the purpose of this review, including the identified markets, is without prejudice to any analysis that may be carried out in relation to any investigation pursuant to the Competition Act 1998⁷³³ (relating to the application of the Chapter I or II prohibitions or Article 101 or 102 of the EC Treaty⁷³⁴) or the Enterprise Act 2002⁷³⁵.

Market analysis procedure

Effective competition

A16.15 The Act requires that we carry out market analyses of identified markets for the purpose of making or reviewing market power determinations. Such analyses are normally to be carried out within 2 years from the adoption of a revised recommendation on markets, where such recommendation identifies a market not previously notified to the Commission, or within 3 years from the publication of a previous market power determination relating to that market.

A16.16 In carrying out a market analysis, the key issue for an NRA is to determine whether the market in question is effectively competitive. The 27th recital to the Framework Directive clarifies the meaning of that concept. Namely, "[it] is essential that *ex ante* regulatory obligations should only be imposed where there is not effective

⁷³³ <http://www.legislation.gov.uk/ukpga/1998/41/contents>

⁷³⁴ Previously Article 81 and Article 82 of the EC treaty, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:FULL:EN:PDF>

⁷³⁵ <http://www.legislation.gov.uk/ukpga/2002/40/contents>

competition, i.e. in markets where there are one or more undertakings with significant market power, and where national and Community competition law remedies are not sufficient to address the problem”.

- A16.17 The definition of SMP is equivalent to the concept of dominance as defined in competition law. The Framework Directive requires, however, that NRAs must carry out market analysis taking the utmost account of the SMP Guidelines. The latter emphasise that NRAs should undertake a thorough and overall analysis of the economic characteristics of the relevant market before coming to a conclusion as to the existence of significant market power.
- A16.18 In that regard, the SMP Guidelines set out, additionally to market shares, a number of criteria that can be used by NRAs to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers, including (a) overall size of the undertaking; (b) control of infrastructure not easily duplicated; (c) technological advantages or superiority; (d) absence of or low countervailing buying power; (e) easy or privileged access to capital markets/financial; (f) resources; (g) product/services diversification (e.g. bundled products or services); (h) economies of scale; (i) economies of scope; (j) vertical integration; (k) highly developed distribution and sales network; (l) absence of potential competition; and (m) barriers to expansion. A dominant position can derive from a combination of these criteria, which taken separately may not necessarily be determinative.

Sufficiency of competition law

- A16.19 As part of our overall forward-looking analysis, we also assess whether competition law by itself (without *ex ante* regulation) is sufficient to address the competition problems identified. Aside from the need to address this issue as part of the three-criteria test, we also consider this matter in our assessment of the appropriate remedies which, as explained below, are based on the nature of the specific competition problems we identify.

Remedies procedure

Powers and legal tests

- A16.20 The Framework Directive prescribes what regulatory action NRAs must take depending upon whether or not the market in question has been found effectively competitive. Where a market has been found effectively competitive, NRAs are not allowed to impose SMP obligations and must withdraw such obligations where they already exist. On the other hand, where the market is found not effectively competitive, the NRAs must identify the undertakings with SMP on that market and then impose appropriate obligations.
- A16.21 NRAs have a suite of regulatory tools at their disposal, as reflected in the Act. Specifically, the Access Directive specifies a number of SMP obligations, including transparency, non-discrimination, accounting separation, access to and use of specific network elements and facilities, price control and cost accounting. When imposing a specific obligation, the NRA will need to demonstrate that the obligation in question is based on the nature of the problem identified, proportionate and justified in the light of the policy objectives as set out in Article 8 of the Framework Directive.

- A16.22 Specifically, for each and every proposed SMP obligation we explain why it satisfies the test that the obligation is: (a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates; (b) not such as to discriminate unduly against particular persons or against a particular description of persons; (c) proportionate to what the condition or modification is intended to achieve; and (d) in relation to what it is intended to achieve, transparent.
- A16.23 Additional legal requirements may also need to be satisfied depending on the SMP obligation in question, for example, for price controls where the NRA's market analysis must indicate that the lack of effective competition means that the operator concerned might sustain prices at an excessively high level, or apply a price squeeze, to the detriment of end-users. In that instance, NRAs must 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, as well as ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximise consumer benefits. Where an obligation to provide third parties with network access is considered appropriate, NRAs must take into account factors including the feasibility of the proposed network access, the technical and economic viability of creating networks⁷³⁶ that would make the network access unnecessary, the investment of the network operator who is required to provide access⁷³⁷ and the need to secure effective competition⁷³⁸ in the long term.
- A16.24 To the extent relevant to this review, we demonstrate the application of these requirements to the SMP obligations in question at Sections 5, 6 and 10 of this document. In doing so, we also set out our assessment of how, in our opinion, the performance of our general duties under section 3 of the Act is secured or furthered by our regulatory intervention, and that it is in accordance with the six Community requirements in section 4 of the Act. This assessment is also relevant to our assessment of the likely impact of implementing our proposals. A number of specific points should be noted in this regard.

Ofcom's general duties - section 3 of the Act

- A16.25 Under the Act, our principal duty in carrying out functions is to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate by promoting competition.
- A16.26 In so doing, we are required to secure a number of specific objectives and to have regard to a number of matters set out in section 3 of the Act.
- A16.27 In performing our duties, we are also required to have regard to a range of other considerations, as appear to us to be relevant in the circumstances. In this context, we consider that a number of such considerations are relevant, namely:
- the desirability of promoting competition in relevant markets; and
 - the desirability of encouraging investment and innovation in relevant markets; and

⁷³⁶ Including the viability of other network access products, whether provided by the dominant provider or another person.

⁷³⁷ Taking account of any public investment made.

⁷³⁸ Including, where it appears to us to be appropriate, economically efficient infrastructure-based competition.

A16.28 We have also had regard to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent, and targeted only at cases in which action is needed, as well as the interest of consumers in respect of choice, price, quality of service and value for money.

A16.29 Ofcom has, however, a wide measure of discretion in balancing its statutory duties and objectives. In so doing, we will take account of all relevant considerations, including responses received during our consultation process, in reaching our conclusions.

European Community requirements for regulation - section 4 of the Act

A16.30 As noted above, our functions exercised in this review fall under the CRF. As such, section 4 of the Act requires us to act in accordance with the six European Community requirements for regulation.

A16.31 In summary, these six requirements are:

- to promote competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;
- to contribute to the development of the European internal market;
- to promote the interests of all persons who are citizens of the European Union;
- to take account of the desirability of Ofcom's carrying out of its functions in a manner which, so far as practicable, does not favour one form of or means of providing electronic communications networks, services or associated facilities over another – i.e. to be technologically neutral;
- to encourage, to such extent as Ofcom considers appropriate for certain prescribed purposes, the provision of network access and service interoperability, namely securing efficient and sustainable competition, efficient investment and innovation, and the maximum benefit for customers of CPs;
- to encourage compliance with certain standards in order to facilitate service interoperability and secure freedom of choice for the customers of CPs.

A16.32 We considered that the first, third, fourth and fifth of those requirements are of particular relevance to the matters under review and that no conflict arises in this regard with those specific objectives in section 3 of the Act that we consider are particularly relevant in this context.

Impact assessment - section 7 of the Act

A16.33 The analysis presented in the whole of this document represents an impact assessment, as defined in section 7 of the Act.

A16.34 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which means that generally Ofcom has to carry out impact assessments where its proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation

to the great majority of its policy decisions. For further information about Ofcom's approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on the Ofcom website:
http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

- A16.35 Specifically, pursuant to section 7, an impact assessment must set out how, in our opinion, the performance of our general duties (within the meaning of section 3 of the Act) is secured or furthered by or in relation to what we propose.
- A16.36 Ofcom is separately required by statute to assess the potential impact of all our functions, policies, projects and practices on race, disability and gender equality. Equality Impact Assessments (EIAs) also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers regardless of their background or identity. The EIA with respect to the proposals set out in this market review is set out in Annex 10. Unless we otherwise state in this document, it is not apparent to us that the outcome of our review is likely to have any particular impact on race, disability and gender equality. Specifically, and as explained in Annex 10, we do not envisage the impact of any outcome to be to the detriment of any group of society.
- A16.37 Nor are we envisaging any need to carry out separate EIAs in relation to race or gender equality or equality schemes under the Northern Ireland and Disability Equality Schemes. This is because we anticipate that our regulatory intervention will affect all industry stakeholders equally and therefore not have a differential impact in relation to people of different gender or ethnicity, on consumers in Northern Ireland or on disabled consumers compared to consumers in general. Similarly, we are not envisaging making a distinction between consumers in different parts of the United Kingdom or between consumers on low incomes. Again, we believe that our intervention will not have a particular effect on one group of consumers over another.

Regulated entity

- A16.38 The power in the Act to impose an SMP obligation by means of an SMP services condition provides that it is to be applied only to a 'person' whom we have determined to be a 'person' having SMP in a specific market for electronic communications networks, electronic communications services or associated facilities (i.e. the 'services market').
- A16.39 The Framework Directive requires that, where an NRA determines that a relevant market is not effectively competitive, it shall identify 'undertakings' with SMP on that market and impose appropriate specific regulatory obligations. For the purposes of EC competition law, 'undertaking' includes companies within the same corporate group (*Viho v Commission* Case C-73/95 P [1996] ECR I-5447⁷³⁹), for example, where a company within that group is not independent in its decision making.
- A16.40 We consider it appropriate to prevent a dominant provider to whom a SMP service condition is applied, which is part of a group of companies, exploiting the principle of corporate separation. The dominant provider should not use another member of its group to carry out activities or to fail to comply with a condition, which would otherwise render the dominant provider in breach of its obligations.

⁷³⁹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61995CJ0073:EN:PDF>

Annex 17

Glossary

21CN: BT's planned, but not implemented, next generation network upgrade.

Access Directive – Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities

Assumed Handover Point (AHP): the location where a call is handed over from the OCP to the TCP for the purposes of connecting the call to the end-user.

BT: British Telecommunications plc

CNPP *Calling Network Provider Pays* – Wholesale charges for terminating telephone calls set in such a way that the originating call provider pays the terminating call provider a charge to terminate the call. CNPP often occurs in markets where retail charges are set on a CPP basis.

CPP *Calling Party Pays* – Retail charges for telephone calls set in such a way that only the calling party (and not the called party) pays a charge when a call is made.

CAT: Competition Appeal Tribunal

CC: Competition Commission

CFI: 'Call for Inputs'

Charge control: A control which sets the maximum price that a communication provider can charge for a particular product or service. Most charge controls are imposed for a defined period.

Codec *Coder-decoder:* A device which converts analogue signals into digital signals for transmission. Audio codecs used in telecommunications networks include Pulse Code Modulation (PCM) as defined in ITU-T standard G.711, which converts analogue audio signals to a 64kb/s digital signal, and conjugate-structure algebraic-code-excited linear prediction (CS-ACELP) as defined in ITU-T standard G.729, which converts analogue audio signals to a 8kb/s digital signal.

Common costs: Costs which are shared by all the services supplied by a firm.

Communications Act or "the Act": Communications Act 2003

Cost orientation: The principle that the price charged for the provision of a service should reflect the underlying costs incurred in providing that service.

CP: Communications Provider

Carrier Pre-Selection (CPS): is the facility offered to customers which allows them to opt for certain defined classes of call to be carried by an operator selected in advance without having to dial a routing prefix or follow any other different procedure to invoke such routing.

CS: Carrier Selection (see IA)

Current cost accounting (CCA): An accounting convention, where assets are valued and depreciated according to their current replacement cost whilst maintaining the operating or financial capital of the business entity.

Digital Local Exchange (DLE): The telephone exchange to which customers are connected, usually via a concentrator.

EC: European Commission

2007 EC Recommendation – European Commission Recommendation (2007/879/EC) of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services.

2009 EC Recommendation – European Commission Recommendation (2009/396/EC) of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU.

ED: Economic Depreciation

End-user: The final consumer of a product or service.

Framework Directive – Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services.

Fully Allocated Cost (FAC): An accounting approach under which all the costs of the company are distributed between its various products and services. The fully allocated cost of a product or service may therefore include some common costs that are not directly attributable to the service.

FCP: Fixed Communications Provider

Fixed Termination Rate (FTR): The wholesale charge levied by FCPs for Fixed Call Termination.

Indirect Access (IA): is a facility which allows a customer to opt for calls to be carried by an operator which is different to the operator that provides the network to which the customer is connected, on a call by call basis, by dialling a routing prefix to invoke such routing.

IP Internet Protocol – Packet data protocol used for routing and carriage of messages across the internet and similar networks.

ISDN2: A digital telephone line service that supports telephony and switched data services. ISDN2 provides the calling or data capacity equivalent to two analogue telephone lines

ISDN30: A digital telephone service that provides up to the equivalent of 30 analogue lines over a common digital bearer circuit. These lines provide digital voice telephony, data services and a wide range of ancillary services

ISP: Internet Service Provider

ITC/ITT: Inter-tandem conveyance and transit

ITU-T: International Telecommunications Union - Telecommunications Standardisation sector

KCOM: KCOM Group PLC, formerly Kingston Communications

Local Loop: The access network connection between the customer's premises and the local serving exchange, usually comprised of two copper wires twisted together.

Local loop unbundling (LLU): A process by which a dominant provider's local loops are physically disconnected, or partially disconnected, from its network and connected to competing provider's networks. This enables operators other than the incumbent to use the local loop to provide services directly to customers.

Long Run Incremental Costs (LRIC) or pure LRIC: LRIC is defined as the long run avoidable cost of an operator carrying a particular increment of traffic. The increment in question is treated as the final traffic increment on the network,

Long Run Incremental Costs Plus (LRIC+): The long run (average) incremental costs plus an equi-proportionate mark-up for the recovery of shared and common costs. LRIC+ should be taken to mean the same as LRAIC+ (a term used by some other NRAs).

LTC/LTT: Local-tandem conveyance and transit

MCP: Mobile Communications Provider

Mobile Call Termination (MCT): The service provided by a MCP to allow an OCP to connect a caller with the intended mobile call recipient on that MCP's network.

Modern Equivalent Asset (MEA): An approach to setting charges that bases costs on what is believed to be the most efficient available technology that performs the same function as the old technology.

Multiple Service Access Node (MSAN): A device typically installed in a telephone exchange (although sometimes in a roadside cabinet), which connects customers telephone lines to the core network, to provide telephony, ISDN, and broadband all from a single platform.

Mobile Termination Rate (MTR): The wholesale charge levied by MCPs for MCT.

NCC: Network Charge Control (see charge control)

Next generation network (NGN): A network that uses IP technology in the core and backhaul to provide multiple services over a single platform.

National Regulatory Authority (NRA): The relevant communications regulatory body for each country in the EU. Ofcom is the NRA for the United Kingdom.

NTNP: National Telephony Number Plan

NTS: Number Translation Services

Originating CP (OCP): The CP of the end-user making a call, i.e. the CP from which the call originates.

OECD: Organisation for Economic Co-operation and Development.

Ofcom: The Office of Communications.

packet-switched technology – A digital networking communications method that groups all transmitted data – regardless of content, type, or structure – into suitably-sized blocks, called *packets*. Packet switching features delivery of variable-bit-rate data streams (sequences of packets) over a shared network.

PAYG: pay as you go.

ppm: pence per minute.

Product Management, Policy and Planning (PPP): Overheads associated with marketing activities, customer service management, billing and finance activities directly related to the regulated service.

Public Switched Telephony Network (PSTN): The telephony network used to provide telephone calls using (or emulating) circuit-switching and using telephone numbers to identify subscribers or called locations, allowing all customers connected to the network to call all other customers.

Pure LRIC: Pure Long Run Incremental Costs

Regulatory Financial Statements (RFS): The financial statements that BT is required by Ofcom to prepare, have audited and publish.

Revised Standard Interconnection Agreement (SIA): BT's standard terms and conditions for the provision of interconnection and related services.

SMP: Significant Market Power

SMP Guidelines – European Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services (2002/C165/03).

SSNIP: Small but Significant Non-transitory Increase in Price

Terminating CP (TCP): The CP of the end-user receiving a call, i.e. the CP from which the call terminates.

Time Division Multiplex (TDM): A method of putting multiple data streams in a single signal by separating the signal into many segments, each having a very short duration. Each individual data stream is reassembled at the receiving end based on the timing.

Time of day: The variation in call charge rates across daytime, evening and weekend calls.

United Kingdom: When referring to the United Kingdom this excludes Hull except when referring to United Kingdom wide data.

Voice over Internet Protocol (VoIP): The traffic method of carrying voice calls on fixed and mobile networks by packetizing speech and carrying it using IP.

WACC: *Weighted Average Cost of Capital* – An estimated cost of capital for a hypothetical United Kingdom MCP. For the purpose of this exercise, we use the Capital Asset Pricing Model (CAPM) to determine the WACC.

WFAEL: Wholesale fixed analogue exchanges lines

WLA: Wholesale Local Access

Wholesale Line Rental (WLR): The service offered by BT to other United Kingdom communications providers to enable them to offer retail line rental services in competition with BT's own retail services. Line rental is offered along with calls (and other service elements, such as broadband) to retail customers.