Narrowband Market Review

Consultation on the proposed markets, market power determinations and remedies for wholesale call termination, wholesale call origination and wholesale narrowband access markets

Consultation

Publication date: 1 December 2016

Closing Date for responses: 28 February 2017

About this document

The Narrowband Market Review 2017 covers five wholesale markets that underpin the delivery of retail fixed voice telephone services in the UK. The outcomes from this review are designed to promote competition and further the interests of residential and business consumers.

We are reviewing three access markets: wholesale fixed analogue exchange lines (the standard fixed lines used by residential and business consumers) and two markets that enable the delivery of digital telephone services to businesses to support applications such as call centre operations. The two digital exchange line markets are ISDN30 and ISDN2. In addition, we are reviewing wholesale call origination – a complementary service to the provision of analogue and digital exchange lines, which enables consumers to make calls over those lines.

This review also includes wholesale call termination, a connection service provided by a fixed telecoms provider when their customer receives a call. If consumers call a UK geographic number (a number starting 01 or 02), their provider pays the terminating provider a wholesale charge, called a fixed termination rate.

This consultation considers the level of competition in each of these five wholesale markets. Where competition is not working effectively, we propose regulation that should apply for the period 1 October 2017 to 30 September 2020.

We will take all responses to this consultation into account before reaching our final conclusions, which we plan to publish in a statement in September 2017.

Contents

Section 1

Executive summary

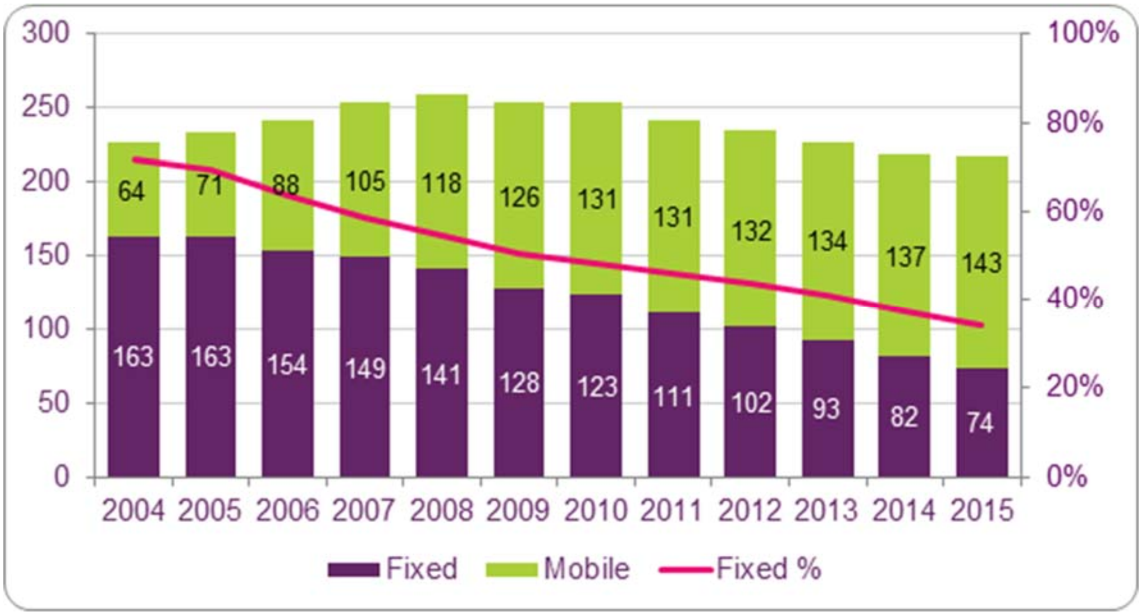
Introduction

1.1 In our Strategic Review of Digital Communications (DCR)[1], we highlighted how the telecommunications sector has changed since our first strategic review in 2005. Competition has delivered new services and increased choice to retail consumers: a large majority of households (87%) now have an accompanying fixed broadband connection, with an increasing proportion choosing to buy this as part of a bundle with telephony and often TV.

1.2 These developments in large part reflect our regulation of the underlying wholesale markets, where the rollout of local loop unbundling (LLU) has promoted infrastructure-based competition to BT from providers including Sky and TalkTalk. This, alongside further rollout of Virgin Media's cable network, has led to increased availability and choice of retail bundles that include voice and broadband.

1.3 In the DCR, we said that in the eyes of consumers, fixed and mobile networks are becoming more and more interchangeable. While most households and businesses in the UK continue to have fixed telephone lines, the relative importance of fixed voice calls has declined. Volumes of fixed voice calls are falling, whereas we have seen continued growth in mobile calls (as shown in Figure 1.1 below). We have also seen increasing use of internet-based (IP) voice services, particularly 'over-the-top' (OTT) services.[2]

Figure 1.1: Decline in fixed call volumes



Source: Ofcom Communications Market Reports.

[1] Ofcom, 25 February 2016. *Making communications work for everyone: Initial conclusions from the Strategic Review of Digital Communications*, (DCR Statement) https://www.ofcom.org.uk/__data/assets/pdf_file/0016/50416/dcr-statement.pdf.
[2] In this context, these are services that enable consumers to make and receive voice calls using an internet connection.

1.4 We also said that we would consider how far we can deregulate the traditional fixed voice markets, in particular whether it is possible to remove some of the existing market-wide regulation of call origination, and replace it with targeted protection for those consumers who still need it.[3] We explained that in the longer term we anticipate traditional voice telephony being replaced by voice services carried over broadband, and that this will be facilitated by the ability to purchase broadband without traditional voice services.[4]

1.5 This consultation sets out the provisional conclusions of our review of wholesale markets for voice services and lines, and represents an important stage in delivering on this strategy.

1.6 In summary, in light of the market analysis we have undertaken we propose to significantly reduce the wholesale regulation that we apply to BT in these markets. In particular, we propose to:

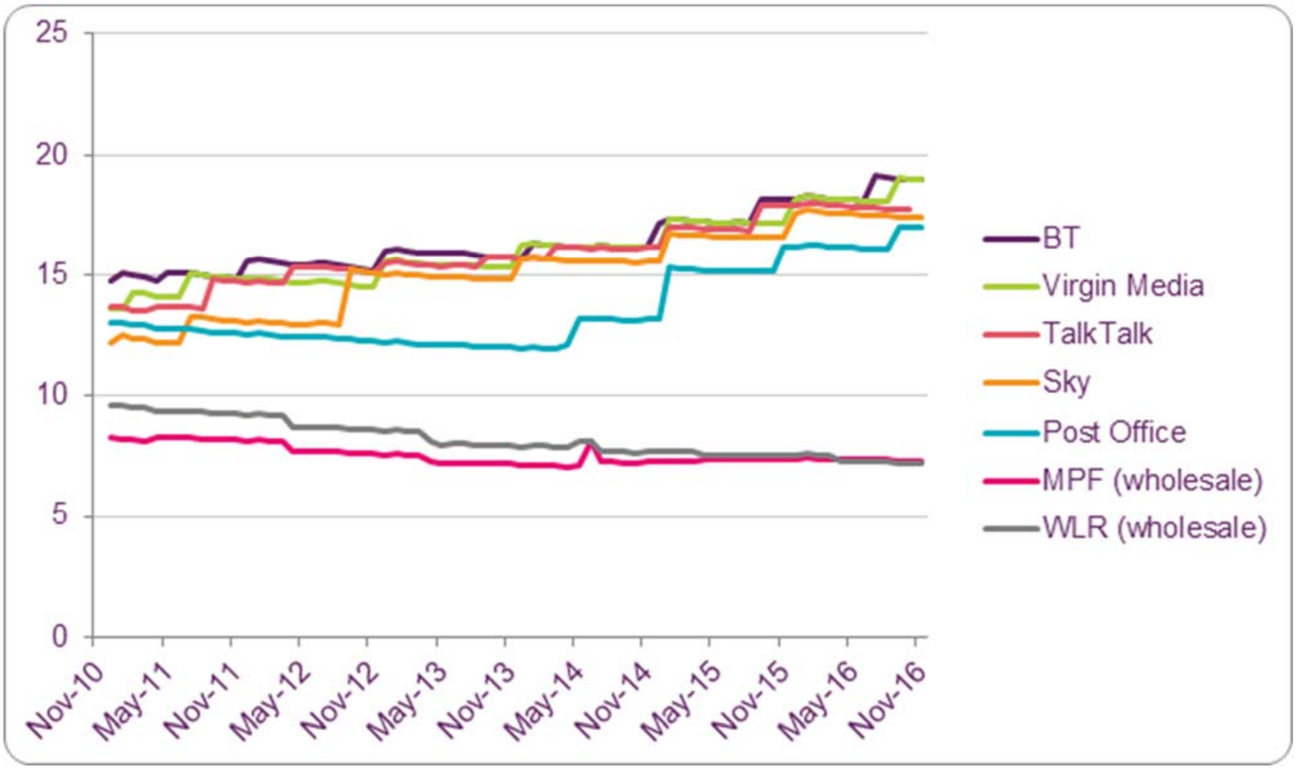
- remove regulated cost-based charge controls for wholesale fixed telephone lines and call origination;
- remove regulation from the new supply of digital voice lines (known as ISDN), but retain regulation to protect existing business consumers of these services; and
- remove the 'no undue discrimination' regulation which currently restricts the terms upon which BT can sell wholesale call origination to other telecoms providers.

1.7 As envisaged in the DCR, regulation of voice services may no longer be appropriate in future. Therefore, in subsequent reviews it may be possible for us to entirely remove wholesale regulation of lines and calls, if we find that competition is delivering for all consumer segments as a result of the relevant wholesale markets being effectively competitive, or because other forms of protection are sufficient or appropriate. However, in this market review period, given BT's significant market power, regulation of BT's narrowband services is still needed to support competition for various groups of consumers and in areas where alternative wholesale infrastructure has had less of a competitive impact. This includes fixed voice-only consumers (those who do not take broadband or other bundled services), business consumers, and consumers in areas where cable and LLU-based competitors are unavailable.

1.8 In relation to fixed voice-only consumers we are particularly concerned that, notwithstanding wholesale fixed voice regulation, there may be features of the retail market which mean that competition is not working well for them. As we set out in the DCR and as shown in Figure 1.2 below, there have been significant increases in retail line rental prices, which have a particular impact on those consumers who take fixed voice-only services and do not benefit from competition in bundled services.[5]

[3] DCR Statement, paragraph 8.4.
[4] DCR Statement, paragraph 8.7.
[5] DCR Statement, paragraph 7.9 and paragraph 8.3.

Figure 1.2: Wholesale and retail line rental price movements (£/month in October 2016 prices)



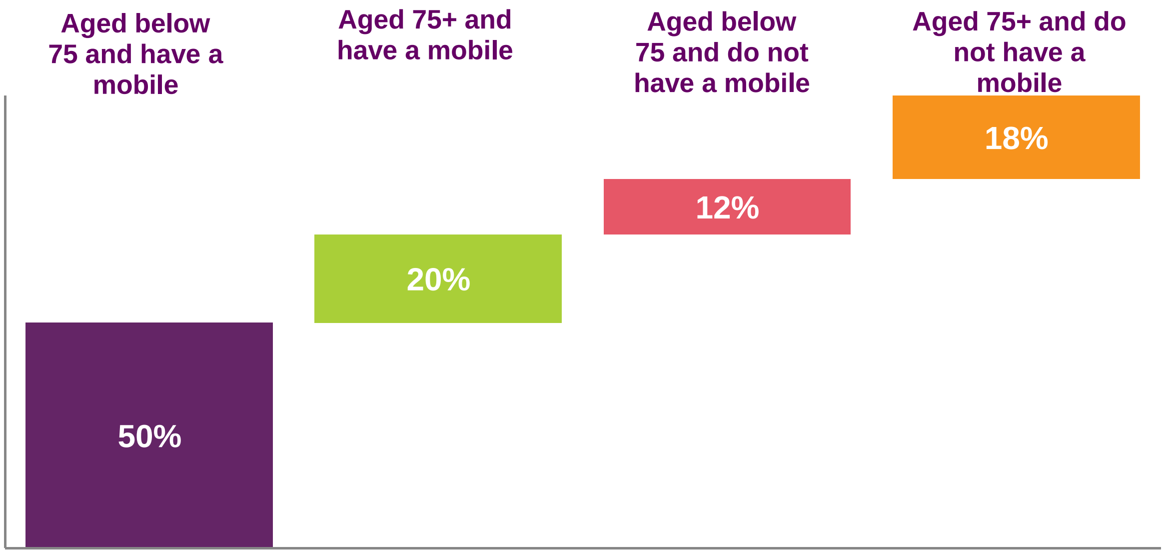
Source: Ofcom/Pure Pricing UK Broadband Updates.

1.9 While the charges for key wholesale inputs to these services have fallen by up to 25% in real terms, retail line rental prices have risen by between 28% and 41% since 2010. This trend is observable across all major providers of landline services – not just BT. It may be a consequence of providers focusing on marketing bundles where the line rental price is given less prominence compared to other parts of the bundle, such as broadband and TV, though at least in part may also reflect the decline in revenue from calls.

1.10 The Advertising Standards Authority has recently decided that broadband providers may no longer advertise the price of broadband and line rental separately, so as to increase price transparency. While this may benefit consumers taking bundles, and may reduce incentives to increase line rental charges, we do not consider that, in itself, it is likely to lead to a reduction in retail line rental charges for fixed voice-only consumers over time, due to the apparent lack of competition within the market.

1.11 We also note that a significant share of residential fixed voice-only consumers are elderly or do not use a mobile (particularly in comparison to residential fixed voice consumers who have broadband). Figure 1.3 below provides an indicative breakdown for residential fixed voice-only consumers.

Figure 1.3: Residential fixed voice-only consumers by age group and mobile adoption



Source: 2015 Jigsaw residential survey (wave 1).

1.12 Consistent with our strategy set out in the DCR, deregulation of legacy services is appropriate when competition is effective and acts to safeguard the interests of consumers.[6] However, we are also keen to ensure that those consumers, who are not the focus of competition and/or more susceptible to price increases, are not left exposed.

1.13 For these reasons we have commenced a separate review of retail fixed voice-only services and subject to our analysis intend to publish a consultation in the new year.

Proposals

Background

1.14 The Narrowband Market Review (NMR) 2017 considers the following five wholesale markets:

- wholesale fixed analogue exchange lines;
- wholesale ISDN30;
- wholesale ISDN2;
- wholesale call origination; and
- wholesale call termination.[7]

1.15 Wholesale fixed analogue exchange lines (WFAEL) are standard fixed lines used by residential and business consumers. ISDN (Integrated Services Digital Network) is a

[6] DCR Statement, paragraph 1.65.
[7] Narrowband refers to services (including telephony and fax) where the bandwidth available is limited by the network to that required to support telephony traffic. It is different to broadband, where services using much higher bandwidth can be supported.

digital exchange line service that supports telephony and some data services. ISDN30 is primarily used by larger businesses with multiple lines and/or sites, for example call centres. ISDN2 supports two voice or narrowband data channels (which may be used to support fax machines, for example). In this consultation, we refer to the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets collectively as the narrowband access markets.

1.16 Wholesale call origination is a complementary service to the provision of narrowband access lines, which enables consumers to make calls over those lines.

1.17 Wholesale call termination is a connection service provided by a fixed telecoms provider when their customer receives a call.

Narrowband access markets

Wholesale fixed analogue exchange lines

1.18 Residential and business users continue to show a strong attachment to fixed lines, and the number of fixed lines has remained relatively stable despite significant increases in retail line rental prices and falling call volumes.

1.19 Our analysis suggests that mobiles and voice services delivered over IP are not in the same market as fixed lines. We therefore propose to define a market for WFAEL, which would include all copper lines, cable lines and voice-enabled fibre lines.

1.20 We consider that BT continues to hold significant market power (SMP) in this market in the UK excluding the Hull Area. Some consumer groups – particularly fixed voice-only residential consumers, those outside the LLU and cable footprint, and businesses using analogue lines – have fewer significant competitive alternatives to BT than residential consumers who buy voice services in a package with broadband.

1.21 In relation to wholesale lines, we propose that BT's SMP is likely to be lower than at the time of our previous review, as a result of increased competition from infrastructure based competitors such as TalkTalk, Sky and Virgin Media. We also recognise the growing use of mobile calling, although this has not translated to a reduced attachment to fixed lines by most consumers. The increasing use of mobile calling therefore has a greater bearing on our analysis of wholesale call origination.

1.22 As noted above, in the DCR we also explained that in the longer term we anticipate traditional voice telephony being replaced by voice services carried over broadband, and that this will be facilitated by the ability to purchase broadband without traditional voice services. We expect the availability of alternative IP-based voice services to develop further during the forthcoming review period, although we expect their impact to be more significant in the period following this review.

1.23 Under our proposals, BT will still be required to provide wholesale lines, to ensure that competing providers can effectively serve retail consumers, including those in segments where LLU and cable competition is weakest.

1.24 However, in recognition of the growing alternatives to traditional fixed voice services more broadly, we propose that BT's wholesale line rental (WLR) product should be subject to a fair and reasonable charging obligation, rather than a cost-based charge control.

1.25 In the DCR we identified the importance of quality of service to consumers and we consider that wholesale regulation of exchange lines should support this.[8] This is important not only for the quality of fixed voice services, but for the quality of broadband experience, because exchange lines are an important complement to the provision of broadband to most consumers. We therefore propose to retain quality of service remedies for WLR, including quality of service standards and key performance indicators.[9]

1.26 The remedies we propose for BT in the WFAEL market are summarised in Table 1.1 below.

Wholesale ISDN30 and ISDN2

1.27 Businesses are steadily migrating from legacy ISDN services to newer IP-based voice services. However, many SMEs and larger businesses continue to use ISDN. We propose to again define separate wholesale ISDN30 and ISDN2 markets, and to find that BT has SMP in each of these markets in the UK excluding the Hull Area.

1.28 For businesses that do not already have ISDN, we consider that the availability of IP-based alternatives is likely to limit the extent of BT's market power. As a result, we are proposing targeted remedies for ISDN, restricting most regulation to existing ISDN lines only in order to protect existing users of these services. We propose to largely deregulate the provision and rental of new lines after a transitional period (for which we propose a period of up to 12 months).

1.29 To address the risk of excessive pricing of existing ISDN lines, we propose to retain a charge control on wholesale ISDN30 and ISDN2 based on current charges. The remedies we propose for BT in the ISDN markets are summarised in Table 1.1 below.

Wholesale call origination

1.30 The number of calls made over fixed lines has been falling for many years. Increasingly, residential and business consumers are using alternative options to make voice calls – mobile phones and newer IP-based voice services including OTT services from smartphones.

1.31 Our review suggests that, while these alternative services increasingly act as a competitive constraint for some types of calls, and for some consumers, they are not yet in the same market as fixed line voice calls. We therefore propose that a separate market for wholesale call origination (WCO) can still be identified.

1.32 BT's market share of WCO remains at or around 50%, but it has steadily fallen in the light of competition from providers such as Sky and TalkTalk who offer fixed voice services, increasingly as part of a bundle with broadband and other services.[10] As well as a decline in BT's share of WCO, we expect an increasing constraint from services outside the defined market – mobiles and IP-based voice services – over

[8] DCR Statement, Section 5.
[9] We are currently undertaking a comprehensive review of the quality of service standards and KPIs for WLR and metallic path facility (MPF) products as part of the Wholesale Local Access (WLA) market review. In the WLA review we will present and consult on proposals that are aligned across these products, and ensure consistency with any proposed new approach to incentivising Openreach to outperform the quality of service standards, in line with the strategic direction set out in the DCR.
[10] As noted above, this reflects the success of our upstream regulation of LLU, and it adds to competition from Virgin Media's cable network in many parts of the country.

the period of this review. We therefore propose that while BT continues to have SMP in the WCO market in the UK excluding the Hull Area, it is less than at the time of our 2013 review of this market.

1.33 Given this development of fixed voice competition and the availability of alternative options for many consumers, we are proposing a lighter remedies package for BT in the WCO market. In particular, we propose:

- to introduce a requirement for WCO charges to be fair and reasonable. Before now, we have set a cost-based charge control;

- to remove the no undue discrimination obligation on BT. This would allow BT to better respond to competition and price more flexibly, as its wholesale competitors already can.

1.34 Under our proposals, BT would still be required to provide network access on reasonable request to ensure that competing providers are able to offer call services to retail consumers. The remedies we propose for BT in the WCO market are summarised in Table 1.1 below.

Table 1.1: Summary of proposed remedies on BT (in the UK excluding the Hull Area) by wholesale market

	Proposed remedies
WFAEL	- Provide network access on reasonable request - Provide specific network access in the form of WLR - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting - Quality of service: transparency and quality of service standards
ISDN30 (after transitional period)	<u>All lines</u> - Accounting separation - Cost accounting <u>Existing lines</u> - Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting - Quality of service: transparency
ISDN2 (after transitional period)	<u>All lines</u> - Accounting separation - Cost accounting <u>Existing lines</u> - Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting - Quality of service: transparency
WCO	- Provide network access on reasonable request - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting

Hull Area

1.35 We propose to define three wholesale narrowband access markets and a market for WCO in the Hull Area, and to find that KCOM has SMP in these markets.

1.36 There is no effective competition from LLU or cable-based operators in the Hull Area – competition in the retail fixed voice market largely relies on resellers having access to KCOM's wholesale products.

1.37 We propose to require that KCOM provides network access on fair and reasonable terms (including charges) in the WCO and WFAEL markets. We propose to remove the no undue discrimination obligation on KCOM in the WCO market, in light of the increased competitive constraint from outside the defined market (most notably from mobiles).

1.38 For the wholesale ISDN30 and ISDN2 markets, as in the rest of the UK, we propose to target our remedies, focusing regulation on existing lines and largely deregulating new lines after a transitional period (for which we propose a period of up to 12 months).

1.39 The remedies we propose in relation to KCOM in each of these markets are summarised in Table 1.2 below.

Table 1.2: Summary of proposed remedies on KCOM (in the Hull Area) by wholesale market

	Proposed general remedies
WFAEL	- Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting
ISDN30 (after transitional period)	All lines - Accounting separation - Cost accounting Existing lines - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting
ISDN2 (after transitional period)	All lines - Accounting separation - Cost accounting Existing lines - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting
WCO	- Provide network access on reasonable request - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting

Wholesale call termination

1.40 Wholesale call termination (WCT) is a wholesale service for the termination of voice calls to UK geographic numbers (numbers starting 01 and 02). It is an important market in supporting effective competition between telecoms providers because every call to a different network will incur a termination rate.

1.41 We propose to find that all 315 telecoms providers that we have identified in this review (including BT and KCOM) that terminate calls on UK geographic numbers have SMP in respect of those numbers, because the caller (and the caller's telecoms provider) cannot choose which providers to connect to when making a call.

1.42 The remedies that we propose to apply to BT and to other providers with SMP in the WCT markets are summarised in Table 1.3 below. Additional remedies on BT are necessary due to the high volume of consumers that it serves compared to other telecoms providers.

Table 1.3: Summary of proposed remedies in the WCT markets

	Proposed remedies on BT	Proposed remedies on all other providers with SMP (including KCOM)
WCT	- Charge control - Provide network access on reasonable request - Price transparency obligation - Requirement not to unduly discriminate - Publish a Reference Offer - Accounting separation - Cost accounting	- Charge control - Provide network access on reasonable request - Price transparency obligation

Charge control

1.43 In the DCR we said we would continue to look for opportunities to simplify the regulation of call termination, but that some form of protection against high termination rates was likely to be needed.[11] Consistent with that strategy, we propose a more consistent and transparent approach to the regulation of all termination rates.

- First, we propose to apply a charge control on fixed termination rates (FTRs) to all telecoms providers that have SMP in WCT. This would replace our current approach where BT is subject to a charge control, while other providers with SMP are subject to a fair and reasonable charges requirement, with some potential for variation from the BT charge controlled rate.

- Second, we propose to simplify the charge control arrangements. Specifically, we propose a single flat rate cap, rather than a control based on the average of rates charged at different times. We think the benefits of time of day pricing are now much reduced in termination markets and this represents a simple, transparent and proportionate way of regulating termination rates.[12]

1.44 Our proposed FTR charge control is based on long-run incremental cost (LRIC).[13] This is consistent with the current charge control on BT and the 2009 EC Recommendation on call termination.[14]

1.45 We propose to reduce the current average charge of 0.029 pence per minute (ppm) down to 0.024ppm in 2017/18 and thereafter by a further 0.002ppm for each

[11] DCR Statement, paragraph 8.5.
[12] Mobile termination rates have been capped by reference to a single flat rate since May 2015 – see Ofcom, 2015. *Mobile call termination market review 2015-2018*. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0029/76385/mct_final_statement.pdf.
[13] Long Run Incremental Costs (LRIC) are those costs which are caused by the provision of a defined increment or service – i.e. those costs that would not be incurred if that service was no longer provided, while all other services and products are still provided.
[14] European Commission, 7 May 2009. *Commission Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU*. Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF.

subsequent year of the control. This amounts to an overall reduction of around £7.7m over the three years of the control, or about 8p per year per line on average.[15] The proposed cap based on our 'bottom-up' cost model is set out in Table 1.4 below:

Table 1.4 – WCT charge control: Values of X and forecast maximum charges[16]

	2016/17 Actual Real	2017/18 Forecast Real	2018/19 Forecast Real	2019/20 Forecast Real
ppm cap (actual and forecast)	0.029	0.024	0.022	0.020
Charge control cap and values of X in the CPI-X formula		0.024ppm	CPI-8.5%	CPI-9.3%

Source: Ofcom.

Interconnect circuits

1.46 When two telecoms providers pass voice calls between their networks, interconnect circuits provide the physical infrastructure to allow calls to be routed between them.

1.47 We consider that we still need to regulate BT's interconnect circuits in the UK excluding the Hull Area in order to address concerns arising from its SMP in WCO and WCT. We are therefore proposing to apply remedies to BT's provision of interconnect circuits, including a charge control, as set out in Table 1.5 below. For the charge control, we are consulting on a range between holding charges for a basket of services at their current level (in effect, a CPI-CPI cap) and a cap on charges above inflation, which could be up to CPI+5%.

1.48 We propose to regulate KCOM's interconnect circuits in the Hull Area, in order to address its SMP in WCO, as set out in Table 1.5 below. We propose to maintain a fair and reasonable charging requirement in relation to the provision of these circuits by KCOM.

Table 1.5: Summary of proposed remedies on BT and KCOM interconnect circuits

	Proposed remedies on BT in the UK excluding the Hull Area	Proposed remedies on KCOM in the Hull Area
Interconnection	- Charge control - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting - Quality of service: transparency	- Provide network access on reasonable request - Publish a Reference Offer - Notify changes to charges

[15] This is based on assuming 37.2bn minutes of net incoming traffic per year based on data from 2015 (33.1bn minutes of mobile-to-fixed traffic and ~4.1bn minutes of incoming international traffic) and 33.7m exchange lines per year. Source: rates are taken from the Ofcom termination cost model published with this consultation; volume data is taken from the Ofcom quarterly telecoms data tables.
[16] ppm real values are in 2015/16 prices. The value for 2016/17 reflects the voluntary commitments made by BT. The WCT charge control years run from 1 October-30 September.

Retail fixed voice-only market review

1.49 While we think that retail outcomes have been good for those buying bundles of voice and broadband, we have some concerns that competition is not benefiting a significant minority of consumers who purchase a fixed telephone service but do not take broadband.

1.50 Fixed voice-only consumers represent around 10% of residential landline consumers and the number has been declining over time as broadband take-up continues. However, while the proportion of such consumers has declined over time, we believe the absolute number of such consumers is likely to remain significant for the foreseeable future.

1.51 Our policy preference is to focus regulation on upstream bottlenecks in wholesale markets rather than in retail markets. However, we believe that the only effective way to address this particular group of consumers is to consider retail measures. We are therefore conducting a separate review of the fixed voice-only market and intend to publish a consultation in the new year.

Consultation and next steps

1.52 We invite comments from stakeholders on the proposals in this document. The consultation runs for three months and the deadline for responses is **28 February 2017**. Annex 1 provides further details of how to respond.

1.53 We aim to publish our conclusions in September 2017 and the next market review period will last from 1 October 2017 to 30 September 2020.

Section 2

Background

2.1 In this section we set out the scope of the Narrowband Market Review 2017 (NMR 2017) and our response to stakeholder comments on the scope of the review. We also provide an overview of the telephony services considered in the review.

2.2 We explain how we have taken account of the Digital Communications Review (DCR) in conducting this review, and given the consequential delay to the completion of the review, we explain our approach to the period between the expiry of the NMR charge controls and the start of the next review period.

2.3 Finally, we summarise the process we have adopted in defining the markets in this review and the legal framework relating to the market review process.

Scope of this review

2.4 Under the European common regulatory framework for electronic communications[17], Ofcom is required to carry out periodic reviews of electronic communications markets in the UK. In the NMR 2017, we are reviewing the level of competition, and if appropriate, the regulation that should apply in the following markets:

- wholesale fixed analogue exchange lines (WFAEL);
- wholesale ISDN2 (ISDN2);
- wholesale ISDN30 (ISDN30);
- wholesale call origination (WCO); and
- wholesale call termination (WCT).

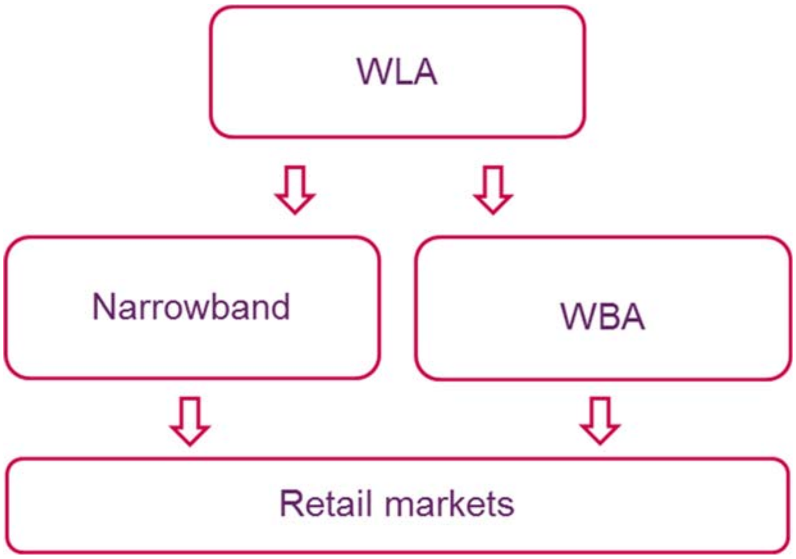
2.5 This consultation sets out our proposed findings on the above five wholesale markets, which underpin the delivery of retail fixed voice telephony in the UK. It also sets out our proposed approach to the regulation of interconnection, which supports WCO and WCT.

2.6 We are separately carrying out reviews of the Wholesale Local Access (WLA) and Wholesale Broadband Access (WBA) markets, on which separate consultations will follow.

2.7 The diagram below shows the links between the different market reviews. The markets covered by the NMR and WBA market reviews are intermediate wholesale markets. They sit downstream of the WLA market, but upstream of the corresponding retail markets.

[17] *Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services* (the Framework Directive), as amended by Directive 2009/140/EC and Regulation 544/2009, together with the "Specific Directives" as referred to and defined therein. Available at: http://ec.europa.eu/information_society/policy/ecomm/doc/140framework.pdf.

Figure 2.1: Links between the fixed market reviews



Source: Ofcom.

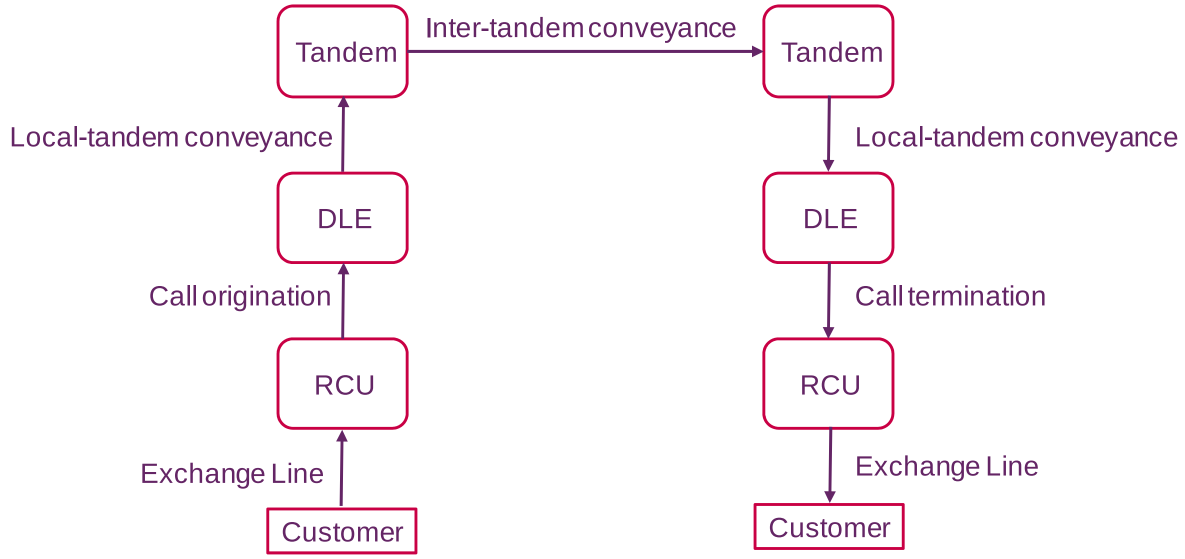
Services considered in this review

2.8 Retail voice telephony is provided using a number of wholesale inputs:

- WFAEL: a narrowband analogue access connection between a customer's premises and a local exchange;
- ISDN2: a digital narrowband access service for businesses which provides two 'channels' at 64kbit/s each;
- ISDN30: a digital narrowband access service supporting up to 30 64kbit/s channels, which is used most commonly to provide multiple telephone lines to larger businesses;
- WCO: the wholesale service that enables voice calls over a narrowband access line (WFAEL, ISDN2 or ISDN30);
- WCT: the wholesale services that allows the termination of calls to UK geographic numbers (numbers starting 01 and 02) over a narrowband access line;
- interconnect circuits, which link two different communication providers' (CPs') networks so calls can pass between them; and
- unregulated transit and conveyance services, which connect calls between customers that are geographically dispersed.

2.9 Figure 2.2 below shows the wholesale components that may be used to provide a retail voice call on BT's network:

Figure 2.2: BT's voice network architecture



Source: Ofcom.

2.10 An RCU (remote concentrator unit) is the point in the network where the customer's access line terminates at a "line card", providing the customer with access to the voice network. BT's network includes more than 600 Digital Local Exchanges (DLEs). It also has a number of tandem exchanges.

2.11 BT's voice network uses Time Division Multiplex (TDM) technology. Some other CPs have also built TDM networks (for example, Virgin Media uses a TDM network to provide voice calls, alongside the cable network it uses to provide TV and broadband).

2.12 Other CPs have built call conveyance networks based on Internet Protocol (IP) technology. This is relevant for our consideration of interconnect services, as CPs need interconnect circuits that can pass traffic from TDM networks to IP networks and vice versa.

2.13 IP can also be used in the access network to provide services that enable consumers to make voice calls over a (fixed or mobile) broadband connection (voice over IP or VoIP[18], also known as voice over broadband).

2.14 We consider that VoIP services can be characterised as including two main types:

- **Managed VoIP**: the Internet Service Provider (ISP)[19] 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.

- **Un-managed VoIP**: the ISP that provides the broadband connection does not provide the VoIP service, and there is no guarantee they will prioritise this traffic, so quality of service is likely to be more variable than a managed service. The VoIP service provided is accessed via the public Internet. Calls between customers subscribing to the service are likely to be free. Subscribers may also be able to make and receive calls to and from the public switched telephone

[18] Voice over Internet Protocol is the traffic method of carrying voice calls on fixed and mobile networks by packetising speech and carrying it using IP.
[19] An Internet service provider (ISP) is a company that provides customers with Internet access.

network (PSTN) but these calls may be charged for. 'Over-the-top' (OTT) VoIP services such as WhatsApp and Skype are examples of un-managed VoIP.

2.15 To use VoIP, consumers may need to install a piece of equipment called an analogue telephony adaptor (ATA) to allow standard analogue telephone equipment to be used with the service. The ATA carries out the conversion between the analogue signals of the telephone and the IP carried over the broadband connection. However, this will not always be the case. Some VoIP services may integrate conversion to VoIP in the handset so that separate analogue to IP conversion is not required, or the VoIP service could be provided through other customer premises equipment (such as an application running on a PC or smartphone).

2.16 In future, there may be a more significant shift to voice services being provided over IP. Currently, wholesale superfast broadband (Generic Ethernet Access, GEA) is typically provided in combination with a voice service provided over an analogue exchange line. However, BT is planning to provide a new wholesale product (single order GEA or SOGEA) that can be ordered on a freestanding basis – without a wholesale line rental (WLR)[20] or metallic path facility (MPF)[21] voice connection. This would mean any voice service is supplied using VoIP.

2.17 In this review we also consider business services based on ISDN (Integrated Services Digital Network). ISDN is a legacy technology that is used to provide digital voice and data services to business customers over a copper access network. ISDN30 is a narrowband access service designed to cater for larger business sites. ISDN30 supports up to 30 'channels' of 64kbit/s each and is most commonly used to provide multiple telephone lines to private branch exchanges (PBXs). ISDN2 is a narrowband access service that provides two channels of 64kbit/s each, and is used mainly for telephony and internet access, particularly by small and medium-sized businesses.

2.18 VoIP services provided to business include SIP trunking (where the business maintains equipment such as an IP-PBX and connects to the network via IP, with the connection allowing for a maximum number of simultaneous calls or SIP trunks) and 'hosted VoIP' where the features that would typically reside on an IP-PBX are instead provided within the CP's network so that the business customer of that CP needs to maintain less equipment.

Call for inputs and scope change

2.19 On 2 April 2015, we published a call for inputs (April 2015 CFI)[22] on our review of the WCO and WCT markets. We sought views on the scope of the review, relevant developments since the last review that may affect market definition and SMP analysis, and the effectiveness and appropriateness of existing remedies in these

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[20] The service offered by BT to other UK 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.

[21] The provision of access to the copper wires from the customer premises to a BT MDF that covers the full available frequency range, including both narrowband and broadband channels, allowing a competing provider to provide the customer with both voice and/or data services using the dominant provider's local loop.

[22] See Ofcom, 2015. *Review of fixed call origination and termination markets 2016-19 - Call for inputs*. Available at: https://www.ofcom.org.uk/consultations-and-statements/category-2/review-fixed-call-origination-termination-markets.

two markets, including regulation of interconnection circuits. We received 12 responses.[23]

2.20 In summer 2015 we decided to extend the scope of the NMR to include the WFAEL, ISDN30 and ISDN2 markets (together referred to as the narrowband access markets). We did this so that we could take account in our analysis of the relationship between narrowband access and WCO. We notified stakeholders of this decision, which prompted a number of further submissions.[24]

Stakeholder comments on the scope of the review

2.21 Most stakeholders agreed with the scope of the review.[25] However, some made comments about specific services that they felt we should also consider, as discussed in the following paragraphs.

Non-geographic termination

2.22 EE[26] said wholesale fixed call termination to 03 numbers should be included in the scope of this review. It said a review was needed to address the "inconsistency between 03 termination rates and BT's fixed geographic termination rates".[27] It also highlighted the increasing importance of the 03 number range and observed that following our change of approach to regulation of non-geographic call services (NGCS)[28], the 03 range remains the only non-geographic number range that is not regulated.[29]

2.23 In Section 11, we consider whether this review should include 03 numbers as well as other non-geographic numbers (e.g. 08, 09 numbers). We explain that we do not consider that the defined product market for calls to fixed geographic numbers includes termination of non-geographic numbers. Therefore, we have decided not to expand the scope of this review to include termination on the 03 number range or non-geographic termination more generally. We also note that the current NGCS regime in effect caps rates for termination of calls to all NGCS ranges except 03.

2.24 We have not undertaken further analysis of non-geographic termination as part of this review. However, separately, we are currently gathering information on how well the NGCS regime is working, and will consider whether more detailed consideration of NGCS, leading potentially to further regulatory action, is appropriate.

Deregulated markets

2.25 Vodafone submitted that we should widen the scope of the review to include previously deregulated markets, although it noted that "on the whole, there is now a

[23] Non-confidential responses are published on our website at the link in the previous footnote.
[24] https://www.ofcom.org.uk/consultations-and-statements/category-1/narrowband-market-review
[25] Colt, April 2015 CFI response, page 2; FCS, April 2015 CFI response, page 2; BT, April 2015 CFI response, page 4; KCOM, April 2015 CFI response, page 2, Virgin Media, April 2015 CFI response, page 2.
[26] EE was acquired by BT on 29 January 2016.
[27] EE, April 2015 CFI response, page 5.
[28] Ofcom, 2013. *Simplifying Non-Geographic Numbers*. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0017/72116/final-statement.pdf
[29] EE, April 2015 CFI response, pages 1-6.

competitive market" for transit.[30] However, it raised concerns about the transparency of BT's non-regulated IP Exchange product and its effect on transit markets.[31]

2.26 Vodafone also raised concerns[32] about BT's price increases for non-regulated wholesale charges, effective from 1 November 2015.[33] Vodafone stated that terminating CPs may "ripple" BT's price increases through to their own charges (which combine the Fixed Termination Rate (FTR) with charges for unregulated services, including transit) in response, resulting in higher retail prices.[34]

2.27 We deregulated transit markets[35] in previous reviews. We have not undertaken a detailed analysis of BT's price changes.[36] We consider that our proposed regulation of WCT will make WCT charges clearer, providing a clear benchmark against which CPs can assess unregulated charges. We address Vodafone's concerns around pricing transparency[37] in Section 12 where we discuss the implementation of the network access obligation in respect of hosting (including BT's IP Exchange) and combined charges.

Porting charges

2.28 In their responses to the April 2015 CFI, Vodafone and [✂] submitted that average porting conveyancing charges (APCCs) should be considered within the scope of this review.[38] While we recognise that APCCs affect the profitability of serving customers (i.e. for inbound traffic to a customer that has ported their number, the APCC reduces the net revenue from inbound traffic), these are independent charges in the sense that they relate to two distinct services, each of which is subject to a different basis of regulation.

2.29 FTRs are paid for WCT, whether a customer has ported their number or not, and are subject to SMP obligations. In contrast, the regulation of APCCs does not arise from the SMP framework, but from the General Conditions (GCs). Specifically, APCCs are

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30 Vodafone, April 2015 CFI response, page 8; and Vodafone, *Input to Narrowband Markets Review: BT changes to deregulated services,* pages 1-10.
31 Vodafone, April 2015 CFI response, pages 2, 11 and 20-22; Vodafone, *Input to Narrowband Market Review: Technology choice and 24 hour rates*, pages 4-5.
32 Vodafone, *Input to Narrowband Markets Review: BT changes to deregulated services*, page 9.
33 BT removed time-of-day pricing and introduced a pence-per-call charge effective from 1 November 2015; see for example, Single Tandem Call Termination and Double Tandem Call Termination; BT, Carrier Price List, B1.01 BT Telephony Calls To The BT System, available at: https://www.btwholesale.com/pages/static/help-and-support/pricing/carrier-price-lists.htm; Non Geographic Call Services, BT UK Wide Numbers - 03 Calls, B1.06.13 and calls that are not collected by the Operator at the Assumed Handover Point (AERO) in B1.102 of BT's CPL, available at: https://www.btwholesale.com/pages/static/help-and-support/pricing/carrier-price-lists.htm; Single Tandem Call Termination and Double Tandem Call Termination; BT, Carrier Price List, B1.01 BT Telephony Calls To The BT System, available at: https://www.btwholesale.com/pages/static/help-and-support/pricing/carrier-price-lists.htm
34 Vodafone*, Input to Narrowband Markets Review: BT changes to deregulated services,* pages 8-9.
35 Transmit market charges include: Local-Tandem Conveyance (LTC), Single Transit (ST), and Inter-Tandem Conveyance (ITC).
36 However, we understand that other than bespoke rates, BT has not changed the prices of LTC and ST since they were last charge controlled in 2009. The same applies to ITC which was last charge controlled in 2005.
37 Vodafone, April 2015 CFI response, page 6.
38 Vodafone, April 2015 CFI response, page 6 and [✂]. KCOM also noted that porting charges "may warrant consideration" as part of this review (KCOM, April 2015 CFI response, page 2).

commercially negotiated between CPs, but must be set on terms compliant with GC 18.[39]

2.30 We resolved a dispute[40] which used the 2014 APCC Guidance[41] to determine how GC18 should be applied. The dispute determinations (including our interpretation of the requirements of GC18) were appealed by BT to the Competition Appeal Tribunal. On 4 November 2016 the Competition Appeal Tribunal dismissed BT's appeal.[42] We do not propose to revisit the basis of regulation of APCCs at this time.

End-to-end connectivity

2.31 Vodafone pointed to a number of market developments, including deregulation of transit and the growing importance of IP traffic,[43] which it considered suggested that the scope of the end-to-end connectivity obligation (which applies to BT only and requires BT to purchase termination services from other CPs on fair and reasonable terms)[44] should be reviewed.[45] Vodafone suggested that BT's position in operator assistance, emergency call handling and text relay services could be susceptible to abuse.[46] It also suggested that BT's ability to set payphone access charges could be damaging to competition for services using the 08, 101 or 111 number ranges.[47]

2.32 This review is assessing whether or not to apply conditions to CPs with SMP in narrowband markets. We are not reviewing BT's end-to-end connectivity obligation, which is an access-related condition set under Sections 73 and 74 of the Act, or BT's position in the other wholesale markets that Vodafone refers to.

Contractual mechanisms

2.33 Two stakeholders expressed concerns about contractual matters relating to BT's Standard Interconnect Agreement (SIA) and Carrier Price List (CPL). Vodafone noted a number of concerns about the SIA and CPL. Vodafone considered that the SIA is currently slanted in BT's favour, with reform slow, and changes that go against BT's interest difficult to implement. It further considered that the workings of the CPL need to be revised following the deregulation of many services offered by BT.[48] Another stakeholder noted concerns with the Artificial Inflation of Traffic (AIT)[49] process, and

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39 As required by Article 30 of the Universal Service Directive.
40 Ofcom, 2015. *Disputes between BT and each of Gamma and Vodafone in relation to BT's average porting conveyance charges: final determination*. Available at: https://www.ofcom.org.uk/about-ofcom/latest/bulletins/competition-bulletins/open-cases/cw_01172 (APCC dispute).
41 Ofcom, 2014. *Porting charges under General Condition 18: Guidance on the setting of porting charges in compliance with GC18 and consultation on a new mobile donor conveyance charges*. Available at: https://www.ofcom.org.uk/consultations-and-statements/category-2/gc18-sep14
42 *British Telecommunications PLC v Office of Communications*, case number 1245/3/3/16, http://www.catribunal.org.uk/237-9064/1245-3-3-16-British-Telecommunications-PLC-.html.
43 Vodafone, April 2015 CFI response, page 7.
44 Ofcom, 2016. *End-to-end connectivity*: *Statement*, Annex 1, Part 2, Condition 1.1. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0021/46092/statement.pdf
45 Vodafone, April 2015 CFI response, pages 2 and 11.
46 Vodafone, April 2015 CFI response, pages 7, 11 and 24.
47 Vodafone, April 2015 CFI response, page 6.
48 Vodafone, April 2015 CFI response, pages 8-9.
49 The AIT process is set out in Annex E of the SIA. Its purpose is to deal with artificially generated or prolonged traffic for the purpose of creating financial benefit. Among other things, it defines the roles and responsibilities of the different parties and includes a dispute resolution procedure.

stated that there was a need to amend that process. It also noted that BT's billing disputes were not adequately resourced.[50]

2.34 We do not consider that such contractual mechanisms should be part of the scope of our review. The SIA and CPL are commercial agreements and it is open for CPs to agree to amend them to reflect changed conditions, particularly in markets that have been deregulated. The AIT process is an industry agreed process. There are dispute resolution processes within the SIA and we understand that there are industry forums where changes to these processes can be made. Therefore, CPs should use these commercial mechanisms in the first instance. We note that Vodafone says it makes "no accusations of nefarious behaviour by BT" in relation to the CPL.[51]

Retail markets

2.35 Although it stated that the retail market does not require regulatory intervention,[52] Vodafone suggested that, "to rule retail services as out of scope gives the impression that Ofcom is no longer giving them any scrutiny, which is counter to Ofcom's duties under section 3(1)(b) of the Communications Act".[53] In the NMR 2017, we are analysing the relevant retail services as part of identifying the potential competitive constraints acting (indirectly) on the wholesale markets under review. We do not see wholesale regulation as an end in itself, but as a means to deliver effective downstream (and ultimately retail) competition.

2.36 Competition is an important means by which consumer benefits can be delivered, but wholesale regulation may not always address all retail and consumer concerns that might be identified. For example, we note that fixed voice-only consumers may not be benefiting from competition because they are less engaged with the market – which may leave them more susceptible to price increases. As we set out in the DCR, retail prices have increased in a way that suggests for fixed voice-only consumers, the market is not working effectively.[54] We have therefore commenced a review of retail fixed voice-only services and we intend to publish our emerging thinking in the new year. We disagree that the NMR's focus on wholesale services is counter to any of Ofcom's general duties to consumers or competition.

Our decisions on the scope of the review

2.37 The focus of the NMR 2017 is on delivering effective competition in downstream voice markets that use WFAEL, ISDN2, ISDN30, WCO and WCT (and the associated interconnection services). We recognise that there are a number of links with other wholesale markets – including some that sit upstream of the aforementioned wholesale access and call-related markets – as well as with others that sit downstream. Where these other markets are important to the analysis, we take this into account. However, this consultation does not discuss what, if any, regulation of those other markets might be appropriate.

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[50] [✂].
[51] Vodafone, April 2015 CFI response, pages 8-9.
[52] Vodafone, April 2015 CFI response, page 2. This was supported by KCOM, April 2015 CFI response, page 2.
[53] Vodafone, April 2015 CFI response, page 11 (emphasis in original).
[54] DCR Statement, Figure 17, paragraph 7.9 and paragraph 8.3.

DCR and NMR charge controls

2.38 In February 2016 we published the initial conclusions of our strategic review of the UK's digital communications (DCR Statement).[55] Our overall aim is to make sure digital communications markets continue to work for consumers and businesses, looking particularly at issues relating to infrastructure and competition. In the DCR Statement we said the NMR would consider how far we can deregulate the traditional fixed voice market, while maintaining important protections for vulnerable users and people who depend on their traditional landline.[56]

2.39 The expansion of the markets within scope of the NMR 2017 (explained in paragraph 2.20 above), coupled with the need to take account of the conclusions of our strategic review, necessitated a change of timetable for the NMR.

2.40 The charge controls we imposed in 2013 for WCO, WCT and the Interconnect Services Basket (ISB) expired on 30 September 2016. The charge controls for the WFAEL, ISDN30 and ISDN2 markets will expire on 31 March 2017. The delay to this consultation therefore led to a lacuna between the end of the preceding charge controls and the anticipated date of implementation of any new controls.

2.41 In August 2016 we published letters between us and Openreach and BT Wholesale & Ventures which set out BT's voluntary approach to the pricing of previously charge controlled narrowband services during the lacuna periods. In addition, we published supplementary guidance on the pricing of WCT by other CPs with SMP during the lacuna periods.[57]

2.42 Notwithstanding BT's commitments, we have considered whether, in light of the proposals set out in this document, it is necessary for us to exercise our powers to impose pricing obligations in the interim period leading up to the conclusion of this market review. Our provisional assessment suggests that the commitments BT has made on the pricing of charges during the lacuna period, will not materially negatively affect consumers of narrowband services.

2.43 For WCT, this is because BT's nominal charge control freeze maintains its Long Run Incremental Cost (LRIC) based price level that we set for 2015/16. As set out in Section 13, we propose to continue to set charges for WCT on a LRIC basis from 1 October 2017. The difference between the average charge that applied at the end of the previous control on 30 September 2016 (which is the basis of BT's nominal charge control freeze) and the maximum rate that we propose for the forthcoming market review period is small. Furthermore, as we explain in our supplementary guidance, BT's charges remain the benchmark for the pricing of WCT by other CPs with SMP during the lacuna period. As we propose to impose a single maximum rate charge control on all CPs with SMP from 1 December 2017 this means that the charge control that will apply to these CPs will be similar to the charge control that applied to BT until 30 September 2016, against which FTR charges have been benchmarked.

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[55] Avaialble at: https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/policy/digital-comms-review/conclusions-strategic-review-digital-Communications
[56] DCR Statement, paragraph 1.65
[57] Ofcom, 2016. *Supplementary guidance on WCT over the lacuna period*. Available at: https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/telecoms-competition-regulation/narrowband-broadband-fixed

2.44 Meanwhile, we consider that BT's commitments for the pricing of WFAEL and WCO during the lacuna period are consistent with the fair and reasonable charging obligation that we are proposing to apply to BT for the next review period.

2.45 BT's pricing commitments for ISDN30 and ISDN2 are almost identical to the charge controls applied in the FAMR 2014 until 31 March 2017, as well as the charge controls proposed for existing lines from 1 October 2017 in this consultation. Finally, our proposed price control for the ISB from 1 October 2017 will set charges at a level no lower in nominal terms than applied to the ISB in the NMR 2013 until 30 September 2016 and during the lacuna period.

2.46 We therefore do not propose any further action to regulate prices in these markets during the lacuna period. However, if stakeholders have views on the approach we have taken, they can provide them in response to this consultation.

Market research

2.47 As part of this review[58], we commissioned three surveys of residential and business customers, which we are publishing alongside this consultation document.[59] Two of these surveys sought to understand how residential and SME business customers viewed the purchase of fixed line rental and voice calls. The third was a survey of businesses using ISDN. We sought to understand why businesses use ISDN, how long they expect to continue to use these services, and their experiences of migrating to IP-based services.

Regulatory framework

2.48 The regulatory framework has its basis in five EU Directives, each of which has been implemented into national legislation. It imposes a number of obligations on relevant national regulatory authorities (NRAs), such as Ofcom. One of these obligations is to carry out market reviews. We set out the applicable regulatory framework and the market analysis analytical framework in more detail in Annexes 10 and 11. In this section, we have set out, in summary, what the market review process involves.

Market review process

2.49 The review is carried out in three stages:

- we identify and define the relevant markets;
- we assess whether the markets are effectively competitive, which involves assessing whether any operator has SMP in any of the relevant markets; and
- where we find SMP, we assess the appropriate remedies, based on the nature of the competition problems identified in the relevant markets.

2.50 In carrying out the review, we are required to define relevant markets appropriate to national circumstances. In so doing, we are also required to take due account of the European Commission's (EC) Recommendation on relevant product and service

[58] Separately, we have used Ofcom's Technology Tracker (sections 3, 4, and 6) and Switching Tracker (in sections 3 and 4) to find a range of telecommunications sector statistics.
[59] http://www.ofcom.org.uk/static/consultations/94764-narrowband-market-review/2015-Jigsaw-market-research-report.zip

markets[60] (the 2014 EC Recommendation) and SMP Guidelines.[61] More broadly, in carrying out the review (including assessing appropriate remedies), we are required to take utmost account of all applicable opinions, common positions, recommendations, guidelines, advice or regulatory best practice adopted by BEREC.[62]

The 2014 EC Recommendation

2.51 The 2014 EC Recommendation, which replaced the 2007 EC Recommendation[63], sets out those 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:[64]

- 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.

2.52 The 2014 EC Recommendation contains a different (and shorter) list of markets to the 2007 EC Recommendation, which was in place at the time of the NMR 2013. Of the five markets we consider as part of this review, the Commission continues to regard the market for wholesale fixed call termination as warranting *ex ante* regulation at a European level.[65]

2.53 We, as the UK NRA, in accordance with competition law and taking due account of the 2014 EC Recommendation, have defined the proposed relevant markets appropriate to our national circumstances. In doing so, to the extent necessary, we have applied the three criteria set out above (for all markets except WCT, which is Market 1 in the 2014 EC Recommendation[66]). We refer to this analysis as the three-criteria test.

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[60] *Commission Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services* (2014/710/EU). Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014H0710&from=EN.

[61] *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). Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52002XC0711(02)&from=EN (SMP Guidelines).

[62] Body of European Regulators for Electronic Communications. See Article 3(3c) of the Framework Directive. See also Article 3(3) of the BEREC Regulation (Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 establishing the Body of European Regulators of Electronic Communications and the Office).

[63] Commission *Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services* (2007/879/EC). Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007H0879&from=EN.

[64] See Recital 19 to the 2014 EC Recommendation.

[65] WCO was listed in the 2007 EC Recommendation but not in the 2014 EC Recommendation.

[66] Consequently, there is no requirement to apply the three-criteria test as part of this review.

The SMP guidelines

2.54 The SMP Guidelines include guidance on market definition, assessment of SMP and SMP designation. In the relevant chapters below in this consultation document we set out how we have taken the SMP guidelines into account in reaching our proposals.

Forward look

2.55 Market reviews look ahead to how competitive conditions may change in future. For this review, we have taken a forward look of three years from 1 October 2017, 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 EC Directives that ordinarily market reviews should be conducted within three years of the previous review.

Relevant legal tests and statutory duties

2.56 Where we propose that a market is not effectively competitive, we identify the undertaking(s) with SMP in that market and propose what we consider to be appropriate SMP obligations. When proposing a specific SMP obligation, we need to demonstrate that the obligation in question is based on the nature of the problem identified, proportionate and justified in light of the policy objectives as set out in Article 8 of the Framework Directive.[67]

2.57 Specifically, we explain why we consider each of the conditions we are proposing satisfies the test set out in section 47 of the Communications Act 2003 (the Act), namely that the obligation is:

- objectively justifiable in relation to the networks, services, facilities to which it relates;
- not such as to discriminate unduly against particular persons or against a particular description of persons;
- proportionate to what the condition or modification is intended to achieve; and
- transparent in relation to what is intended to be achieved.

2.58 Additional legal requirements also need to be satisfied depending on the SMP obligation in question. For example, when we propose a price control, we must consider whether there is a relevant risk of adverse effects arising from price distortion; and the appropriateness of the control for the purpose of promoting efficiency; sustainable competition; and conferring the greatest possible benefits on end-users of public electronic communications services.

Ofcom’s statutory duties under sections 3, 4 and 4A of the Act, and under Article 3 of the BEREC Regulation

2.59 We also explain why we consider the performance of our general duties under section 3 of the Act would be secured or furthered by our proposed regulatory intervention, and that it is in accordance with the six Community requirements under

[67] See Article 8(4) of the Access Directive.

section 4 of the Act. This is also relevant to our assessment of the likely impact of implementing our proposals.

2.60 Consistent with our duties under section 4A of the Act and under Article 3(3) of the BEREC Regulation, we have also taken due account of the applicable EC recommendations and utmost account of the applicable opinions, common positions, recommendations, guidelines, advice and regulatory best practices adopted by BEREC relevant to the matters under consideration in this consultation document.

Impact assessment and equality impact assessment

Impact assessment

2.61 The analysis presented in this document constitutes an impact assessment as defined in section 7 of the Act.

2.62 Impact assessments provide a valuable way of assessing the 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 in cases where our conclusions would be likely to have a significant effect on businesses or the general public, or where 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.[68]

Equality impact assessment

2.63 Annex 12 sets out our equality impact assessment (EIA) for this market review. Ofcom is required by statute to assess the potential impact of all its functions, policies, projects and practices on 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.

2.64 We have considered whether these proposed remedies would have an adverse impact on promoting equality. In particular, we have considered whether the remedies would have a different or adverse effect on UK consumers and citizens with respect to the following equality groups: age, disability, sex, gender reassignment, pregnancy and maternity, race, religion or belief and sexual orientation, and, in Northern Ireland, political opinion and persons with dependants.

2.65 We consider that our proposals will not have a detrimental impact on any equality group. Further, we do not propose 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 proposed regulatory intervention would not have a differential impact on people of different genders or ethnicities, consumers with protected characteristics in Northern Ireland or on disabled consumers compared to consumers in general. Therefore, we do not propose to carry out separate EIAs in relation to race or gender equality or equality schemes under the Northern Ireland Disability Equality Schemes.

[68]For further information see Ofcom, 2005. *Better Policy Making: Ofcom's approach to Impact Assessment*. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0029/45596/condoc.pdf.

2.66 Rather, we consider that our proposals would further the aim of advancing equality of opportunity between different groups in society by furthering the interest of all consumers in the retail fixed voice markets.

Document structure

2.67 The structure of this document follows the structure of our analysis and is set out in the following way:

- Section 3 provides an overview of retail market developments;
- Section 4 and Section 5 cover the proposed market definitions for WFAEL, WCO, ISDN30 and ISDN2, in addition to the three-criteria tests and our SMP analysis for these markets;
- Sections 6 to 10 set out proposed remedies on BT and KCOM in the WFAEL, WCO, ISDN30 and ISDN2 markets;
- Section 11 covers the proposed market definition and the assessment of SMP for WCT;
- Section 12 sets out our proposed general remedies on all CPs with SMP in the WCT markets;
- Sections 13 to 15 covers our proposed approach to the price regulation of WCT, the cost modelling of the WCT charge control and the charge control specification;
- Section 16 explains our proposed approach to the regulation of interconnection;
- Section 17 sets out our proposed general remedies for BT and KCOM's interconnect circuits;
- Section 18 sets out our proposed charge control for BT's interconnect circuits; and
- Section 19 addresses our proposed approach to both BT's and KCOM's regulatory financial reporting.

2.68 In addition, we are publishing Annexes to this consultation which support our main conclusions. These include the draft legal instruments that would implement our proposed remedies.

Section 3

Retail market developments

Introduction

3.1 In 2009, we considered that most of the UK retail markets, with the exception of the Hull Area, were effectively competitive and that BT no longer had SMP in the provision of retail fixed narrowband access and calls in either the residential or business sectors.[69]

3.2 In the Hull Area, in relation to retail competition for calls (in the NMR 2013) and access (in the FAMR 2014), we recognised that there remained high barriers to competitive entry and that there was at that time no movement towards effective competition. However, we considered that competition law would provide sufficient protection for consumers and competing retail providers from any abuse by KCOM of its market power in the retail markets. Accordingly, we removed the remaining *ex ante* retail regulation that applied to KCOM in the Hull Area.

3.3 In this consultation we are considering the state of competition in a number of wholesale markets. Demand for wholesale services is derived from retail demand, so in defining the wholesale markets, we first consider the corresponding retail services. This section sets out recent trends at the retail level that we consider provide relevant context to our wholesale market analysis in later sections of this consultation.

Analogue line rental and calls

3.4 We start by looking at fixed analogue lines, which are used by both residential and business customers, and the calls made over these lines.

Number of lines and call volumes

3.5 The total number of fixed analogue lines has been relatively stable since 2004, as shown in Figure 3.1 below. Business line numbers have been in gentle decline throughout the period. More recently, this has been offset by a gradual increase in the number of residential lines. Some of the recent increase in the number of residential lines is due to household growth, with the number of households in the UK growing by approximately 250,000 per year from 2012 to 2015.[70]

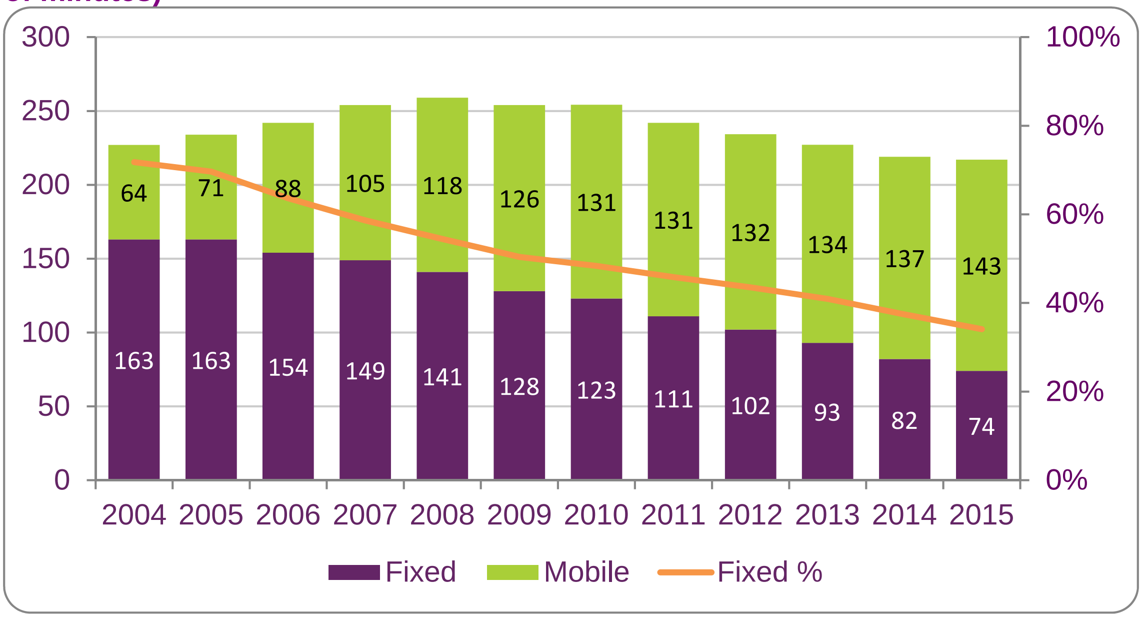
[69] Ofcom, 2009. *Fixed Narrowband Retail Services Market – Statement.* Available at: http://stakeholders.ofcom.org.uk/binaries/consultations/retail_markets/statement/statement.pdf.
[70] *Live tables on household projections*, Table 401, https://www.gov.uk/government/statistical-data-sets/live-tables-on-household-projections [accessed on 30 November 2016].

Figure 3.1: Number of analogue fixed lines (millions)

Source: Ofcom Market Intelligence data collected from CPs.

3.6 Despite the relatively static number of fixed lines, the volume of calls being made from fixed lines has fallen considerably over the same period, as shown in Figure 3.2 below. At the same time, the volume of calls made from mobile phones has increased over the period, albeit at a slower rate in more recent years. As a result, the proportion of calls made from fixed lines has fallen from 72% in 2004 to 34% in 2015.

Figure 3.2: Outgoing fixed and mobile call volumes (residential and business, billions of minutes)



Source: 2010 to 2015 data from 2016 CMR, Figure 4.7; 2008 and 2009 data from 2015 CMR, Figure 4.28; 2007 data from 2013 CMR, Figure 5.24; 2006 data from 2012 CMR,

Figure 5.15; 2005 data from 2011 CMR, Figure 5.35; 2004 data from 2010 CMR, Figure 5.32.[71]

3.7 An explanation for the stable number of fixed analogue lines, despite falling fixed call volumes, could be that many residential customers continue to have a fixed line mainly for broadband. As we discuss in Section 4, among those who have a residential line to make or receive calls and for internet access, only 15% identified making or receiving calls as the most important use of their landline. 45% said that home internet access was the most important use and the remaining 40% said the two were equally important.[72] Nevertheless, 38% of residential survey respondents said the main reason they have a landline is to make calls, receive calls or for emergencies, although this falls to 33% for those who purchase a landline and broadband.[73]

CPs that provide retail lines and calls

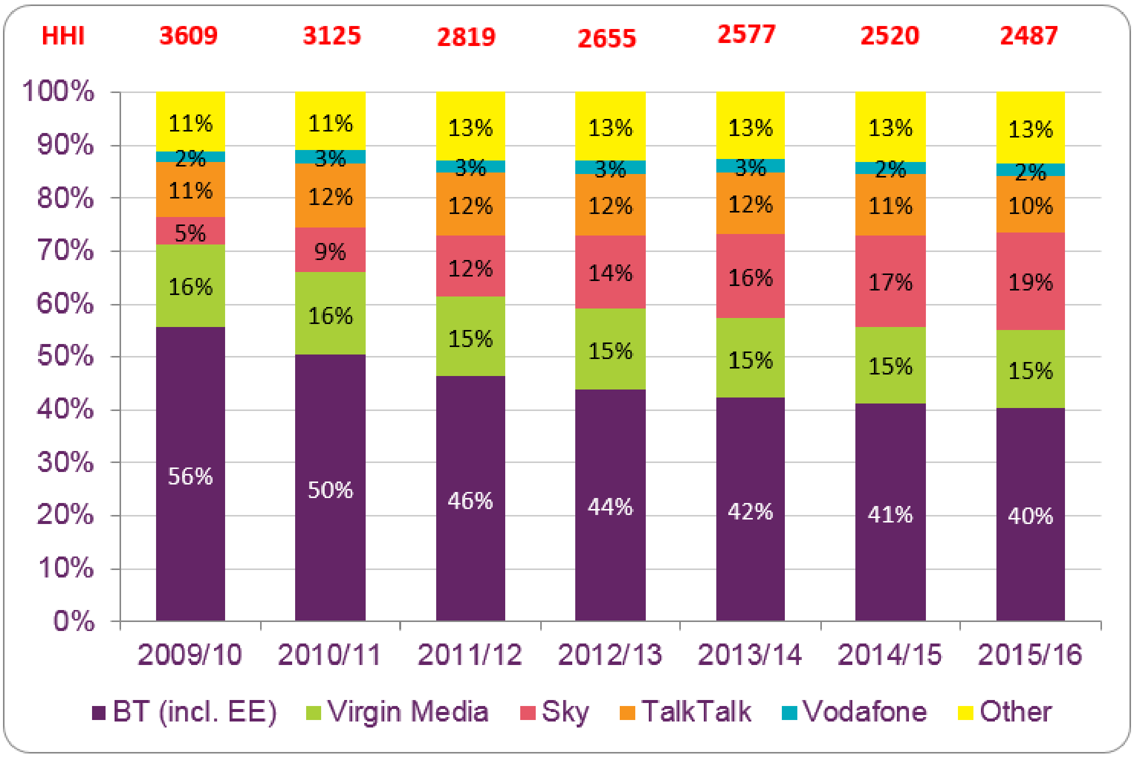
3.8 A number of CPs provide retail lines and voice calls, with the largest four being BT, Virgin Media, Sky and TalkTalk. Figures 3.3 and 3.4 below show separately the retail share of fixed analogue lines and the volume of calls (over analogue and ISDN lines) for the major CPs across both residential and business consumers.[74] We also show the HHI (Herfindahl–Hirschman Index) values, which are a measure of market concentration.[75]

3.9 BT's retail share of fixed analogue lines has fallen over the period, although it is still the largest provider, and appears to have levelled off in recent years at just over 40%. In contrast, BT's share of retail fixed call volumes, originated over analogue and ISDN lines, has changed little in the last six years, hovering at around 40%.

3.10 Over the period, Virgin Media and TalkTalk's retail shares of lines and calls have been relatively flat, while the retail share of Sky in particular has increased.

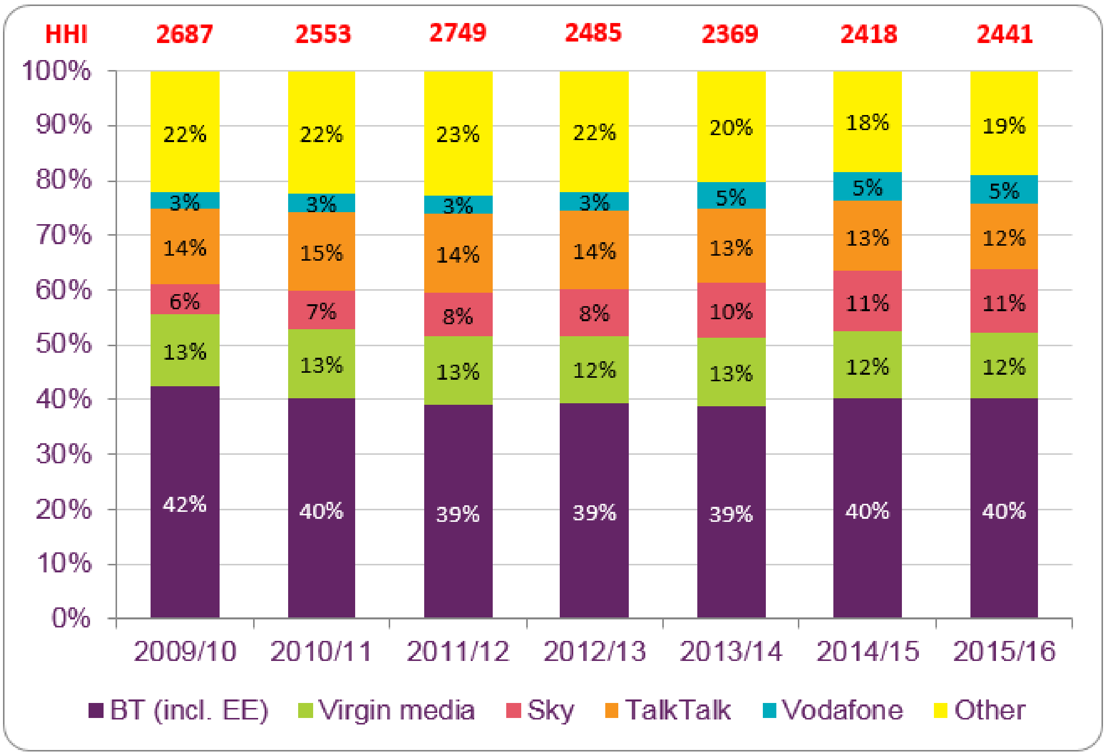
[71] Ofcom, 2004-2016. *Communications Market Reports*. Available here: https://www.ofcom.org.uk/research-and-data/cmr/communications-market-reports.
[72] Ofcom, *Technology Tracker H1 2016*, QC3, https://www.ofcom.org.uk/research-and-data/statistics/stats16.
[73] 2015 Jigsaw residential survey (wave 2) data tables, question QA3b.
[74] It has not been possible to reliably distinguish calls made over analogue and ISDN lines, so Figure 3.4 shows retail shares of calls originated from analogue and ISDN lines.
[75] HHI is calculated by squaring the retail shares of each CP and then summing them. HHI values can range from 0 to 10,000, with the value in a monopoly market being 10,000.

Figure 3.3: Retail shares for fixed analogue lines (residential and business)



Source: Data provided by CPs in response to s.136 notices.

Figure 3.4: Retail shares for calls originated from fixed analogue and ISDN lines (residential and business)



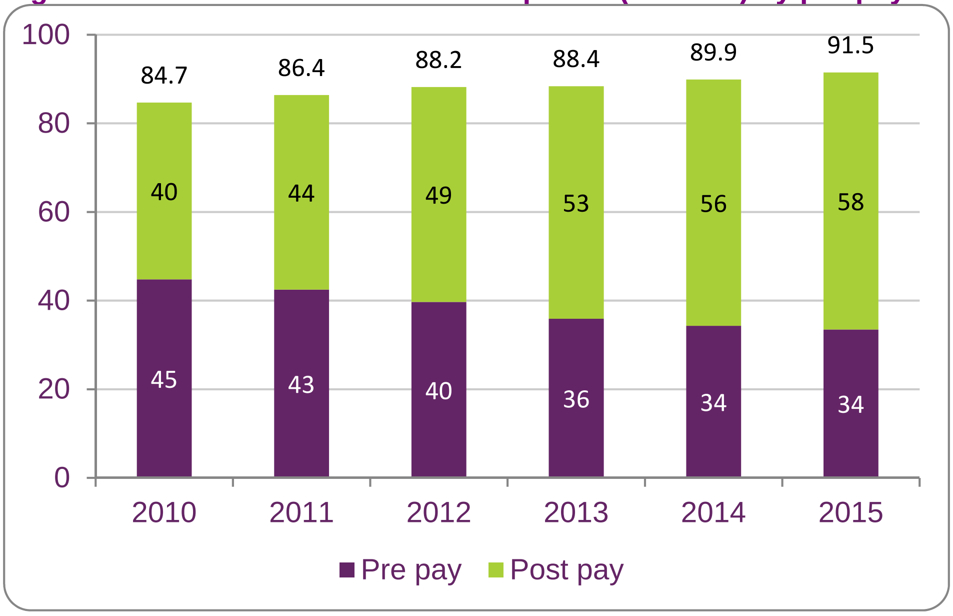
Source: Data provided by CPs in response to s.136 notices.

Factors contributing to reducing fixed call volumes

<u>Growth of mobile services</u>

3.11 As shown in Figure 3.2 above, the volume of calls made from mobile phones has increased consistently over recent years, an increase of 9% from 2010 to 2015. As shown in Figure 3.5 below, the total number of mobile phone subscriptions increased by 8% over the same period. This suggests that the increase in the volume of calls made from mobile phones is mainly due to a larger number of mobile subscriptions.

Figure 3.5: Number of mobile subscriptions (millions) by pre-pay and post-pay



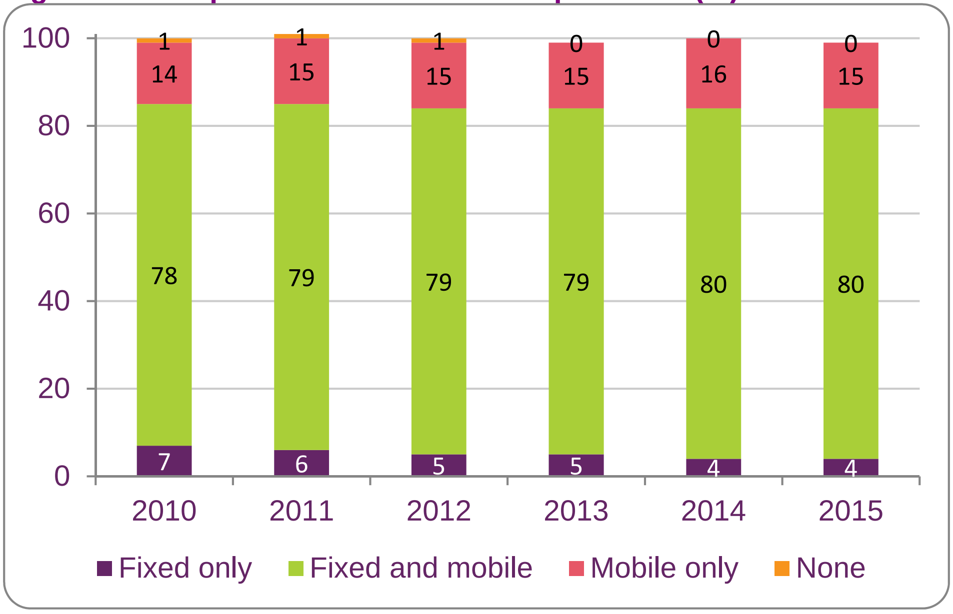
Source: 2016 CMR, Figure 4.20.

3.12 Despite the strong growth in the number of mobile subscriptions and the volume of mobile phone calls, Figure 3.6 below shows that the majority (80%) of residential customers buy both fixed and mobile voice services, a small increase from 78% in 2010.

3.13 As discussed above, it is possible that customers are increasingly using mobile phones to make calls but continue to have a fixed line for broadband. A small proportion of customers only have fixed voice services, i.e. have no access to mobile phones or fixed broadband. This group has reduced from 7% in 2010 to 4% in 2015.[76] Figure 3.6 below shows the proportion of survey respondents with fixed voice services only, both fixed and mobile services, and mobile services only.

[76] Note that the chart refers to 'fixed only' consumers. Later in this consultation (Section 4) we use the term 'fixed voice-only' to mean consumers who do not take broadband with their fixed line. These customers may or may not own (or use) a mobile phone. The proportion in this second category is higher (at 13% of residential landline users, source: Ofcom *Technology Tracker H1 2016* survey) because a number of consumers have both a mobile and a fixed line, even if they don't also have fixed broadband.

Figure 3.6: Proportion of residential respondents (%) with fixed and mobile services



Source: 2015 CMR, Figure 4.61.

Growth of VoIP

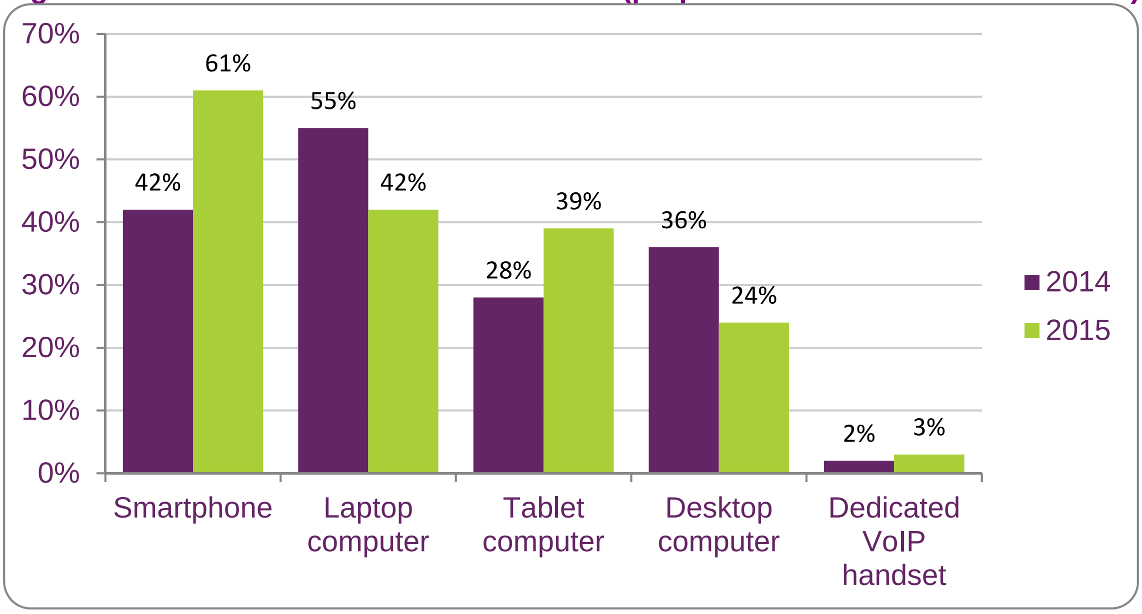
3.14 As discussed in Section 2, VoIP services can be managed or un-managed. While un-managed VoIP is used by both residential and business customers, managed VoIP is more likely to be used by businesses than residential customers.

3.15 In addition to the growth in calls from mobile phones (discussed above), residential consumers are increasingly making calls over broadband connections and mobiles using VoIP. Our survey evidence suggests that in 2015, 27% of landline users had access to VoIP services at home, an increase from 22% in 2012.[77] Figure 3.7 below shows the devices on which residential customers made VoIP calls in 2014 and 2015. Smartphones and tablet computers were increasingly used, while use of laptops and desktop computers fell. From 2014 to 2015, reported ownership of smartphones and tablets increased by 5% and 10%, respectively, which could explain part of the increasing use of these devices for VoIP calls.[78]

3.16 VoIP calls made using the devices shown in Figure 3.7 below are likely to be using un-managed VoIP services (including OTT services), e.g. Skype, WhatsApp or FaceTime. While these services can be used instead of a fixed voice line for some calls, for the calls to be free, both the calling and receiving parties must have access to the service.

[77] 2015 Jigsaw market research report, Figure 6 (base: 1,354 respondents for 2015 figure and 1,912 for 2012 figure).
[78] 2015 CMR, Figure 5.14.

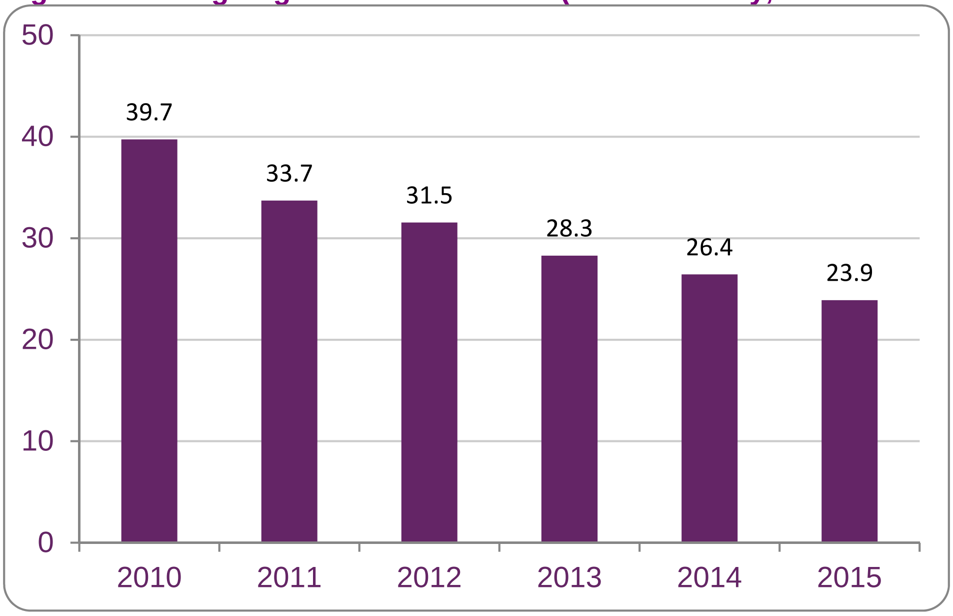
Figure 3.7: Devices used to make VoIP calls (proportion of residential VoIP users)



Source: 2015 CMR, Figure 4.10.

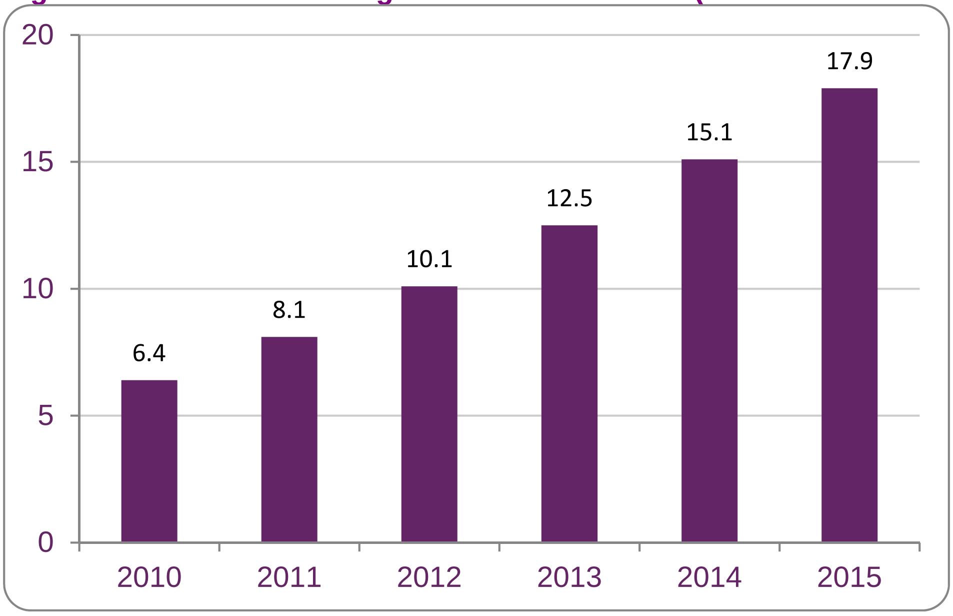
3.17 Turning to business call volumes, Figures 3.8 and 3.9 below show the volume of calls made from fixed lines and using VoIP services. While the volume of calls businesses made from fixed lines fell by approximately 40% from 2010 to 2015, call volumes made using VoIP services increased considerably from 6.4bn to 17.9bn minutes, a 180% increase.

Figure 3.8: Outgoing fixed call volumes (business only, billions of minutes)



Source: 2016 CMR, Figure 4.27.

Figure 3.9: Business managed VoIP call volumes (billions of minutes)



Source: 2016 CMR, Figure 4.27.

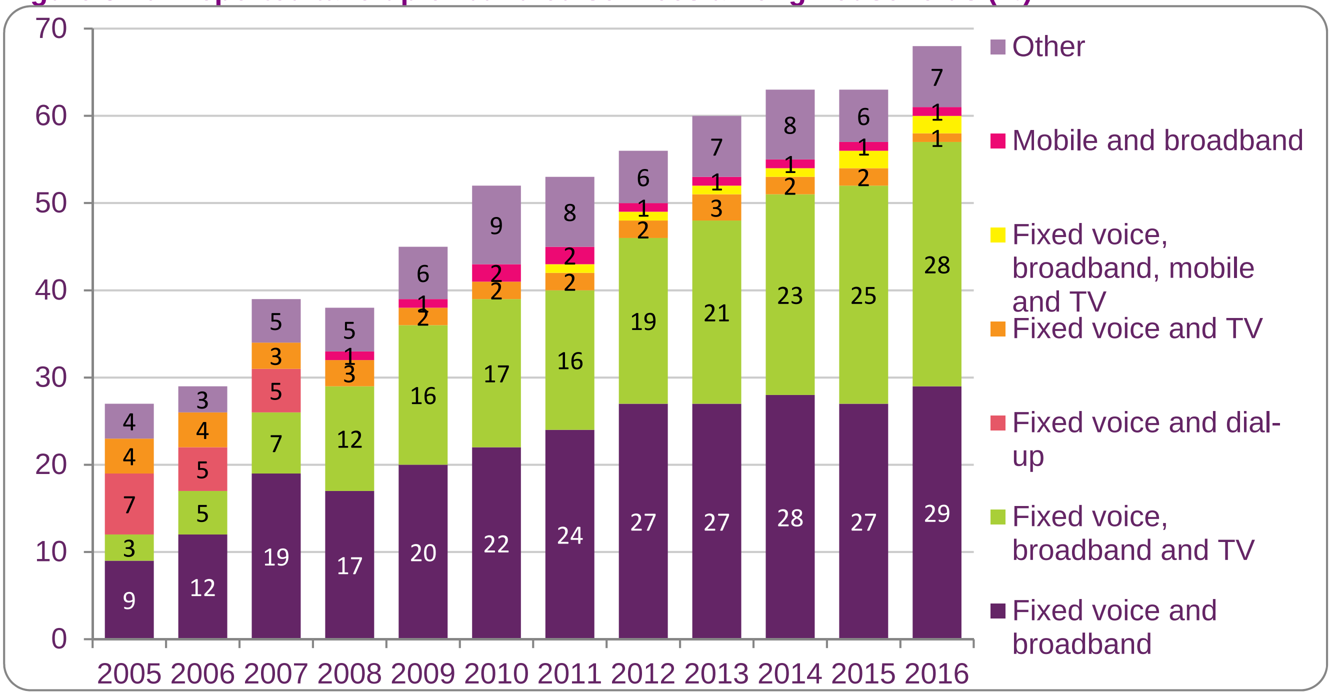
Bundling of retail services

3.18 Bundling is the packaging together of different retail services for sale as one combined product. Figure 3.10 below shows that from 2005 to 2016, residential consumers have increasingly purchased telecoms services within bundles, with 68% of consumers buying bundles in 2016.[79]

3.19 The most common services to bundle are fixed voice and broadband, accounting for the large majority of retail bundling. Since 2013, around half of residential consumers have bundled at least fixed voice and broadband, with significant numbers also bundling TV and a small proportion also bundling mobile services.[80]

[79] This 68% is equal to the sum of the bar in Figure 3.10 below.
[80] In 2016, 59% purchased bundles of at least fixed voice and fixed broadband, comprising 29% dual-play (i.e. fixed voice and fixed broadband); 28% triple-play (fixed voice, fixed broadband and TV); and 2% quad-play (fixed voice, fixed broadband, TV and mobile).

Figure 3.10: Reported take-up of bundled services among households (%)



Source: 2016 CMR, Figure 1.6.

3.20 As discussed further in Section 4, around 13% of residential landline users have a fixed voice line but not fixed broadband.[81] We refer to this group as fixed voice-only customers.

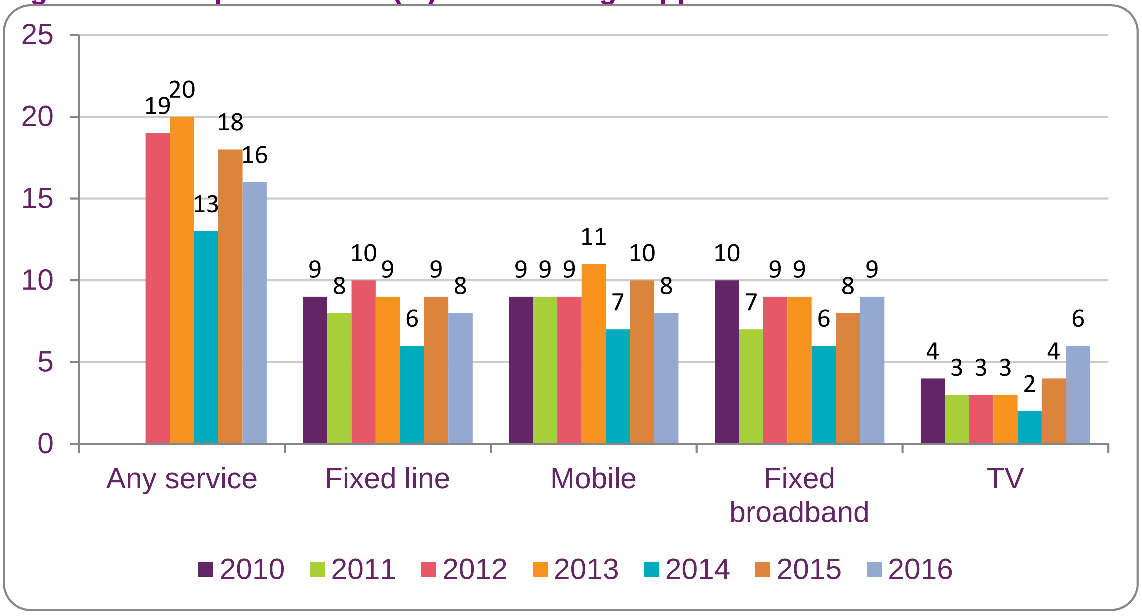
Switching

3.21 In June 2015, we completed implementation of a new switching process on the BT and KCOM networks – consumers switching landline and broadband services between providers on these networks now only need to contact their new (gaining) provider, who co-ordinates the switch with the old (losing) provider on their behalf.[82] In March 2016, we consulted on a set of proposals to help customers switch their mobile provider.[83] More recently, we consulted on proposals to make switching easier and more reliable for all telecoms services (landlines, broadband and pay TV).[84]

[81] Based on responses to the Ofcom *Technology Tracker H1 2016* survey and Ofcom Market Intelligence data.
[82] Ofcom, 2015. *Swtiching – landline.* Available at: https://www.ofcom.org.uk/advice-for-businesses/switching/switching-landline [accessed 30 November 2016].
[83] Ofcom, 2016. *Consumer Swithcing: Proposals to reform switching of mobile communications services.* Available at: https://www.ofcom.org.uk/consultations-and-statements/category-1/consumer-switching-mobile.
[84] Ofcom, 2016. *Making switching easier and more reliable for consumers.* Available at: https://www.ofcom.org.uk/consultations-and-statements/category-1/making-switching-easier [accessed 30 November 2016].

3.22 As shown in Figure 3.11 below, the reported switching rates for the fixed voice market as a whole are broadly similar to those reported for the mobile and fixed broadband markets, with TV switching rates being lower.[85]

Figure 3.11: Reported rates (%) of switching supplier



Source: 2015 and earlier data from 2015 switching tracker slide pack, slide 24, 2016 data from 2016 switching tracker data tables.

Retail prices

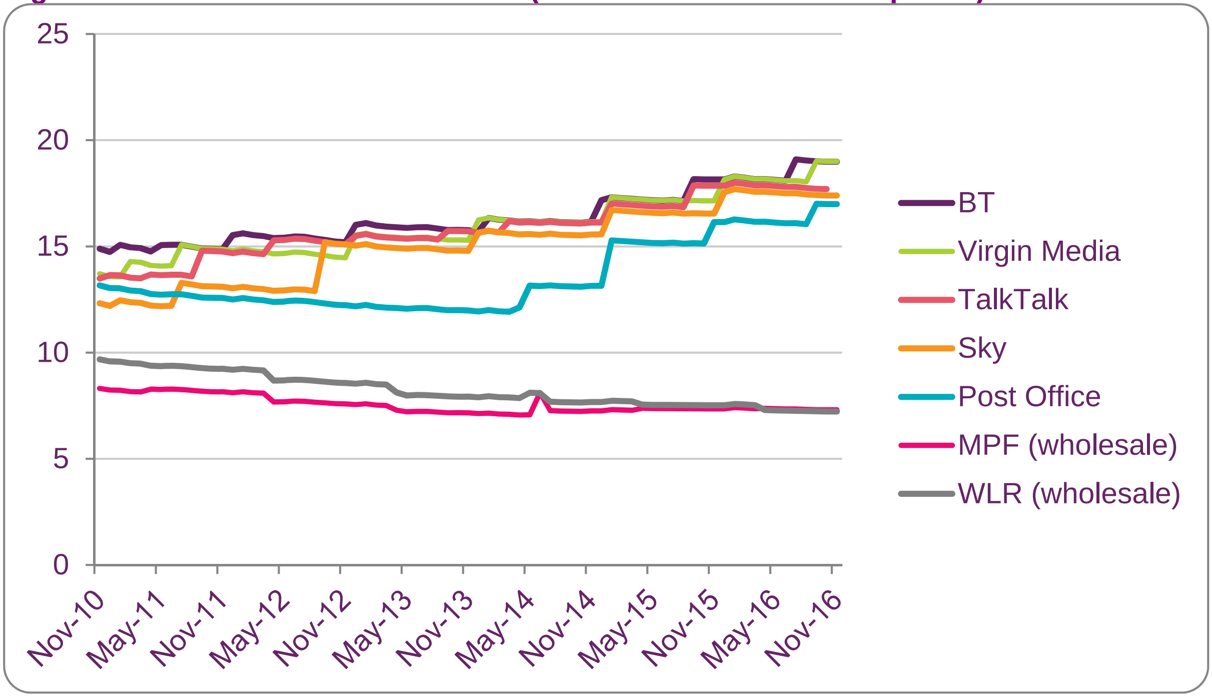
3.23 In recent years, the main CPs have increased the prices they charge for line rental. These line rental charges are paid by all residential landline customers, regardless of whether they also receive other services such as fixed voice calls or fixed broadband.

3.24 Figure 3.12 below shows, in real terms, the residential line rental prices charged by several CPs from November 2010 to November 2016. It also shows the wholesale charges for MPF LLU and WLR, which are the key inputs that a CP needs to provide retail voice services to residential customers (if the CP does not have its own access network).[86] Despite falling wholesale input charges, residential line rental prices from all of these CPs increased over the period.

3.25 In addition to a general trend of increasing retail line rental prices, the prices from the main CPs have converged, despite the fact that different CPs provide line rental using different inputs (WLR/MPF or cable).

[85] In paragraph 6.25, a similar figure of 10% is shown for the proportion of residential fixed line customers that switched supplier in 2015. This figure is based on our 2015 Jigsaw market research report.
[86] Pricing information for TalkTalk's line rental is not available for November 2016.

Figure 3.12: UK residential line rental (£/month in October 2016 prices)

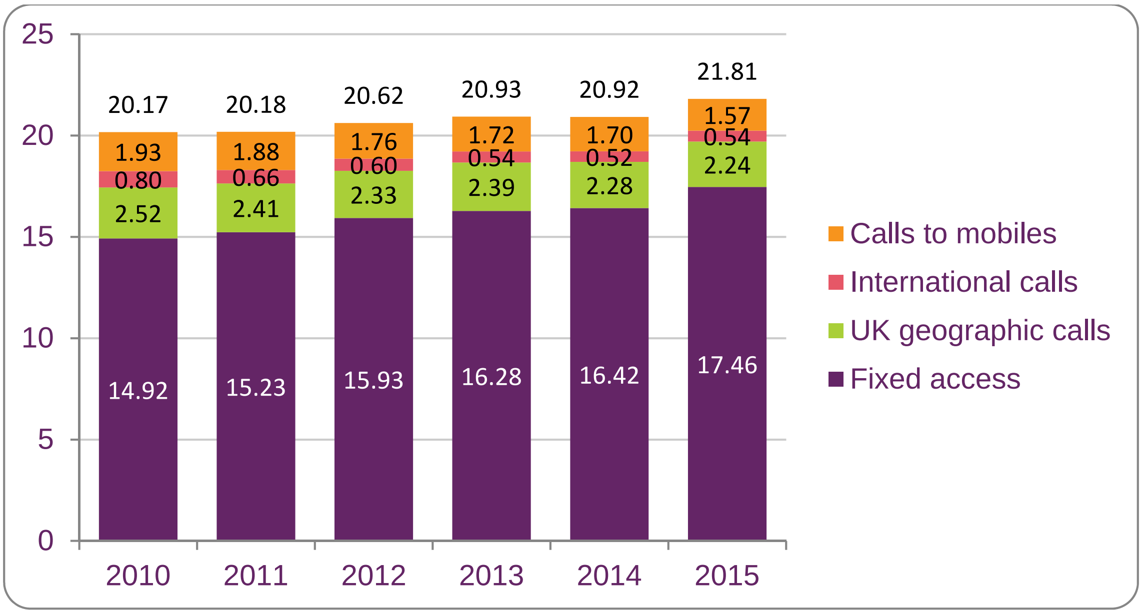


Source: Ofcom/Pure Pricing UK Broadband Updates.

3.26 Turning to the calls that customers make and receive on these lines, Figure 3.13 below shows the real price of a basket of residential line rental and calls, expressed in 2015 prices.[87] While the line rental (fixed access) part of the basket has increased, each basket of calls to UK geographic numbers, international calls and calls to mobiles has fallen somewhat in real terms – and overall from around £5.25 to £4.35 per month, i.e. a real terms reduction of just under 4% p.a. However, the increases in line rental have been larger than the reductions in calls, resulting in the price of the basket as a whole increasing by approximately 1.6% p.a. in real terms from 2010 to 2015.

[87] The basket is based on average use in 2014.

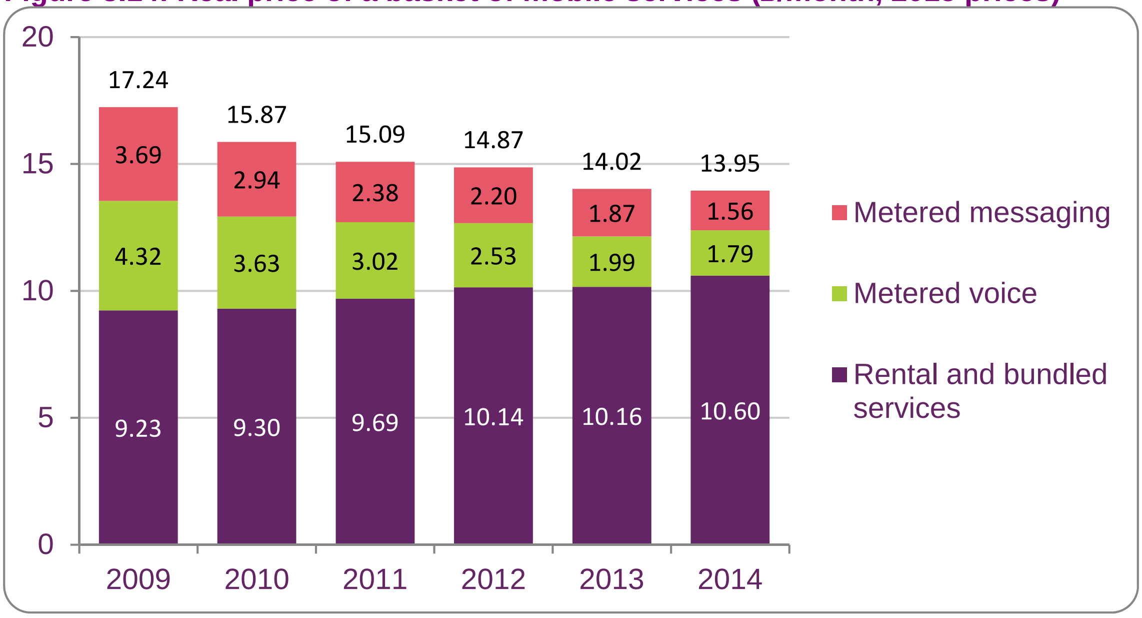
Figure 3.13: Real price of a basket of residential fixed voice services (£/month, 2015 prices)



Source: 2015 data from operators, 2014 and earlier data from 2015 CMR, Figure 4.67.

3.27 Figure 3.14 below shows that the real price of a basket of mobile services fell from £17.24/month in 2009 to £13.95/month in 2014, i.e. a real terms reduction of just over 4% per year. Within this basket, the price of the rental and any bundled usage allowance was fairly flat, with the basket of calls falling from £4.32/month to £1.79/month over the period, i.e. a real reduction of 16% p.a. This reduction in the price of a basket of mobile calls is a larger reduction than the price of a basket of fixed calls shown in Figure 3.13 above.

Figure 3.14: Real price of a basket of mobile services (£/month, 2015 prices)



Source: 2015 data from operators, 2014 and earlier data from 2015 CMR, Figure 4.76.

Hull Area

3.28 While BT is the largest retail CP in the UK excluding the Hull Area, KCOM is the incumbent and largest retail CP in the Hull Area, with a share of 97% of fixed analogue lines as of March 2016.[88] In the table below, we compare the prices that BT charges across the UK excluding the Hull Area with those that KCOM charges in the Hull Area.

Table 3.1: BT and KCOM retail list prices for residential line rental and calls (£/month including VAT)

Product	BT in the UK excluding the Hull Area	KCOM in the Hull Area
Cheapest available	£18.99 including weekend calls	£15.99 including unlimited local calls and 60 minutes of calls to mobiles
Including weekend calls	£18.99	£17.99
Including evening and weekend calls	£22.49 (line rental plus £3.50 weekend calls)	£19.99
Including anytime calls	£27.49 (line rental plus £8.50 anytime calls)	£21.99

Source: BT's prices from http://www.productsandservices.bt.com/products/phone-packages/ and KCOM's from https://www.kcomhome.com/products/phone/. Prices are list prices as of 21 November 2016.

3.29 While a purely like-for-like comparison is not possible, it appears that KCOM charges lower prices than BT for fixed voice line rental and calls packages, even in the absence of significant direct retail competitors.

3.30 This seems to support our decision in the NMR 2013 and the FAMR 2014 that *ex ante* retail regulation in the Hull Area was unnecessary. This assessment still seems applicable. However, we will continue to monitor KCOM's retail pricing and remain open to reconsidering our position in the event of retail market concerns that cannot be adequately addressed by competition law alone.

Digital (ISDN30 and ISDN2) lines and IP-based services

ISDN pricing

3.31 ISDN30 and ISDN2 services are typically charged on a per-channel basis. An ISDN2 line consists of two channels and an ISDN30 line can support up to 30 channels.[89] Based on the data we have available on retail ISDN pricing it appears that BT Business has increased its retail ISDN prices in recent years.

3.32 Table 3.2 below shows the list prices shown on the BT Business website at several points in time over the last three years. These prices are all on a per-channel basis

[88] Source: Based on data received from KCOM in response to the s.135 notice of August 2016.
[89] Each ISDN channel provides a dedicated 64kb/s circuit for making and receiving calls or data.

excluding VAT and based on a one-year contract. DDI (direct dial in numbers) is the functionality to allocate extension numbers to different phone handsets.

Table 3.2: BT Business' retail prices for ISDN30 and ISDN2 channels (£/month)

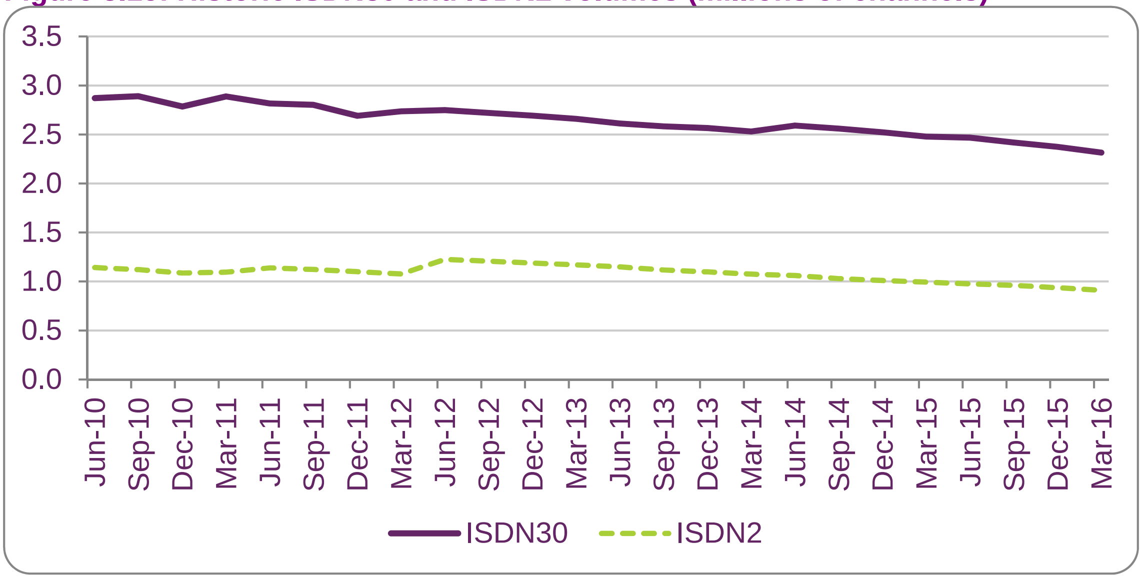
Date	ISDN30	ISDN2
19 June 2013	£20.04 (not including DDI)	£20.43
17 March 2014	£24.14 (including DDI), £21.15 (not including DDI)	£21.15
9 November 2016	£24.90 including DDI	£25.40

Source: 2016 data from BT Business website[90], 2014 data from 2014 FAMR Statement, footnotes 144 and 145, 2013 data from 2013 FAMR consultation, footnotes 83 and 84.

ISDN and IP volumes

3.33 As shown in Figure 3.15, ISDN30 and ISDN2 channel volumes have been consistently falling over time, although this decline has been gradual. Over the period shown, the volume of ISDN30 and ISDN2 channels fell by an annual rate of approximately 4%.

Figure 3.15: Historic ISDN30 and ISDN2 volumes (millions of channels)



Source: Data until December 2013 from 2014 FAMR Statement, Figures 4.1 and 5.1. Data from January 2014 onwards from BT, Colt, KCOM, Verizon, Virgin and Vodafone in response to the s.135 notices of August 2015 and July 2016.

3.34 Based on data provided by Illume Research, IP-based services have continued to grow, as shown in Figures 3.16 and 3.17 below. As explained in Section 2, Hosted VoIP and SIP Trunking are VoIP services provided to businesses, and Illume Research forecasts that this growth will continue during the period of this market review.[91]

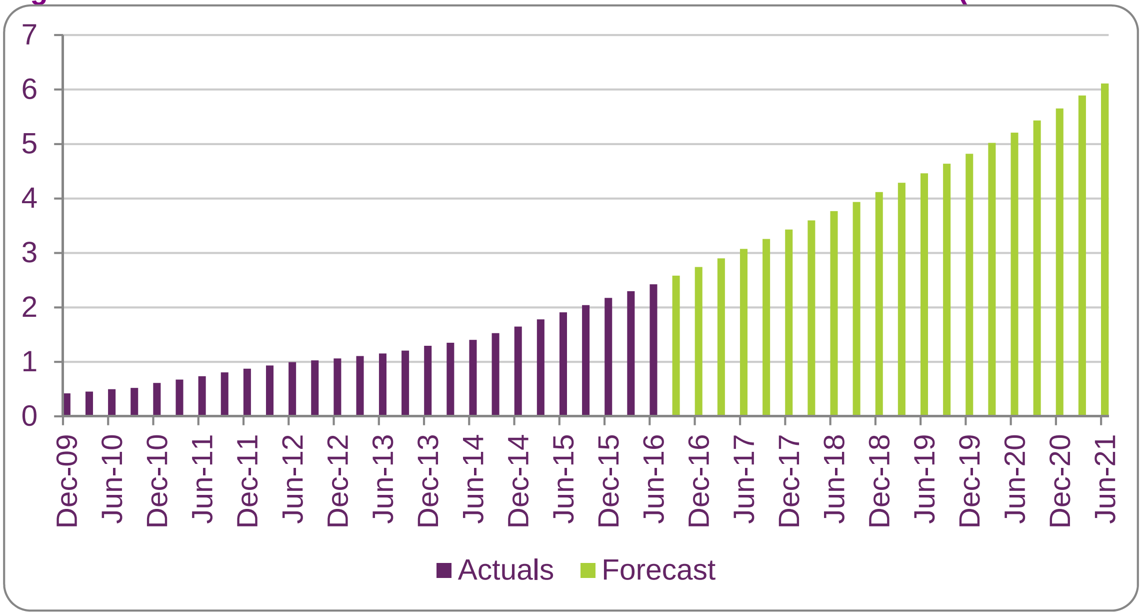
[90] BT. *ISDN lines*. Available at: https://business.bt.com/products/voice/isdn/ [accessed 30 November 2016].

[91] For more information on Hosted VoIP and SIP Trunking, see paragraph 2.17.

3.35 However, ISDN channels are not directly comparable to Hosted VoIP seats (they are more comparable to SIP Trunks). Each ISDN channel or SIP Trunk allows one concurrent call, whereas a Hosted VoIP seat is needed for each employee or handset. We discuss the trends in ISDN and IP-based volumes in more detail in Section 5.

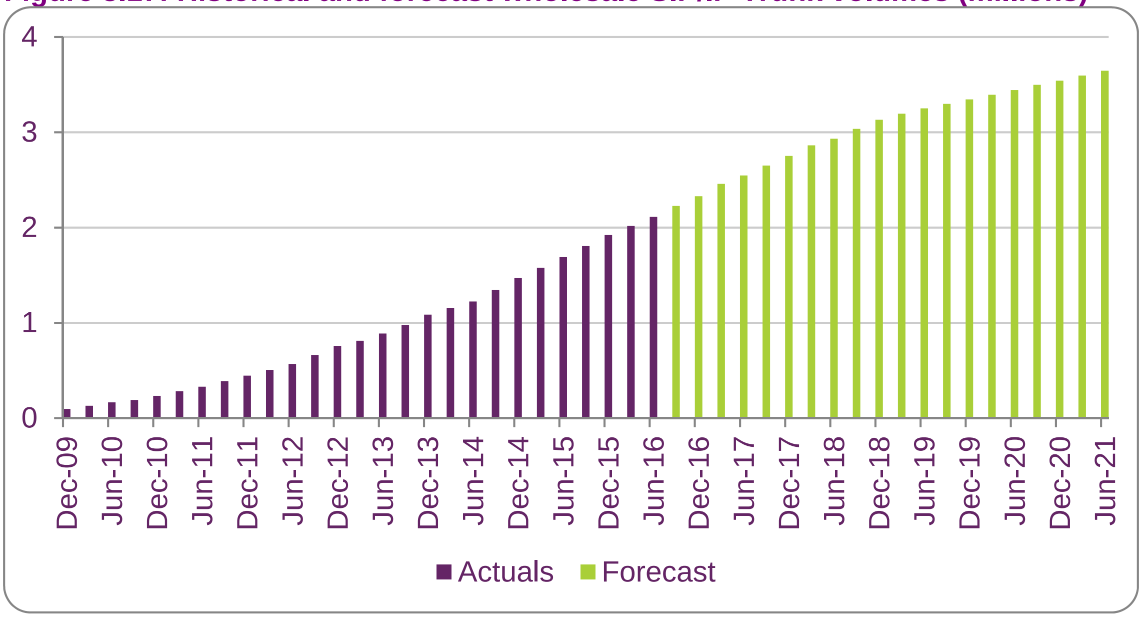
3.36 Over the period from June 2010 to March 2016, the same time period as Figure 3.15 above which shows the decline in ISDN channel volumes, the number of Hosted VoIP seats increased from approximately 0.5m to 2.3m, and the volume of SIP Trunks increased from approximately 0.2m to 2m.

Figure 3.16: Historical and forecast wholesale Hosted VoIP volumes (millions of seats)



Source: Cavell Group, 2016.

Figure 3.17: Historical and forecast wholesale SIP/IP Trunk volumes (millions)



Source: Cavell Group, 2016.

Section 4

Market definition and three-criteria test: WFAEL and WCO

4.1 This section explains our proposals for product and geographic market definition in relation to WFAEL and WCO and applies the three-criteria test to these markets. In defining markets, we follow the market analysis framework set out in Annex 11.

Summary of proposals

4.2 WFAEL is a wholesale narrowband analogue access connection between a customer's premises and a local exchange. We propose to define the relevant product market as including WFAEL delivered via copper access, cable access, Metallic Path Facility (MPF) or fibre-to-the-premises (FTTP) deployments offering a narrowband voice service using an analogue terminal adaptor (ATA).

4.3 We assess indirect constraints at the retail level from mobile access, broadband access, digital access (via ISDN) and direct constraints at the wholesale level from broadband. We propose to exclude each of these from the relevant product market. We define a single market, without segmentation between different groups of retail customers.

4.4 We define geographic markets for the UK excluding the Hull Area and separately the Hull Area.

4.5 WCO is the wholesale service that enables voice calls over a narrowband access line. We propose to define the relevant product market as including WCO over WFAEL or ISDN lines. We assess the indirect constraints at the retail level from mobile; VoIP; from text-based messaging, email and social media; and direct constraints at the wholesale level from broadband. We propose to exclude each of these from the relevant product market. We define a single market, without segmentation between different groups of retail customers.

4.6 We define geographic markets for the UK excluding the Hull Area and separately the Hull Area.

4.7 We consider the three-criteria test and propose it is satisfied for both WFAEL and WCO and hence we go on to assess market power in these markets.

4.8 We received comments from a number of stakeholders. We summarise these and our response to them under the appropriate headings below.[92]

Links between markets

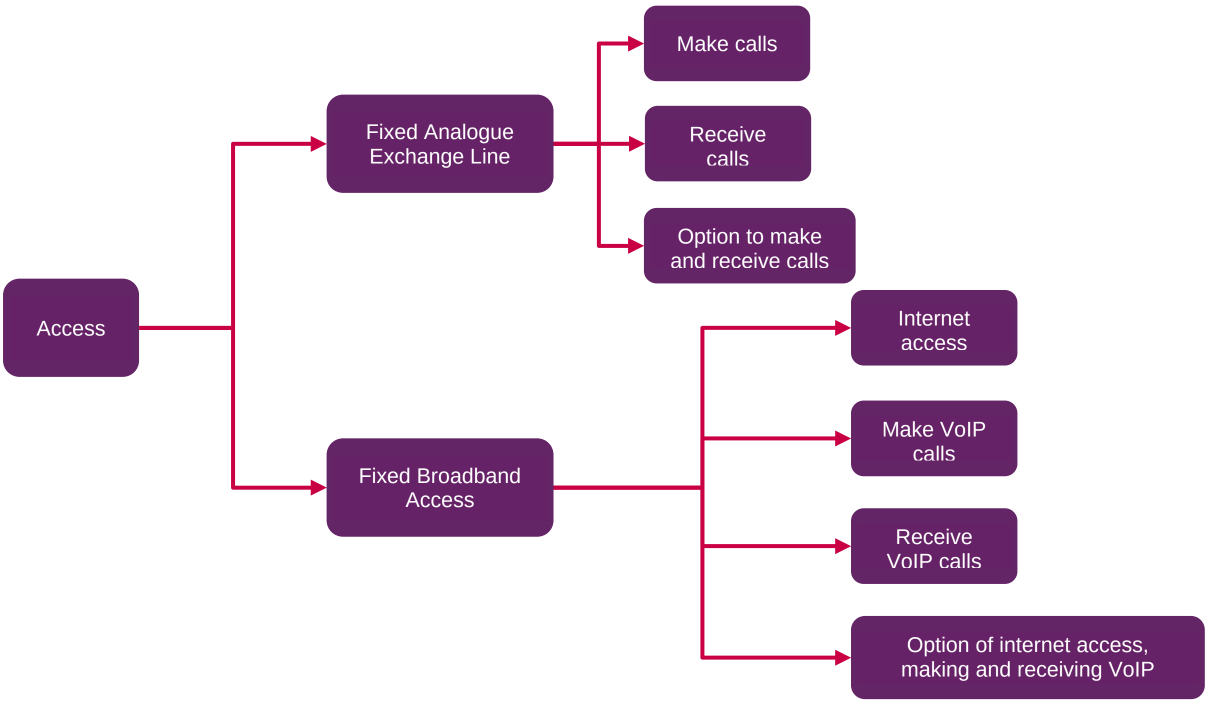
4.9 Before coming to the market definition, we set out some important features of the retail and wholesale markets under consideration.

[92] We consider that many stakeholder submissions regarding WCO are also potentially relevant for WFAEL. We therefore, when appropriate, refer to such comments in our assessment of the WFAEL market.

4.10 Fixed analogue exchange lines (FAELs) provide consumers with narrowband analogue access between a customer's premises and a local exchange. This provides the ability to make and receive telephone calls (i.e. fixed voice services). Both FAELs and fixed broadband access require a fixed local access line. For BT's network and Virgin Media's network, broadband and analogue voice calls share the same physical connection.[93] CPs typically require residential consumers who want broadband access to buy fixed voice services (i.e. a FAEL) from them as well. [94]

4.11 As set out in Figure 4.1, a consumers' willingness to pay for a FAEL is therefore derived from the value they place on both fixed voice access (via a FAEL) and fixed broadband. The value of fixed voice access derives from the expected value (i.e. consumer surplus) to a consumer from making and receiving telephone calls, as well as the option to make and receive calls. Fixed broadband access is valued because it allows internet access and increasingly valued for giving a consumer the ability (and option) to make and receive calls via VoIP.

Figure 4.1: Links between preferences for fixed voice access, broadband access and calls



Source: Ofcom.

4.12 These services have complex retail pricing structures. Consumers pay a line rental price that covers access, which may provide both fixed voice access and broadband access (with an additional monthly charge for the broadband service). The line rental price typically includes some inclusive minutes or 'free' calls at specified times, which can typically be increased or extended by paying an additional fixed monthly fee. Calls made outside of any call allowance are generally priced at a per minute rate. All

[93] In Virgin Media's cable network, a single cable is used to provide a copper pair providing telephony alongside a hybrid fibre/coaxial (HFC) broadband connection.
[94] A small minority of residential fixed voice customers (i.e. about [✂] Virgin Media customers) have standalone broadband without voice access. Fixed voice access can be bought without broadband and the *Technology Tracker H1 2016 survey* estimates about 13% of residential landline users do this. It is more common for broadband and voice access (and indeed voice access and calls) to be bought separately in the business sector. ISDN, for example, is sold without a broadband service.

of these services are typically paid for in a single bill, alongside broadband and any other services the customer is buying from that provider, e.g. pay TV or mobile.

4.13 These factors have a number of implications for our assessment:

- Consumers make a number of purchasing decisions according to their needs and usage. These decisions, and consumers' price sensitivity, will vary in accordance with the value they place on each of the elements set out in Figure 4.1 and the choices available to them. We reflect this in our assessment of constraints.

- Many residential consumers have a FAEL primarily for fixed broadband access rather than fixed voice access.[95] Among those who have a line to make or receive calls and internet access, only 15% identified making or receiving calls as the most important use of their landline. 45% said home internet access was the most important use and the remaining 40% said they were equally important.[96]

- More generally, there is some variation in the relative importance consumers place on voice access and broadband access. 38% of residential survey respondents said the main reason they have a landline is to make calls, receive calls or for emergencies but this falls to 33% for those who purchase a landline and broadband.[97]

- A significant share of total call minutes, particularly for residential consumers, are made within an allowance. For example, BT data shows [✂]% of call minutes by residential consumers were made within an allowance of inclusive minutes in 2015-16.[98] The effective marginal price to consumers of calls within such allowances is zero. Based on this, we consider it is likely that increases in charges for WCO could pass through to the retail line rental price, the price for an extended call allowance, out-of-bundle call prices or some combination of these. The indirect constraint from retail markets on WCO will therefore depend not just on call-by-call substitution, but also the propensity of consumers to switch their entire fixed voice bundle to another service (e.g. mobile), or to downgrade their call allowance, in order to avoid the price increase.

- Consumers may find it difficult to estimate what share of their monthly bill is attributable to each of fixed voice access, fixed broadband access and calls. For example, residential survey respondents' stated responses to a hypothetical 10% rise (i.e. a SSNIP[99]) in both overall bills and calls prices were very similar[100] despite items directly attributable to calls accounting for a minor share of a typical bill. It could become even more difficult as CPs move toward advertising a single price for bundles.[101] More generally, consumers may only distinguish to a limited extent between fixed voice access, fixed broadband access and calls. For

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95 As discussed in our assessment of the indirect constraints on WFAEL from mobile below.

96 Ofcom, *Technology Tracker H1 2016*, QC3, https://www.ofcom.org.uk/research-and-data/statistics/stats16.

97 *2015 Jigsaw residential survey (wave 2).*

98 BT response to s.135 data request.

99 Small, but significant non-transitory increase in price. This standard is used for assessing market definition. See Annex 11 for further discussion.

100 *2015 Jigsaw residential survey (wave 1).*

101 We expect CPs will adopt this approach in response to the Advertising Standards Authority's rules which now say that CPs should show all-inclusive prices which do not separate out line rental. See https://www.asa.org.uk/News-resources/Media-Centre/2016/Changes-to-broadband-price-claims-in-ads-comes-into-force-today.aspx [accessed 30 November 2016].

example, 76% of residential consumer and 82% of SMEs said they think about the costs of line rental and calls together.[102]

4.14 We assess the market definition for WFAEL before WCO because the purchase of fixed voice access is necessary in order to enable subsequent purchase of calls.

WFAEL

4.15 As set out in paragraph 2.8, WFAEL is a narrowband analogue access connection between a customer's premises and a local exchange.

Findings of the previous review

4.16 In the FAMR 2014 Statement, we defined a product market for WFAELs provided via copper access, cable access, MPF and FTTP deployments offering a narrowband voice service using an ATA.[103] We defined a geographic market for the UK excluding the Hull Area and a separate geographic market for the Hull Area.[104] We defined a market for WFAEL separately to markets for wholesale ISDN2 and wholesale ISDN30. However, we bore in mind the links between the markets for voice access and calls when conducting our analysis.

Comments from stakeholders

4.17 In its response to the April 2015 CFI, BT raised concerns regarding the application of the hypothetical monopolist test because of the conceptual complexities arising when the SSNIP test is applied to services which have non-linear tariffs and are sold in bundles of complementary products.[105]

4.18 We recognise that there are complexities in the application of the SSNIP test to WFAEL and WCO, which need to be reflected in the analysis:

- Such a test is more straightforward for single products with a linear price, compared to bundles of complementary products. Bundling of services and fragmentation of consumers according to the types of services and bundles they buy adds complexity to the demand-side analysis.

- When wholesale inputs become increasingly diluted at the retail level (both vertically[106] and horizontally[107]), it becomes more difficult to identify the relevant SSNIP.

- SSNIP tests should be conducted at competitive price levels. If actual prices are above competitive levels the application of a SSNIP may make a market appear wider than it actually is.

[102] *2015 Jigsaw residential survey (wave 2) and SME survey (wave 2).*
[103] Ofcom, *2014 FAMR Statement*, paragraph 3.70. Available at: https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/telecoms-competition-regulation/narrowband-broadband-fixed/fixed-access-market-reviews-2014/statement.
[104] Ofcom, *2014 FAMR Statement,* paragraph 3.81.
[105] See BT, April 2015 CFI response, Appendix 4, pages 21-23.
[106] For example, because wholesale call origination is a small cost input to retail voice services.
[107] For example, as fixed access and calls are often bundled with other products such as broadband and pay TV.

4.19 These issues add complexity to some of the conceptual and empirical tools that can be used to inform the market definition analysis. For example, we consider that the results of a critical loss analysis, based on survey responses, could be of limited relevance in this case.[108]

4.20 However, while recognising these difficulties, we consider that the SSNIP framework is of use in identifying the direct constraints faced by a hypothetical monopolist, and is also helpful in identifying whether there are any indirect constraints which might limit the ability of a hypothetical monopolist of a wholesale service to raise prices profitably.

Retail services

Starting point

4.21 The starting point of our analysis is the narrowest possible access product, which is the use of retail FAEL using copper access. We now consider whether it is appropriate to use alternative focal products which combine fixed access and calls or are a bundle of broadband and fixed voice services.

Fixed voice access and calls

4.22 In previous reviews we have assessed fixed access and calls separately.

4.23 The Explanatory Note to the 2014 EC Recommendation explains that at the retail level "it has been observed that fixed calls services (retail services which are a downstream product of wholesale call origination) are more often bundled with the access to the fixed network/narrowband service. At the wholesale level, both call origination and narrowband access services can be purchased separately, and have been defined separately for the purposes of *ex ante* regulation by most Member States".[109] We consider this relevant for the UK. We also note that adopting a bundle as a focal product would not be consistent with the principle of beginning the hypothetical monopolist test with a narrowly defined focal product.

4.24 As discussed above, the value that consumers place on a FAEL derives not just from the ability to make calls, but also the ability to receive calls, and broadband internet access. Many residential consumers have a FAEL primarily for broadband access rather than fixed voice access. Section 3 also shows the increase in bundling of landline and broadband in recent years. Together this suggests that over the review period, a FAEL is increasingly perceived as a necessary gateway to access other valued services such as broadband and pay TV, and not just fixed voice services. This creates scope for a greater divergence in competitive conditions between access and calls than in the past, and in particular a weaker constraint on access than calls.

4.25 In addition, the potential for call-by-call substitution means the nature of substitution can differ significantly between access and calls. This creates scope for a significant difference in the competitive conditions between access and calls. As set out later in this section and in the SMP assessment we consider the prospect of call-by-call

[108] A critical loss analysis attempts to quantify the reduction in demand which would make the hypothetical price increase (SSNIP) unprofitable.
[109] EC, *Explanatory Note to the 2014 EC Recommendation*, page 25, https://ec.europa.eu/digital-single-market/en/news/explanatory-note-accompanying-commission-recommendation-relevant-product-and-service-markets

substitution to mobile, and to a lesser extent VoIP, is a factor which creates a stronger constraint on call origination than access. Where competitive conditions differ in this way, we consider it appropriate to reflect this in our analysis of market power, and hence in our market definition. This in turn will allow us to focus our attention on the source of any market power and target any remedies to address it.

4.26 Although the number of residential consumers purchasing access and calls separately has diminished to negligible levels[110], between 18% and 25% of SMEs continue to purchase access and calls from separate CPs.[111] While the majority of residential consumers and SMEs said they think about the costs of line rental and calls together, a notable minority (18% of SMEs and 21% of residential survey respondents) still report considering them separately.[112] This suggests that there is a declining but not insignificant portion of consumers who not only consider access and calls separately, but make distinct purchasing decisions for each.

Bundle of broadband and voice services

4.27 BT's response to the April 2015 CFI made several references to our assessment of bundles in the NMR 2013 Statement and whether a bundle of fixed voice services and broadband is the appropriate focal product. It said the NMR 2013 Statement did "not consider whether the focal product should be a bundle at the retail level"[113] and that "market analysis should not make strong presumptions of a single relevant focal product".[114] We consider in the following paragraphs whether the focal product should be a bundle at the retail level.

4.28 Not all residential or businesses customers buy broadband and fixed voice services in a bundle. Significant numbers either buy voice and broadband services from different suppliers or do not buy broadband at all.[115] However, as discussed in this section, we also recognise that a large number of consumers may distinguish to only a limited extent between the items on their monthly bill.

4.29 Furthermore, not all of the relevant wholesale services for the retail bundle (e.g. WCO, WFAEL and WBA) are bundled at the wholesale level. This creates the potential for a significant variation in competitive conditions between these products at the wholesale level. We consider an assessment of retail competition founded upon a bundled focal product may not give sufficient scope to recognise these differences at the wholesale level.

4.30 We note the Explanatory Note to the 2014 EC Recommendation says:

> "[D]espite the fact that bundling is one of the dominant trends observed at the retail level, this Recommendation does not propose to define a separate retail market for bundles because evidence to date has not indicated that there is a need for ex ante regulation of bundles, which may contain a previously regulated input."; and

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[110] Only 1% of Jigsaw survey (residential – wave 2) respondents said they had a landline to make calls and used a separate supplier for calls and access. This compares with 14% of residential users purchasing calls and access from different suppliers in 2009.
[111] Estimates from *2015 Jigsaw SME survey (waves 1 and 2).*
[112] *2015 Jigsaw residential survey (wave 1) and SME survey (wave 2).*
[113] BT, *CFI response*, Annex B, Appendix 4, paragraph 15.
[114] BT, *CFI response*, Annex B, Appendix 4, paragraph 73.
[115] See discussion below of fixed voice-only customers and other groups of interest for further information on the size of these groups.

> "What is important in this respect is that NRAs are able to ensure that the vertically integrated SMP operator's regulated elements of the bundle can be effectively replicated (in terms of both technical and economic replicability) at the retail level, without an implicit extension of regulation to other components which are available under competitive conditions. Moreover, it has been argued that, in cases of the provision of the fixed voice service with broadband access … bundling at the retail level is rather a phenomenon of continued provision of a declining fixed voice service alongside broadband access … rather than an economically significant offer that alters the competitive dynamics over a longer period".[116]

4.31 We consider these observations are relevant to the UK.

Provisional conclusion on the focal product

4.32 Based on the above considerations, we adopt a retail FAEL focal product as the starting point for our assessment of indirect constraints on WFAEL and assess WCO separately. In any case, our assessment takes account of the links between access and calls and the impact of the bundling of fixed voice services and broadband on the constraints and competition in the relevant market.

Indirect demand constraints from competition at the retail level

4.33 Indirect demand constraints arise when the possibility of substitution at the retail level between products based on non-substitutable wholesale services nonetheless imposes an indirect competitive constraint on those wholesale services. Indirect demand constraints may often be more important than direct demand constraints in constraining wholesale charges in telecommunications markets. We therefore consider below whether retail customers would switch away from FAELs and use the main potential alternatives in response to an increase in the price of WFAELs. The alternatives we consider are

- analogue access over alternative network infrastructure;
- mobile access;
- broadband access; and
- digital (ISDN) access.

4.34 We assess each of these alternatives in turn by considering the extent of demand-side substitutability by retail consumers over the review period, and determining whether retail switching is likely to exert a sufficient indirect competitive constraint such that each alternative should be included in the wholesale market definition.

4.35 We recognise that the strength of any indirect demand constraint could vary between residential and business services, as well as between other types of retail consumer (i.e. fixed voice-only customers, business analogue customers, off-net customers,[117]

[116] EC, *Explanatory Note to the 2014 EC Recommendation*, page 18.
[117] We use 'off-net' as shorthand for those areas not served by an exchange with local loop unbundling (or cable) competitors. In these areas BT is the only wholesale supplier.

split purchasers[118]), and accordingly take this into account in our assessment where relevant.

Alternative forms of infrastructure

4.36 We start our analysis from the narrowest possible candidate focal product, that is, a FAEL on the copper network of a hypothetical monopolist.

4.37 We consider that retail customers are likely to consider all fixed narrowband analogue access services as substitutes, regardless of the underlying network technology. From a technical point of view, the service received by retail consumers has similar characteristics irrespective of whether it is provided over copper access, cable access or FTTP using an ATA.[119]

4.38 The retail line rental over alternative network technologies (e.g. from BT, Virgin Media, TalkTalk and Sky) is quite similar, as shown in the Section 3. Given their similar functional characteristics, we would therefore expect these services to impose a constraint on each other.

4.39 Sky and TalkTalk are the main users of MPF and Virgin Media operates a cable network. As set out in the Section 3 and Section 6, the number of lines and market share accounted for by these services has increased in recent years. They now reach a substantial proportion of customers. Over 95% of UK premises were connected to an LLU-enabled exchange in December 2014[120] and Virgin Media is extending cable broadband coverage to four million new premises (from around 44% of the country in 2014 to around 60% by 2020) through its 'Project Lightning' initiative.[121] We consider MPF and cable are likely to remain the technologies of choice underlying provision of fixed voice access on alternative network infrastructure and will continue to provide competing services over the review period.

4.40 MPF and cable have played a more limited role in competition for some groups such as business analogue and residential fixed voice-only consumers. A significantly lower share of these consumers have been historically served by MPF and cable. Instead retail CPs generally rely on BT's WLR and WCO to serve them. We also recognise alternative infrastructure is not available, by definition, in off-net areas.

4.41 In some limited instances, BT and some other smaller CPs have built out their network to the customer's premises using FTTP deployments without copper lines. As with our approach to market definition in the FAMR 2014 Statement, we propose

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[118] We use the term 'split purchasers' to denote those customers who buy broadband and landline access/calls from separate CPs. These customers may be referred to as 'split-supplier customers' elsewhere.

[119] Where a customer is only connected via FTTP, and dedicated capacity is made available to provide a narrowband service, the customer could connect to this narrowband service and this provides the equivalent of a WFAEL. In general, an ATA is used to connect the customer premises equipment to this service. See also paragraph 2.15.

[120] Ofcom, *Communications Market Report 2015* (CMR 2015), figure 1.4, https://www.ofcom.org.uk/research-and-data/multi-sector/communications-market-reports.

[121] Source: Ofcom, *Making communications work for everyone: Initial conclusions from the Strategic Review of Digital Communications*, paragraph 1.19, https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/policy/digital-comms-review/conclusions-strategic-review-digital-Communications; Ofcom, *Infrastructure Report 2014*, paragraph 3.3; Virgin Media press release, February 2015, http://www.virginmedia.com/corporate/media-centre/press-releases/virgin-media-and-liberty-global-announce-largest-investment-in-uks-internet-infrastructure-for-more-than-a-decade.html.

including these services within our candidate market where they involve a narrowband voice service using an ATA. While the underlying technology would be different to the copper network, the service presented to the consumer would be very similar and substitution from a FAEL has already taken place.

4.42 Leased lines, providing fixed voice services either via TDM or VoIP services, can in principle act as a substitute for businesses using FAELs. However, there are fundamental differences in the characteristics of WFAEL and leased line services. In addition, as customers are unlikely to place enough value on the additional features leased lines offer, the higher price of leased lines means they are unlikely to be a good substitute for WFAEL. We do not consider leased lines are likely to provide a sufficient indirect constraint on WFAEL prices due to these underlying differences in characteristics and price, and so do not include this potential alternative within our market definition.

4.43 We consider that access provided over certain alternative network infrastructures is a considerable indirect constraint. This leads us to widen the initial candidate focal product to include analogue lines provided using copper access (including MPF), cable, and FTTP using an ATA.

<u>Indirect constraint from mobile</u>

4.44 We consider that the potential for substitution to mobile access could vary to a material degree across residential and business customers; hence we consider the two segments separately in the following. As set out above, the strength of the constraint will depend on the willingness of consumers to abandon their FAEL and rely entirely on mobile access.

4.45 A number of elements of the discussion in this section are relevant to the general price sensitivity of consumers and so are also applicable in considering whether other services should be in the relevant product market.

Stakeholder responses

4.46 Responses from some stakeholders to the April 2015 CFI do not support an argument that mobile access is a strong constraint on fixed voice access.[122]

- In its response to the April 2015 CFI, Colt said its “WLR and CPS [Carrier Pre-Selection] business [are] very slowly decreasing each year due to customers’ switch to Mobile and VoIP products. However, it is important to note that overall figures look largely static with a small downward trend. We therefore expect this slow trend to remain for the next three years”.[123]

- In its response to the April 2015 CFI, [✂] said “Mobile convergence/fixed substitution is not yet a reality. This is especially true in the way prophesised, not least because coverage (especially in-building) is not universal. Femtocells still require a data connection and that runs into precisely the same constraints as VoIP substitution in some areas and without net neutrality rules is academic as a consideration.”[124]

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[122] As discussed below in relation to the WCO market, BT and KCOM highlighted factors suggesting mobile is a growing constraint on fixed services.
[123] Colt, April 2015 CFI response, page 6.
[124] [✂].

Residential consumers

4.47 As discussed in more detail below in relation to the WCO market, the evidence suggests that mobile calls are increasingly a substitute for some fixed calls for a number of residential consumers. We consider here whether mobile access is a suitable substitute to fixed access.

4.48 80% of adults have both fixed and mobile access, and the share of mobile-only consumers has remained stable at around 15% over the past five years (a period in which retail line rental has risen significantly).[125] This suggests that consumers continue to value access to both fixed and mobile services, and that these two products may serve different needs rather than being close substitutes.

4.49 It is challenging to define and compare typical retail access prices because both fixed and mobile access are generally bundled with calls.[126] However, we can observe actual consumer responses to the recent trend of increasing line rental prices across all major CPs. As set out in Figure 3.12, line rental from most CPs has been increasing at about £1 per year, which is more than 5% annually (which is similar in magnitude to a SSNIP by a hypothetical monopolist). Despite these price increases, we have observed an increase in the number of residential analogue lines from 24.5 million in 2012 to 26.1 million in 2015[127]– and not a decline as we might expect if mobile were a close substitute. This also suggests more generally that residential consumers only display limited responsiveness to price changes for fixed lines.

4.50 Survey evidence suggests that certain residential landline customers have an attachment to their fixed landline and a low degree of price sensitivity, particularly those who do not have broadband:

- In total, 19% of residential customers reported that they would be certain or very likely to give up their landline in response to a SSNIP of the total landline bill. This rises to 21% for respondents with fixed voice and broadband but falls to 10% for those with fixed voice-only. It is 12% for those make calls more than once a week and 32% for those make calls less than once a week.[128]

- 23% reported that they would be certain or very likely to switch some calls to mobile in response to a SSNIP of the total landline bill. Again this percentage was higher for those with fixed voice and broadband (26%) and lower for those with fixed voice-only (11%).

- Moreover, 46% disagreed strongly or disagreed slightly with the statement “under certain circumstances, I would be prepared to give up the ability to make calls from my landline”.[129] This was higher for fixed voice-only (59%) than those with fixed voice and broadband (42%).

4.51 When asked under what circumstances they would be willing to give up their landline, 57% of residential survey respondents said they would give it up if they did not need

[125] Ofcom, *CMR 2015*, Figure 4.61.
[126] For example, BT landline rental includes free unlimited weekend calls. Mobile prices often include a monthly allowance of free minutes to certain numbers, SMS and increasingly an allowance for mobile data, as well as sometimes a contribution to handset costs.
[127] Ofcom Market Intelligence data collected from CPs. This excludes ISDN or line types identified as ‘other’ by CPs (which are included in the Figure 4.28 of *CMR 2016*).
[128] *2015 Jigsaw residential survey (wave 1).*
[129] *2015 Jigsaw residential survey (wave 1)*. Note the same question was asked in the wave 2 residential survey and the equivalent percentage was 46%.

a landline for broadband. Of those who said they would not be willing to give up their landline, 26% of respondents said this was because they need it for broadband. 43% said the main reason for having a landline was because they need it for broadband, pay TV or because they bought it as part of a bundle.

4.52 A consumer who gave up their FAEL, would generally then need to rely on a mobile device for broadband. The evidence suggests mobile broadband is a weak substitute for fixed broadband.[130]

- Only 6% of UK adults relied exclusively on either mobile broadband (via a dongle or built-in data card in a laptop or tablet) or a smartphone for broadband access in 2015.[131] This is the same percentage as in 2010, although reliance on smartphone-based access has increased. This indicates that relatively few households are substituting away from a fixed line to rely solely on either mobile broadband or internet access via a smartphone.

- Of those who have mobile broadband, 67% said the reason they have mobile broadband is to have access to broadband on the move. Only 17% said it was because they did not want to pay for a landline and only 16% said it was because mobile broadband was cheaper than a fixed broadband contract.[132] This suggests that where mobile broadband is used, it is not generally used as a substitute for fixed broadband.

- We have observed a fall in 4G mobile prices, with the lowest price tariffs now cheaper than the cheapest standard fixed broadband tariffs.[133] However, mobile broadband and smartphone data allowances are typically restricted, and are below the typical usage levels for fixed broadband.[134] In relation to speeds, the typical speeds achieved by mobile remain substantially below fixed speeds, especially the fixed speeds that can be achieve via FTTC or cable. Mobile speeds over 4G average around 17Mbit/s. Fixed connections average around 29Mbit/s, and FTTC speeds average around 41Mbit/s.[135]

4.53 We consider that the need for a FAEL to support a fixed broadband connection is likely to mean that the majority of residential consumers will be reluctant to give up their FAEL in this review period in response to a change in the retail line rental. This is consistent with demand for access being price insensitive.

Business consumers

4.54 In contrast to the residential sector, the number of FAELs has declined in the business sector, falling from 4.5 million in 2012 to 4.1 million in 2015.[136]

4.55 It is possible that this trend may reflect, in part, substitution to mobile; however, it is also likely to reflect substitution to other alternatives such as VoIP. We are not aware of any significant trend towards businesses becoming mobile-only.

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[130] Including home broadband provided at fixed location by a mobile connection.
[131] Ofcom, *CMR 2015*, Figure 4.17.
[132] Ofcom, *Technology Tracker H1 2016*, QE15.
[133] Ofcom, *CMR 2015*, Figure 4.21.
[134] Ofcom, *CMR 2015*, page 272-273.
[135] Ofcom, *UK Home broadband performance: The performance of fixed-line broadband delivered to UK residential consumers*, March 2016, https://www.ofcom.org.uk/research-and-data/broadband-research/home-broadband-performance ; Ofcom, *CMR 2016*, Figure 4.35.
[136] Ofcom Market Intelligence data collected from CPs.

4.56 Jigsaw survey evidence indicates SMEs who have landlines have a strong attachment to them.

- Only 4% of SMEs reported that they would be certain or very likely to give up their landline in response to a SSNIP of the total landline bill.[137]

- 69% disagreed strongly or disagreed slightly with the statement “under certain circumstances, I would be prepared to give up the ability to make calls from my landline”.[138]

- About 83% of SMEs who have a landline said they use a mobile, suggesting SMEs continue to value access to both fixed and mobile services.[139]

Provisional conclusion

4.57 We consider that mobile access is not a sufficiently strong substitute to fixed narrowband access for the vast majority of residential and business consumers to justify proposing its inclusion in the relevant wholesale market definition.

Indirect constraint from broadband access

4.58 VoIP calls are a potential substitute for fixed voice calls, where they are made over broadband access (or a mobile device) rather than an analogue fixed voice service. This section therefore considers whether broadband access may provide an alternative to fixed line access for a sufficient number of customers to constrain the pricing of WFAELs. In such a situation calls would be made and received using managed or unmanaged VoIP over broadband.[140]

Stakeholder responses

4.59 Some respondents to our April 2015 CFI have suggested that broadband access and VoIP may not be a close substitute because of technical issues and consumer inertia:

- One respondent, [✂], stated that in its experience LLU cannot support offering business grade data services capable of reliably supporting VoIP competition to CPS over fixed analogue access.[141] We consider that this may be particularly an issue in certain parts of the UK where customers only have access to current generation broadband. However, the continuing roll-out of superfast broadband should make this less of a concern within the period of this review.

- Another CP, [✂], stated that VoIP (specifically Voice over Broadband) adoption among businesses is increasing but is still quite low, at around [✂]%. It considered that the reasons for this delay are down to customers’ unwillingness to switch (due to the cost of migration from TDM to VoIP) and to BT’s delay in upgrading its network.

[137] *2015 Jigsaw SME survey (wave 1).*
[138] *2015 Jigsaw SME survey (wave 2).*
[139] *2015 Jigsaw SME survey (wave 2).*
[140] Please see WCO market definition for further detail on VoIP including differences between managed and unmanaged VoIP.
[141] The respondent said that VoIP requires a suitable interconnect connection with synchronous 3.5mbs, which in its experience of LLU is neither ubiquitous nor part of current offerings.

Residential consumers

4.60 As discussed in the WCO section below, survey evidence suggests that VoIP calls are increasingly a substitute for certain types of fixed calls for a material number of residential consumers but managed VoIP is not currently used to any significant extent by residential consumers. However, the relevant question here is whether broadband access is a suitable substitute for fixed access. Currently retail offers for broadband access to residential consumers typically focus on dual-play bundles[142], and so broadband access requires a FAEL. Hence, at present, most consumers who might be willing to substitute to broadband access would not be able to avoid a SSNIP on the access line.

4.61 An exception is broadband-only products that do not require a fixed voice access line to be purchased. However, these are not commonly offered by major CPs. We are only aware of Virgin Media's Fibre Optic Broadband, which consumers can purchase without also purchasing a voice service.[143] However, the relative price is substantially higher than BT's line rental[144] and so likely to be a poor substitute as a fixed voice service. This suggests that even based on observed retail pricing, such a product is unlikely to exercise sufficient competitive constraint on FAELs.

4.62 Openreach is planning to launch Single Order GEA (SOGEA) which means a broadband access connection can be bought without needing a FAEL, and which may eventually reduce consumers' resistance to giving up FAELs. [✂]. The anticipated launch date of SOGEA is now Spring 2018.[145] Service pricing has not been finalised, its commercial appeal has not yet been demonstrated and take-up at the retail level is likely to take some time. For these reasons, we consider services based on SOGEA are unlikely to impose a significant constraint during the period of this review – even if in the longer term the development of SOGEA is likely to be an important enabler of competition and future voice deregulation.

4.63 Survey evidence on how consumers use VoIP can be informative on the extent of the constraint from broadband access. Only 27% of residential landline users use VoIP[146], only 8% use VoIP weekly or more often, and its main use is for international calls rather than calls to mobile or fixed lines.[147] This indicates that take-up and use of VoIP is still substantially lower than fixed voice services and mobile services, despite the widespread use of fixed broadband. This suggests residential consumers may, at present, have a limited willingness to rely on VoIP services (over broadband access) for making and receiving calls. Furthermore, the survey evidence we discussed above in relation to mobile access shows that certain residential customers have a significant attachment to their landline and are not very price sensitive.

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[142] We use dual-play to refer to situations where a single CP supplies both a landline and broadband. We also use dual-play as shorthand for 'triple-play' and 'quad-play', when a single CP also supplies TV, mobile or both.
[143] We note that some CPs now advertise a combined line rental and broadband price rather than pricing these two services separately. However, an accompanying FAEL is still included and so this is not 'broadband only' in the sense discussed here.
[144] Virgin Media Super 50 Fibre Broadband costs £32.25 a month. This compares with BT's line rental of £18.99 per month, which also includes unlimited weekend calls to UK landlines. (Prices current as of 30 September 2016). Sources: http://www.virginmedia.com/shop/broadband/compare.html%20-%20bbonly.html and http://www.productsandservices.bt.com/products/phone-packages.
[145] Email to Ofcom, 20 October 2016.
[146] *2015 Jigsaw residential survey (wave 2)*. These
[147] See Table 4.1 below.

Business consumers

4.64 With respect to VoIP over fixed broadband, we note that a FAEL is necessary to support fixed broadband access. As with residential customers, this will limit the extent to which businesses can switch to this alternative to avoid an increase in the price of their fixed line rental. However, Ofcom survey evidence also shows that a significant share of businesses currently use more than one narrowband line.[148] Such users will make up a disproportionate share of total lines, and may have the option of retaining a single fixed line connection to support broadband access and cancelling other lines in favour of VoIP calls over the broadband line.

4.65 Survey evidence, discussed above in the context of substitutability to mobile access, indicates that business consumers have a strong attachment to their landlines and are likely to be price insensitive in relation to access.

4.66 Survey evidence also suggests that take-up and use of VoIP still lags behind fixed voice services and mobile services, despite the widespread use of fixed broadband. We found that 85% of SMEs used broadband but only 21% used VoIP.[149] Use of VoIP over broadband access is more common among larger SMEs (32% of SMEs with ten or more employees, compared to 19% for smaller SMEs (one to nine employees). We recognise that not every SME would need to be willing or able to switch to VoIP for broadband access to exert a constraint. However, we consider this level of VoIP usage, in the context of other market conditions, suggests SMEs may, at present, have a limited willingness to rely on VoIP services (over broadband access) for making and receiving calls.

Provisional conclusions

4.67 We consider that broadband access is not a sufficient indirect constraint over the review period to be included in the relevant market with analogue copper access at the present time.

<u>Indirect constraint from digital access</u>

4.68 We now consider whether access over ISDN2 or ISDN30 can be a credible substitute for analogue copper lines for businesses.[150]

4.69 From a functional point of view, ISDN can provide the same functionality as a FAEL (as well as additional functionality), which indicates potential one-way substitutability. However, ISDN is more expensive than a FAEL at the retail level (unless multiple lines are required), will have higher one-off connection charges, and we expect WFAEL users would place little value on the additional functionality offered by ISDN.[151]

4.70 Based on this, we consider that ISDN access is not an indirect constraint on the price of FAEL and should not be included in the relevant product market.

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[148] Ofcom, *SME experience of communications services survey data*, 2014, Figure 42, https://www.ofcom.org.uk/research-and-data/telecoms-research/smes-research-jun-2015

[149] *2015 Jigsaw residential survey (wave 2)*.

[150] Our Market Intelligence data show that residential ISDN2 connections (which were in any case used as a broadband substitute) have declined to a negligible level since around 2007 and therefore ISDN access is clearly not a realistic substitute for residential customers. We focus our assessment on business customers.

[151] See Section 5.

Provisional conclusion on the indirect constraints at retail level

4.71 In light of the analysis set out above, our provisional conclusion is that FAELs are not sufficiently constrained at the retail level by mobile, broadband or digital access to include them in the relevant product market. We propose that FAELs delivered in the following ways are within the same market:

- copper access;
- cable access;
- MPF; and
- FTTP deployments offering voice services using an ATA.

Wholesale product market

4.72 We describe the focal product at the wholesale level and consider whether other services will provide a direct constraint to this. A direct constraint arises when the wholesale charge is constrained by the possibility of switching to a potential alternative at the wholesale level.

Focal product

4.73 We consider that it is appropriate to assess WFAEL and WCO separately based on our assessment of the distinction between access and calls earlier, and the fact that they are currently supplied as separate services. Based on the retail market definition above, we propose the focal product at the wholesale level to be WFAEL delivered via:

- Copper access;
- Cable access;
- MPF; and
- FTTP deployments offering a narrowband voice services using an ATA.

Wholesale demand-side substitution to broadband

4.74 As discussed above, it is technically possible for CPs to provide their retail customers with voice services over broadband instead of a fixed narrowband line by making use of VoIP technology. Indeed, a number of CPs already offer voice calls over broadband in this way. Use of VoIP has increased since the last review, suggesting that VoIP calls may present an alternative to fixed voice calls for some customers.[152] However, VoIP usage is limited and managed VoIP is not used to a significant extent by residential customers.

4.75 From a forward looking perspective, we have considered the potential for the development of a broadband-only wholesale product. Our view is that BT's launch of SOGEA, for the reasons set out in paragraph 4.62, is unlikely to provide a sufficient constraint during the review period.

[152] See discussion of VoIP in the WCO market definition assessment below.

4.76 Overall, we consider the potential for CPs to switch from providing narrowband access to offering VoIP calls over broadband to be relatively limited in the period covered by this review.[153] For these reasons we consider that broadband access at the wholesale level is not likely to be a sufficient direct constraint on the hypothetical monopolist provider of WFAEL to be included in the relevant market. We also do not consider there to be other realistic possibilities for wholesale demand-side substitution.

<u>Supply-side substitution</u>

4.77 We have assessed the constraint imposed by cable (i.e. Virgin Media), which does not provide wholesale fixed voice calls or access to third parties, as part of our assessment of indirect constraints. We are not aware of any other alternative networks for which there is a realistic prospect of wholesale supply-side substitution into WFAEL. We consider that supply-side substitution at the wholesale level is not likely to be a sufficient direct constraint on the hypothetical monopolist provider of WFAEL.

<u>Provisional conclusion on product market</u>

4.78 WFAEL is a wholesale narrowband analogue access connection between a customer's premises and a local exchange. In light of the analysis set out above, our provisional conclusion is that broadband access or any other alternatives are not a sufficient direct constraint to be included in the relevant market. We also do not consider there are any other realistic supply-side substitutes. As a result, we propose defining a product market for WFAEL delivered via:

- Copper access;
- Cable access;
- MPF; and
- FTTP deployments offering a narrowband voice service using an ATA.

Should the wholesale market reflect possible retail market segmentations?

4.79 We consider below whether it is appropriate to segment the market between different customer groups. Since similar considerations apply in respect of lines and calls in this respect, much of the reasoning below applies to both WFAEL and WCO.

[153] We recognise the situation may be different where CPs are supplying customers (typically from the business sector) with multiple fixed lines. Only one line is required to support a broadband connection, and so a CP in this situation could remove all additional lines and supply voice services using VoIP over the broadband connection. We also recognise that some business users receive VoIP services over an alternative form of IP-based access that does not require a fixed analogue line (e.g. SIP trunking over leased lines). However, it is unclear to what extent a CP would be able to switch customers to these alternatives without their agreement and the need for different equipment. As a result, we have considered the potential for this substitution in relation to indirect demand constraints at the retail level above.

Residential and business customers.

4.80 In the FAMR 2014 Statement, we recognised the differences between residential and business customers for FAELs at the retail level, but maintained that both residential and business customers were served by a single wholesale market.[154]

4.81 Our analysis above shows that businesses and residential consumers show some differences in their preferences, perceptions and purchasing decisions, which may suggest a segmentation of the market along these lines is appropriate.

4.82 However, other factors suggest it may not be appropriate to segment the market between residential and business consumers for the purposes of this wholesale review:

- First, the WCO product used for calls made by businesses and for calls made by residential consumers is the same. This implies CPs could supply both groups and that a supplier of WCO would be unable to identify what type of customer was being served. We are not aware of any evidence that would lead us to revise this position. Similar reasoning applies in the case of wholesale access lines.[155]

- Second, a significant proportion of SMEs, particularly smaller businesses, do not have business-specific contracts: 23% of all SMEs do not have a business-specific contract: 25% for those with 1-9 employees and 6% for those with 10-249 employees.[156] We consider this blurs the distinction between residential and business users at the retail level in terms of both calls and access.

- Third, although some CPs specialise, a significant proportion of the market shares for both residential and SME customers are accounted for by the same CPs, although there is a longer tail of smaller CPs serving SME customers. This suggests there may be scope for a degree of supply-side substitution between the two categories.

4.83 For these reasons, we consider it is appropriate to assess business and residential customers together at the wholesale level. Given our approach at the wholesale level, and the evidence regarding residential and business customers at the retail level, we do not consider our overall findings are sensitive as to whether we segment the market between business and residential customers.

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[154] FAMR 2014 Statement, paragraphs 3.53 to 3.54. In the NMR 2013 Statement we also found a single WCO market for residential and business customers (see paragraphs 5.129 to 5.133, https://www.ofcom.org.uk/consultations-and-statements/category-2/nmr-13).

[155] We note that WLR Premium tends to be used to supply business customers, so as a result it is more likely that customers of these lines would not be residential customers. However, absent SMP regulation of WFAEL, it is not clear whether higher quality access services would be created – i.e. a service like WLR Premium. Moreover, where the premium product involves higher costs to supply, it is not the case that a higher price would imply price discrimination. For business customers requiring only residential service levels, a wholesale CP could not distinguish between whether the end customer was residential or business. In addition, even if both WLR Basic and Premium both existed absent regulation, the constraint these services placed on each other (due to the prospect of CPs switching between these services in response to a price increase in one of the services) may be sufficient to place both in the same market.

[156] Ofcom, *SME experience of communications services – a research report*, October 2014, Figure 135.

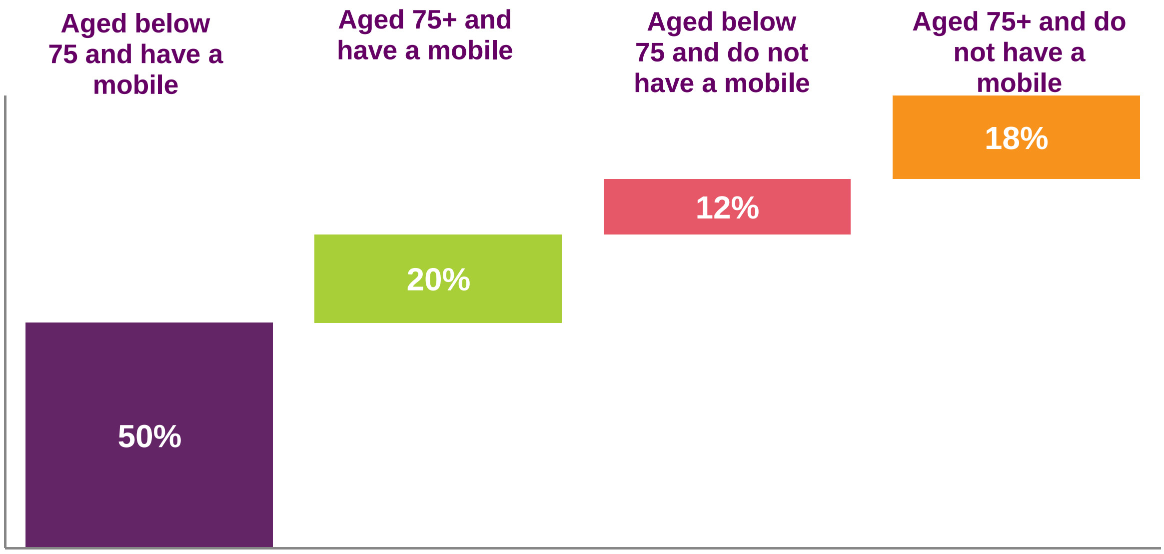
Fixed voice-only customers as compared to customers also taking broadband

4.84 In the FAMR 2014 Statement, we concluded there was likely to be limited substitution by retail customers between dual-play and fixed voice-only products in response to relative price changes in either direction at the retail level. At the wholesale level, we noted CPs are reliant on WLR for supplying fixed voice-only customers, even if in theory they could use MPF.[157] We also noted there are other customer groups reliant on WLR including split purchasers, business customers and off-net customers. Based on this, we said that there would still be a group of customers who are reliant on WLR outside a potential fixed voice-only segment and so it was appropriate to assess a single market encompassing all potential segments.[158] We reached the same conclusion in the NMR 2013 Statement with regard to WCO.[159]

4.85 The Ofcom Technology Tracker suggests that residential fixed voice-only customers account for 13% of residential landline users.[160] This group was estimated to be around 19% of all residential landline users in 2012.[161] We consider some of this reduction has been due to customers taking up broadband. We anticipate this trend will continue but at a slower pace reflecting that remaining customers are likely to be those more resistant to changing their service. Additionally, between 16% and 22% of SMEs use a landline but do not use broadband.[162] We also recognise that residential fixed voice-only customers are more likely to be elderly and to have lower rates of mobile adoption compared to residential fixed voice consumers who have broadband. Figures 4.2 and 4.3 below provide an indicative breakdown along these lines for residential fixed voice-only consumers and residential fixed voice consumers who have broadband. They show, for example, that consumers aged under 75 and with a mobile account for 50% of residential fixed voice-only consumers but 90% of residential fixed voice consumers with broadband.[163]

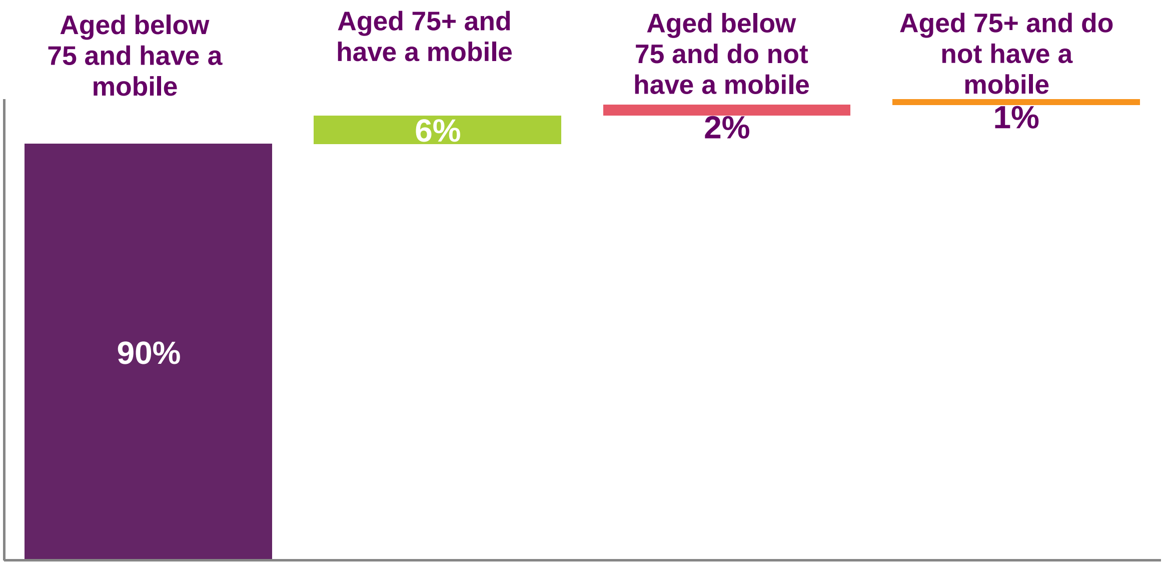
[157] FAMR 2014 Statement, paragraph 3.57.
[158] FAMR 2014 Statement, paragraph 3.55 to 3.63.
[159] NMR 2013 Statement, paragraph 5.128, https://www.ofcom.org.uk/consultations-and-statements/category-2/nmr-13.
[160] Based on responses to the Ofcom *Technology Tracker H1 2016* survey and Ofcom Market Intelligence data.
[161] Based on analysis of data from Ofcom *Technology Tracker W1 2012* survey, https://www.ofcom.org.uk/research-and-data/open-data/opendata.
[162] *2015 Jigsaw SME survey (waves 1 and 2)*
[163] The relativities shown in this chart are based on a larger, market-level, survey from 2015. As a result, the further decomposing the fixed voice-only sample into these segments involves a greater level of uncertainty due to smaller sample sizes. We are further investigating the size and composition of the residential fixed voice-only segment.

Figure 4.2: Residential fixed voice-only consumers by age group and mobile adoption



Source: 2015 Jigsaw residential survey (wave 1).

Figure 4.3: Residential consumers with fixed voice and broadband by age group and mobile adoption



Source: 2015 Jigsaw residential survey (wave 1).

4.86 Our analysis suggests there are some relevant differences at the retail level between those fixed voice customers who have and those who do not have broadband. Residential fixed voice-only consumers display a number of differences to other customers in terms of their behaviour, preferences and characteristics. They have a switching rate of about 5% per year compared to 10% among other residential landline consumers.[164] This suggests they are less engaged and active consumers.

[164] *2015 Jigsaw residential survey (wave 1)*

They show a stronger attachment to their landlines and are more likely to value their landline for making and receiving calls. [165] Only 69% have a mobile compared to over 90% among all other residential landline users and since these customers do not purchase broadband, they cannot rely on VoIP over fixed broadband in their home as a potential substitute.[166]

4.87 We also observe there are differences on the supply-side. As set out in Section 6, BT would have a higher market share at the retail and wholesale level among fixed voice-only customers than all group fixed voice customers. Other CPs such as Sky, TalkTalk and Virgin Media are relatively weaker among this customer segment, with market positions built to a large extent on legacy customers rather than recent acquisitions from competitors. TalkTalk said with regard to fixed voice-only customers, [✂].[167]

4.88 Even if we defined a separate market for customers taking broadband with their fixed line, BT would still have the highest market share at the retail level among broadband users, and on that basis we expect they would hold the highest share in the supply of fixed-voice services to dual-play customers at the retail and at the wholesale level.[168]

4.89 There could potentially be some support for defining distinct markets for different groups of customers if they were supplied using distinct technologies. We therefore discuss the infrastructure used to supply different groups of customers. CPs use a variety of wholesale inputs to supply customers who have broadband and a fixed voice service. For standard broadband, BT uses WLR and SMPF. Virgin Media uses its cable network. Other CPs use MPF, WLR in combination with SMPF or WLR with WBA. TalkTalk and Sky generally rely on MPF but use other approaches in some cases, while other CPs may be more reliant on WLR, either combined with SMPF or WBA.

4.90 Fibre broadband is supplied in a number of ways:

- Virgin Media uses its cable network.
- FTTP: BT has deployed FTTP in limited cases and has indicated it will provide more FTTP in future.[169] This may be as a new network deployment or as an overlay to existing copper. Some smaller CPs also provide FTTP connections.
- FTTC: FTTC connections are most common.[170] FTTC is an overlay to the existing copper network and so a copper line is required for wholesale access from BT.

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[165] Paragraph 4.50.
[166] *2015 Jigsaw residential survey (wave 1).*
[167] TalkTalk email to Ofcom, November 2016.
[168] BT (including Plusnet) has a 32.4% share of retail broadband connections (source: Ofcom, *Telecommunications market data tables Q1 2016*, page 16, https://www.ofcom.org.uk/research-and-data/telecoms/data-updates), and this figure would be higher again if EE were included. This includes split purchasers and those who purchase broadband on a standalone basis. However, given the relatively greater number of dual-play customers we expect BT would have the largest retail share among dual-play customers. Its position in the wholesale market would be stronger as they are the largest supplier of WFAELs to third parties.
[169] http://www.btplc.com/news/#/pressreleases/bt-to-invest-billions-more-on-fibre-4g-and-customer-service-1394948.
[170] Based on FTTP being available in only 2% of premises (Ofcom, *DCR: Strengthening Openreach's strategic and operational independence*, paragraph 2.22, July 2016) compared with FTTC being available in 83% of premises (Ofcom, *Connected Nations 2015*, page 1, https://www.ofcom.org.uk/research-and-data/infrastructure-research/connected-nations-2015).

The copper bearer that supports fibre and provides the accompanying analogue voice services can be either MPF or WLR.[171] In that sense, the move to fibre does not significantly change the constraints that currently exist for standard broadband.

4.91 We consider CPs are only likely to use MPF with FTTC if they have already invested in MPF. [✂]. We expect that other CPs, or potential entrants, are more likely to rely on WLR than on MPF for providing fixed voice services to accompany an FTTC connection.[172] We note that for CPs other than BT, WLR is currently used to supply voice for a relatively small proportion of fibre broadband connections, and it is unclear whether this will change over the review period. [✂]. [✂].

4.92 This suggests that, while alternatives may exist for many consumers, WLR is likely to be required by some CPs to provide fixed voice services to certain customers who have broadband and a fixed voice service during this review period.

4.93 In previous market reviews we said that it was not economically viable to use MPF to serve fixed voice-only customers and so they can only be sustainably served using WLR on BT's network (or by Virgin Media).[173] We have not seen evidence to suggest this has changed. Since the FAMR 2014, the charges for WLR have fallen relative to MPF, which further reduces the viability of serving fixed voice-only customers with MPF. Statements by the EC[174] and comments by BT also support this view.[175]

4.94 While it is technically feasible for CPs to switch to using MPF for fixed voice-only customers, we consider it is unlikely they will do so unless WLR charges increase significantly.

4.95 We note that CPs have not typically varied retail line rental prices according to whether or not a customer purchases voice services as part of a bundle. Nor are line rental prices usually varied on the basis of which underlying wholesale services are used to supply that customer, or the location of the customer. This is consistent with a common pricing constraint operating at the wholesale level

4.96 As set out in the discussion of the geographic market definition below, the common pricing constraint at the retail level in relation to FAELs due to the Universal Service Conditions (USC) [176] is likely to carry over to the wholesale level. We consider a hypothetical monopolist of WFAEL (competing in the dual-play sector using GEA,

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[171] As discussed in relation to WCO later in this section, managed VoIP is not used to any significant extent to provide voice services to residential customers, including to those to those with FTTC connections. Longer term, we consider the introduction of SOGEA is likely to change this, but as outlined above, we do not expect it to have a significant influence within the review period.
[172] We note Vodafone said that, absent a pre-existing MSAN equipment or the availability of SOGEA-type wholesale service, the only viable approach for a new entrant wishing to provide a bundled superfast broadband and voice service is to use WLR for voice services (see Vodafone, *Vodafone input to Narrowband Markets Review: The need for regulation of provision of Wholesale Lines*, page 4).
[173] See *NMR 2013 Statement*, paragraph 5.120 and *FAMR 2014 Statement*, paragraph 3.57.
[174] "Providing only a fixed narrowband service over regulated access to LLU or bitstream is not likely to be economically viable, and the same reasoning is valid for fixed narrowband over fibre and cable-TV networks". EC, *Explanatory Note accompanying 2014 EC Recommendation*, page 20.
[175] BT said it is "common ground that provision of voice across MPF alone is not economic for new customers certainly absent another revenue stream". BT, *CFI response*, Annex B, page 26.
[176] Further information is available on the Ofcom Website: http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/specific-conditions-entitlement/universal-service-obligation/designation-of-bt-and-kingston/. Note also that Ofcom conducted a review in 2006 http://stakeholders.ofcom.org.uk/consultations/uso/main/.

WBA or SMPF alongside WFAEL), facing competition from cable and MPF-based CPs, is most likely to respond to competition for its wholesale voice and broadband services to CPs by reducing the charge for the wholesale broadband component rather than reducing the charge for WFAEL. This suggests, regardless of whether it is fixed voice-only customer or a customer with broadband as well (either, a dual-play customer or a split purchaser) the charge for WFAEL is unlikely to vary.

Off-net customers

4.97 Off-net customers, as discussed above, are customers (including businesses) outside the LLU and cable footprints who, as a result, are not served by CPs using either MPF or cable as an alternative to WLR. As discussed at paragraph 4.39, around 95% of premises in the UK were connected to an LLU-enabled BT local exchange area in December 2014. We use the 5% of premises not connected to LLU-enabled exchanges as a proxy for the size of the off-net area. Although fibre broadband coverage may be increasing in off-net areas outside the LLU footprint, as mentioned above a copper line is required for wholesale access from BT. As set out above, we do not expect VoIP services delivered over broadband to impose a significant constraint within the review period. We also do not expect wholesale charges to vary geographically due to the common national pricing constraint, which we discuss in more detail below as part of our assessment of geographic market definition.

Split purchasers

4.98 Split purchasers can only be supplied by CPs using WLR (with SMPF) on the BT network. The Ofcom Technology Tracker survey estimates residential split purchasers account for up to 11% of all residential landline users in 2016.[177] In 2012, 18% of residential landline users reported being in this category.[178] As with residential fixed voice-only customers, we expect this downward trend to continue but at a slower pace. About 15% of SMEs report having a different supplier for their landline and broadband.[179] Some of these will have more than one line and there will be other larger businesses who also have landline and broadband from separate suppliers.

4.99 The majority of these customers could be supplied with MPF if they switched to a dual-play offer from a single CP. The falling share of split purchasers among landline users suggests some retail customers are willing to switch to a dual-play offer. However, for some customers this choice may be motivated by particular needs not well served by a dual-play offer from the same CP. As discussed above the pricing of

[177] From Ofcom, *Technology Tracker H1 2016 survey*. Data collected as part of our s135 responses suggests the number of standalone broadband contracts may be lower, and thus the number of split purchasers may be lower than the Technology Tracker survey estimates. We note the *2015 Jigsaw residential survey (waves 1 and 2)* estimated the size of these groups as 5-6% of all residential landline users. We also note a September 2016 report by Ernst & Young (*Navigating the Bundle Jungle: Content, connectivity and consumer trust estimates*, Chart 1, http://www.ey.com/uk/en/industries/telecommunications/ey-consumer-telecoms-survey-navigating-the-bundle-jungle) suggests that about 93% of UK households with broadband now have some form of bundle, suggesting at least 7% are split purchasers and probably more given that other categories include those who buy broadband and mobile (but presumably not fixed voice services) together. We therefore consider the figures reported above from the Technology Tracker as an upper bound.
[178] Based on data from Ofcom, *Technology Tracker W1 2012*.
[179] *2015 Jigsaw SME survey (waves 1 and 2)*.

WFAEL is unlikely to vary depending on whether it is used to supply a fixed voice-only customer, dual-play customer or split purchaser.

General comments on groups of interest

4.100 Based on our survey evidence in relation to the groups of interest, residential fixed voice-only and off-net customers account for about 15% of all FAELs. This increases to 24% if split purchasers are included (using Technology Tracker survey estimates). This increases further to about 38% if all business analogue lines are included.[180]

4.101 We recognise that not all of these customers would be wholly reliant on WLR in the long run. Nonetheless, we consider a significant share of those customers, which in turn will represent a significant share of the WFAEL market, are likely to remain reliant on WLR. In particular, we expect these groups are large enough to affect wholesale access and pricing.

4.102 BT made a number of comments relating to these groups in its response to the April 2015 CFI including commentary on the NMR 2013 Statement. BT argued that the conditions of competition were likely to be similar for dual-play customers and split purchasers[181], that fixed voice-only customers have alternatives to using fixed lines[182], that wholesale alternatives are available for all these groups[183] and that there will be no discrimination against those outside the MPF and cable footprint.[184] We have considered BT's views and evidence supporting those views as part of our assessment above.

Provisional conclusion

4.103 We recognise that there is a degree of variation in the demand characteristics and in the extent of competition within the retail segments of interest. However, we do not consider that a wholesale supplier of WFAEL would be likely to discriminate in the provision of, or wholesale charges for, lines used to supply different segments.

4.104 For some segments, the retail level differences would not always be apparent at the wholesale level (e.g. residential compared to business lines). In other cases, we must take as given the nexus of other retail regulation (i.e. the USC for retail line pricing) and the opportunity to respond to competition through other wholesale charges (e.g. for broadband access) means that we might expect similar wholesale pricing for exchange lines regardless of the end customer's identity.

4.105 Given this, our provisional conclusion is that it is appropriate to assess the WFAEL market as a single market, not segmented between different retail customers.

Geographic market

4.106 In the FAMR 2014 Statement we defined two geographic markets:

- the UK excluding the Hull Area; and

[180] We estimate business analogue lines account for about, 4.1 million or 14% of total analogue lines (Source: Ofcom Market Intelligence).
[181] BT, *Annex B, Appendix 4: Observations on OFCOM's 2013 Analysis on Bundles*, paragraphs 11 and 12, pages 15 and 16.
[182] BT, April 2015 CFI response, Annex B, page 24.
[183] BT, April 2015 CFI response, Annex B, Appendix 4, paragraph 3.
[184] BT, April 2015 CFI response, Annex B, page 10.

- the Hull Area.

4.107 The Hull Area was defined separately based on the absence of BT from that area. In the UK excluding the Hull Area, narrower markets were rejected on the basis of insufficient geographic variation in competitive conditions and a common pricing constraint at the retail and wholesale level due to the USC.

4.108 The 2014 EC Recommendation says that when defining relevant markets, *"national regulatory authorities should identify a geographic area where the conditions of competition are similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different, having particular regard to the question whether the potential SMP operator acts uniformly across its network area or whether it faces appreciably different conditions of competition to a degree that its activities are constrained in some areas but not in others"*.[185] In particular, we consider the assessment of common pricing constraints is important in the context of the WFAEL market.

UK excluding the Hull Area

4.109 We consider that price is the main mode of competition in retail fixed voice services, even though there are other means by which CPs can compete (such as quality of service, choice of additional services and so on).

- Survey data suggests that price is the leading reason for switching landline provider. 51% of those who switched their landline service said they did so "for a better/cheaper price/deal".[186] In a separate survey, as many as 61% of switchers said they switched "for a better/cheaper price/deal".[187] Similarly, the leading reason for not switching after having considered it, cited by 25% of respondents, is "current provider is still the best deal/ cheapest/ cheap enough/ wouldn't save enough to warrant switching".[188]

- We do not expect there to be material geographic variation in the quality of other aspects of retail customer service such as billing or competition on this basis. For these reasons, we consider there is limited scope for quality-based competition and particularly geographic variation in quality-based competition.

4.110 The USC requires BT to provide retail telephony services that are priced uniformly, irrespective of geographic location. Furthermore, we observe that competing CPs price uniformly across the UK. Local retail pricing, even if we were to ignore the USC, would likely involve costs associated with local variation in published prices and loss of economies of scale (e.g. in advertising). This suggests there is a common pricing constraint in retail competition.

4.111 Given the proposals at the retail level, the next question is whether the common pricing constraint implied at the retail level from the USC can extend to pricing at the wholesale level, absent SMP regulation.

4.112 We assess the wholesale geographic market in a setting where the hypothetical monopolist also has a retail arm (it is vertically integrated) and is subject to the USC.

[185] Point 7.
[186] *2015 Jigsaw residential survey (wave 1).*
[187] Ofcom, *Switching Tracker*, 2015, QL23, https://www.ofcom.org.uk/research-and-data/consumer-experience/consumer-experience-15.
[188] Ofcom, *Switching Tracker*, 2015, QL10a.

In such a setting, we consider the most likely strategy is for the upstream monopolist, given the national retail price, to set a geographically uniform wholesale charge. Setting low wholesale charges in low-cost areas would risk entry and setting high wholesale charges in high-cost areas would risk undermining wholesale sales (conditional on there not being a margin squeeze in wholesale provision). Together this would create unsustainable geographic arbitrage opportunities between the wholesale charge and the retail price and prevent the USO provider's own downstream retail arm from trading profitably.

Hull Area

4.113 In the Hull Area, the absence of BT means that competitive conditions differ from the rest of the UK. Moreover, since there is no cable or MPF in this area, there is no geographic variation in competitive conditions that justifies defining more localised markets. As a result, we believe that the Hull Area represents a separate geographic market.

Proposed geographic markets

4.114 In light of the above, we propose defining two geographic areas:

- the UK excluding the Hull Area; and
- the Hull Area.

Three-criteria test for WFAEL

4.115 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, NRAs must begin by defining relevant markets appropriate to national circumstances in accordance with the principles of competition law and taking utmost account of the 2014 EC Recommendation and SMP Guidelines.

4.116 The 2014 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. It therefore lists a number of markets in which the European Commission considers that *ex ante* regulatory obligations may be warranted, taking into account the particular features of those markets.

4.117 The WFAEL market is not listed in the 2014 EC Recommendation as a market in which *ex ante* regulation may be warranted.[189] However, the 2014 EC Recommendation also recognises that there may be other markets, aside from those specifically identified, in which it is appropriate to impose *ex ante* regulatory obligations according to national circumstances. In order to assess whether it is appropriate to impose such obligations in a market not listed, the 2014 EC Recommendation sets out the following three criteria which must all be met ('the three-criteria test'):

[189] Note, retail access to the public telephone network at a fixed location for residential and non-residential customers was previously identified as a market susceptible to *ex ante* regulation in the 2007 EC Recommendation but not in the 2014 EC Recommendation.

- 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 infrastructure-based and other competition behind the barriers to entry; and

- the application of competition law alone is insufficient to adequately address the identified market failure(s).[190]

4.118 We now set out our analysis of the three-criteria test in relation to WFAEL.

Presence of high and non-transitory barriers to entry

UK excluding the Hull Area

4.119 We have assessed the barriers to entry and expansion as part of our SMP analysis in Section 6. We consider the factors we set out there are also relevant for our assessment of the first criterion, including:[191]

- the prohibitive costs of a sufficiently large direct access network; and

- the use of WLR (and WCO) rather than MPF by CPs to provide fixed voice-only services which suggests it has not been cost effective to use MPF to supply these consumers, particularly in supplying business customers.

4.120 For these reasons, we consider that barriers to entry are likely to remain high and non-transitory over the period of this review in the UK excluding the Hull Area.

Hull Area

4.121 We have assessed the barriers to entry and expansion as part of our SMP analysis in Section 6. In particular:

- the significant investment required to either build an alternative network or to deploy MPF, particularly when combined with the relatively small population over which the fixed costs of entry could be spread; and

- the absence of entry based on cable or MPF in the Hull Area to date.

4.122 For these reasons, we consider that barriers to entry are likely to remain high and non-transitory over the period of this review in the Hull Area.

[190] *EC, 2014 EC Recommendation,* Point 5.
[191] We note that point 11 of the 2014 EC Recommendation says that the "main indicators to be considered when assessing the first and second criteria are similar to those examined as part of a forward-looking market analysis to determine the presence of significant market power".

A market structure which does not tend towards effective competition

UK excluding the Hull Area

4.123 We have assessed competition in WFAEL in the UK excluding the Hull Areas as part of our SMP analysis in Section 6. We consider the factors set out there are also relevant for our assessment of the second criterion. In particular:

- BT's high market share which although declining is still high (55%in Q4 2015/16);[192]
- the limited potential for CPs using BT's WLR to switch to alternative wholesale services in order to serve certain retail segments;
- the limited constraint imposed by switching to mobile and VoIP, and the absence of these services as alternatives for some consumers;
- that BT has been charging at the regulated price cap for WLR, which is consistent with pricing not being constrained by competition;
- barriers to entry and expansion as discussed above; and
- weak countervailing buyer power.

4.124 For these reasons, we consider that market structure will not tend towards effective competition in the review period in the UK excluding the Hull Area.

Hull Area

4.125 We have assessed competition in WFAEL in the Hull Area as part of our SMP analysis in Section 6. In particular:

- KCOM's market share remains nearly 100% at the wholesale level;
- we are not aware of prospective wholesale entrants who would impose a significant constraint on KCOM, barriers to entry or expansion remain substantial and CPs have no countervailing buyer power; and
- as in the rest of the UK, the limited constraint imposed by switching to VOIP and mobile.

4.126 For these reasons, we consider that market structure will not tend towards effective competition in the review period in the Hull Area.

Competition law alone would not adequately address the market failure(s)

4.127 For both the UK excluding the Hull Area and the Hull Area in this market, we consider barriers to entry will persist and the relevant markets will not tend towards competition within the relevant time horizon. We also consider that the speed of an intervention based solely on competition law in response to anti-competitive behaviour may not be sufficient to prevent harm in certain circumstances. For these reasons, in this instance, we consider that competition law would not be sufficient by

[192] See Section 6.

itself to address concerns in this market and therefore *ex ante* regulation is necessary to maintain effective competition.

Provisional conclusion

4.128 In light of the analysis set out above, we are of the view that our proposed WFAEL market definitions satisfy the three criteria test set out in the 2014 EC Recommendation and that it is appropriate to analyse these markets to determine whether any provider holds SMP.

WCO

4.129 As set out in paragraph 2.8, WCO is the wholesale service that enables voice calls over a narrowband access line (i.e. WFAEL, ISDN2 or ISDN30). In particular, this involves the conveyance of all signals (including relevant control signals) originating 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.

Findings of the previous review

4.130 In the NMR 2013 Statement, we defined a relevant product market for WCO on a fixed narrowband network (including self-supplied services) over FAELs or ISDN lines.[193] We defined separate geographic markets for the United Kingdom (excluding the Hull Area) and the Hull Area.[194]

Retail services

Starting point

4.131 Retail consumers are interested in making calls and are likely neutral with respect to how call origination is provided as long as quality does not vary too much.

4.132 We note in this respect Vodafone's comment that MPF provides a competitive constraint to BT in retail markets, and to a more limited extent on wholesale markets (as CPs would be incentivised to use MPF if the charges for WCO were grossly excessive).[195]

4.133 We would not expect competitive conditions to differ between WCO supplied over WFAEL and ISDN. WCO takes place at the originating switch where all calls to that switch are aggregated. At the DLE, minutes originated from a line, but not the type of user or line, are visible. This would make it difficult to restrict access to WCO or vary pricing according to the type of line for which WCO is provided. Second, many CPs purchase both WFAEL and ISDN, so pricing WCO merely on the basis of the access line type might not be very efficient, compared to say discriminating on the volume of minutes purchased. While some more features may be available in ISDN, we consider these differences are relevant in terms of access rather than terms of call origination.

4.134 Based on this, we consider that our starting point should be fixed voice call origination on both WFAEL and ISDN lines (i.e. on a fixed narrowband network).

[193] NMR 2013 Statement, paragraph 5.2.
[194] NMR 2013 Statement, paragraph 5.3.
[195] Vodafone, April 2015 CFI response, page 12.

Indirect demand constraints from competition at the retail level

4.135 We first consider whether retail customers would switch away from fixed voice and use potential demand-side alternatives in response to a SSNIP in the price of WCO. The alternatives we consider are mobile calls, VoIP and text-based messaging, email and social media.

Indirect constraint from mobile

4.136 As discussed above, an increase in WCO charges may pass through to the retail price of the line, the package of inclusive minutes or out-of-bundle calls. The strength of the indirect constraint from mobile will therefore depend on the willingness of consumers to do the following:

- Partially or completely substitute from fixed voice calls to mobile calls. This may include reducing the calls made within the inclusive calls allowance, downgrading the inclusive calls package, making fewer out-of-bundle calls or some combination of these.

- As noted above in relation to indirect constraints on WFAEL above, customers could in principle give up the bundle of fixed voice access and calls and become mobile-only. For those who have fixed broadband this would involve giving it up and relying either on mobile broadband or other alternatives to fixed internet access.

4.137 Call-by-call substitution alone can provide a degree of indirect constraint, particularly if consumers are also willing to downgrade an inclusive calls package. However, as noted above, we expect a significant share of total fixed voice minutes are made within an allowance. In addition, some consumers will already have the most basic calls package and so are unable to downgrade further. We therefore consider that the indirect constraint will depend to some extent on consumers' willingness to give up their bundle of fixed access and calls altogether (and broadband if they have it) and become mobile only.

Technical characteristics

4.138 Mobile calls made at a fixed location (the home for residential customers, or the place of work for business customers) respond to the same need as fixed calls, which indicates there is potential (one-way) substitutability from fixed to mobile.

4.139 However, survey evidence suggests that some consumers continue to view mobile calls as inferior in quality or less reliable. For example, a significant minority of respondents said they do not make all their calls by mobile when at home because of reliability of connection (15% of residential customers and 24% of SMEs), coverage/signal (12% of residential customers and 16% of SMEs) or quality of line/call (10% of residential and 17% of SMEs).[196] This is likely to reflect the fact that there are gaps in mobile coverage in some areas[197] and [✂] argued that the convergence of fixed and mobile is not yet a reality, because coverage is not universal (especially indoors) and Femtocells require a data connection. From a forward looking perspective, it is plausible that these concerns will to some extent be

[196] *2015 Jigsaw market research report,* Figure 9 and 46
[197] For example, outdoor voice network coverage (2G and 3G combined) is 99% for urban areas and 72% rural areas compared to indoor coverage to 91% for urban areas and 31% for rural areas. Ofcom, *Connected Nations Report 2015*, Figure 23.

lessened by the time MNOs comply with the voice and 4G coverage obligations targets.

Stated responses to hypothetical price increases

4.140 18% of residential survey respondents reported that they would be certain or very likely to give up their landline in response to a SSNIP of their landline calls. This rises to 20% for respondents with fixed voice and broadband but falls to 11% for those with fixed voice-only. [198] Only 3% of SMEs customers reported that they would be certain or very likely to give up their landline in response to a SSNIP of their landline calls.[199]

4.141 We note these results are very similar to the responses to a SSNIP in bills above. As discussed above, this may be due to customers not fully distinguishing between calls, access and how much of their bill is accounted for by each of these.

4.142 As the indirect constraint from mobile depends to some extent on the willingness of customers to give up their landline, we consider the evidence regarding the indirect constraint from mobile for WFAEL is also relevant for our assessment of the indirect constraint on call origination from consumers' willingness to become mobile only. That evidence suggests there is variation in price sensitivity among landline users and a limited degree of substitutability for some consumers. Overall, the evidence is consistent with both residential and business consumers showing a degree of attachment to their landlines and only a limited willingness to give up the bundle of access and calls and become mobile-only consumers.

4.143 24% of residential survey respondents reported that they would be certain or very likely to switch some calls to mobile in response to a SSNIP of their landline calls. This rises to 27% for respondents with fixed voice and broadband but falls to 14% for fixed voice-only customers.[200] This suggests there may be a strong degree of substitutability on a call-by-call basis and highlights the variation in price sensitivity among landline users. However, the declared switching would only be for some calls, and not all calls.

4.144 Of those SME respondents who said they were likely to switch some calls away to some other medium in response to a SSNIP, 51% said they would switch most of their calls to mobile. However, only 9% of SMEs would be certain or very likely to switch some calls to mobile in response to a SSNIP of their landline calls.[201] This suggests a significantly lower degree of substitutability than for residential consumers and that mobile is still only a modest constraint on fixed calls, even if it is a stronger constraint for SMEs than other alternatives.

Volume trends and calling patterns

4.145 As presented in Section 3, we have observed a marked decline in the volume of voice calls originated on fixed lines and an increase in calls originated on mobiles by both residential consumers and businesses. This continues the trend observed in previous reviews. The increasing volumes of VoIP calls in recent years suggests the observed trends in volumes are also consistent with substitution to VoIP calls.

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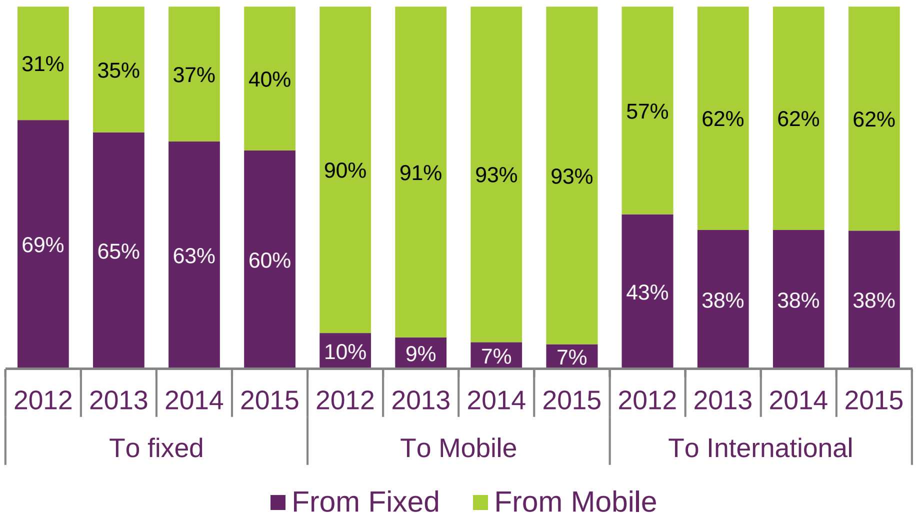
[198] *2015 Jigsaw residential survey (wave 1)*
[199] *2015 Jigsaw SME survey (wave 1)*
[200] *2015 Jigsaw residential survey (wave 1).*
[201] *2015 Jigsaw SME survey (wave 1).*

4.146 Overall, calling patterns suggest that fixed and mobile are more typically used for different types of calls rather than as substitutes for the same type of calls. Figure 4.4 shows the percentage of actual calls (minutes) terminating on fixed, mobile and international numbers originating from fixed and mobile[202] for 2012 to 2015. Most calls to mobiles are from other mobiles whereas most calls to landlines are from other landlines. For example, in 2015, 60% of calls terminating on fixed lines originated from a fixed line whereas only 7% of calls terminating on a mobile device originated from a fixed line. This graph shows mobile taking a gradually increasing share of all types of call, but also that there remains a marked difference between the call types for which mobile and fixed devices are used.

Figure 4.4: Percentage of calls originating from fixed and mobile terminating at fixed, mobile and international numbers



Source: Ofcom Telecommunications Data Tables.

4.147 Table 4.1 below compares survey data collected for the current NMR and the NMR 2013. The data show nearly all landline users have a mobile phone within the household and that a similarly large proportion of respondents use landlines and mobile devices once or more a week to make calls. Landlines are used more heavily for calls to other landlines, calls to Freephone numbers and calls to non-geographic numbers. Mobile phones are used more heavily for calls to other mobiles. The main use of VoIP is for international calls. Although the percentage using mobiles generally and for calls to landlines has increased, the changes since the time of the previous review are only incremental.

[202] Other sources of calls (e.g. International, VoIP) are excluded.

Table 4.1: Services used at home and calling patterns by landline users

% of respondents	Landline 2012	Landline 2015	Mobile 2012	Mobile 2015	VOIP 2012	VOIP 2015
Have at home	100%	100%	93%	93%	22%	27%
Use weekly or more	79%	75%	64%	72%	9%	8%
Using for calls to:						
Local Landline	68%	66%	34%	42%	7%	11%
National Landline	50%	41%	21%	27%	10%	9%
Freephone	46%	39%	7%	7%	2%	2%
Non geographic	43%	20%	8%	6%	4%	2%
International	23%	18%	6%	8%	54%	44%
Premium	18%	10%	3%	3%	1%	0%
Mobile	11%	8%	58%	57%	2%	7%

Source: 2013 Jigsaw residential survey; 2015 Jigsaw residential survey (waves 1 and 2).

Pricing

4.148 Comparing relative price trends with volume trends can be a source of evidence on the degree of substitutability between different services.[203]

4.149 Section 3 compares residential fixed and mobile prices (see Figures 3.12, 3.13, 3.14) and shows the real price of an unchanging basket of fixed voice and mobile services over time. The price of calls has been decreasing for both fixed voice and mobile, although there is a greater decrease for mobile. This suggests mobile call prices have been decreasing relative to fixed voice prices.

4.150 On other measures, however, the pence per minute price of out-of-bundle mobile calls is still materially higher than the price of out-of-bundle fixed calls. For example, BT charges residential consumers a 19p set-up fee for each call, and 11p per minute (ppm) for calls to a landline (and 15ppm for calls to mobile) whereas mobile CPs charge a substantially higher price per minute (35ppm,(Three), 37.5ppm (Vodafone) 40ppm (EE) or 45ppm (O2)).[204] We also note that decisions on which device to use for a call will often be made when the consumer has inclusive minutes remaining for both their fixed telephone and mobile, and so the incremental effective price may well be zero either way.

4.151 The leading reason cited by 37% of respondents to our residential survey for not making all calls by mobile at home was the price of calls being too high.[205] 17% cited the low price of landline calls as a reason they would not give up their landline.[206]

4.152 Overall, this suggests that mobile call prices have generally decreased relative to fixed voice but that mobile is still more expensive in some contexts. The survey data suggests that pricing is an important aspect of fixed-mobile substitutability. Relative price changes may also have been driving some of the decline in fixed voice usage (and rise in mobile usage) that we have seen in recent years – see Figure 3.2.

[203] However, for voice calls it can be challenging to determine what the relevant prices are. For example, the increasing tendency to include calls in wider bundles means that there is no explicit price for some calls and average prices per minute in the presence of monthly fees are influenced by changes in volume.
[204] These are out-of-bundle calls to landlines for residential tariffs. Based on review of CPs' websites on 11 October 2016.
[205] *2015 Jigsaw residential survey (wave 1).*
[206] *2015 Jigsaw residential survey (wave 2).*

Comments from stakeholders

4.153 BT noted the downward trend in fixed voice call volumes at a number of points in its April 2015 CFI response and made reference to the constraint imposed by mobile.[207] We have noted the volume trends and assessed the constraint from mobile above.

4.154 KCOM said competitive constraints have changed markedly over the last few years with increased use of mobile phones, Voice over Internet Protocol (VoIP) and text-based / social media services to originate calls.[208] We have considered the competitive constraint from these areas in our assessment.

Provisional conclusion

4.155 We consider that, from a forward looking perspective, the evidence on the strength of fixed-to-mobile substitutability is mixed. Consumers have a limited willingness to abandon their landline (i.e. access and calls) and this is likely to limit the overall indirect constraint from mobile. Nevertheless, mobile appears to be a relatively close substitute on a call-by-call basis with respect to some call types by certain groups but a more limited substitute for others. Mobile call prices have fallen in relative terms and call volumes have increased and this appears to be at least a partial driver of the fall in fixed voice volumes.

4.156 Balancing these various factors, we consider that mobile calls are not a sufficient indirect constraint on fixed calls to be included in the relevant product market, although we recognise the increasing competitive constraint for calls – if not in access – in our assessment of market power.

<u>Indirect constraint from VoIP</u>

4.157 We now consider the degree to which calls over a broadband network can be a substitute for fixed calls over a narrowband network.

Technical characteristics

4.158 Managed and unmanaged VoIP are differentiated services in a number of respects:

- Managed VoIP is likely to be perceived as more akin to narrowband calls since the CP can control the provision and quality of its service, because traffic is in general not passed via the public internet.[209]

- Unmanaged VoIP allows calling between subscribers of the VoIP service, but there may be limitations in terms of making or receiving calls to/from subscribers of other VoIP services or the PSTN.[210] Unmanaged VoIP is more likely to offer variable levels of call quality since voice traffic is routed via the internet.

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[207] See for example, pages 3, 4 and 6 of their *CFI response* and Annex B, Appendix 1, paragraph 4
[208] KCOM, April 2015 CFI response, page 2.
[209] However, we note [✂] comment that it is prevented from offering business grade data service capable of reliably supporting VoIP competition. This is because this would require a suitable interconnect connection with synchronous 3.5Mb/s, which in [✂] experience of LLU is neither ubiquitous nor part of current offerings (response to CFI, page 3).
[210] The main reason for not using VoIP more often at home or at the place of work by our respondents was that it is not suitable for certain conversations (36% of residential) and that not everyone has access to it (17% of SMEs). Furthermore, a significant minority of customers in both groups (21% of

Volume trends

4.159 VoIP volumes have increased substantially in the last few years:

- Business VoIP minutes increased from 6.4 billion in 2010 to 17.9 billion in 2015.[211]

- We collected volume data from a number of CPs who provide unmanaged VoIP services (including OTT over mobile devices). This data does not cover all CPs in the market, but does include Skype, Google, Vonage and Facebook (including WhatsApp), and so is indicative of wider trends. It indicates there is steep growth in unmanaged VoIP with volumes increasing at a (compound average) growth rate of 11% per quarter and 51% per year between Q1 2015-16 and Q3 2015-16.

4.160 We consider that for the period of this review alternative IP-based access solutions are more likely to be taken up by larger businesses due to the additional functionality (and higher price) relative to traditional (residential-type) products. Amongst residential users, much of the growth in unmanaged VoIP/OTT services is likely to be accounted for by calls made with mobile devices.

Survey data

4.161 Only a minority of residential consumers and SMEs reported using VoIP:

- As shown in Table 4.1, 27% of residential consumers have VoIP at home, an increase of about 5% from the NMR 2013. However, only 8% use it weekly or more often and its main use is for international calls. We note that, at present, managed VoIP is not used to a significant extent by residential customers, so it is not an indirect constraint for the residential segment. We expect that CPs will begin to provide fixed voice services via managed VoIP as SOGEA becomes more established. However, for the reasons set out at paragraph 4.62 we do not expect services based on SOGEA to offer a significant constraint within the review period.

- Only 21% of SME survey respondents used VoIP in the month prior to the survey.[212] 94% of SMEs consider analogue voice line as their main source of outgoing voice calls and only 2% of respondents stated that VoIP is their primary source of outgoing voice calls.[213]

4.162 Calling patterns from the residential survey in Table 4.1 indicates VoIP is most often used for international calls (which are typically excluded from allowances of inclusive minutes in fixed line tariffs, and so relatively expensive) but used less frequently for other types of calls. This suggests VoIP may be fulfilling different needs to the majority of fixed voice calls and the scope for substitution may be limited.

4.163 Only 11% of residential survey respondents said they would be certain or very likely to switch some calls to VoIP in response to a SSNIP for calls.[214] The equivalent

residential and 17% of SMEs) considered VoIP inconvenient / difficult to use. *2015 Jigsaw residential survey (wave 1)*; *2015 Jigsaw SME survey (wave 1).*

211 *CMR 2016*, Figure 4.27.

212 *2015 Jigsaw SME survey (wave 2)*.

213 *2015 Jigsaw SME survey (wave 1)*.

214 *2015 Jigsaw residential survey (wave 1)*.

figure for SMEs was 3%.[215] This suggests a limited degree of substitutability from fixed calls to either managed or unmanaged VoIP, especially in regard to SMEs.

4.164 However, a greater proportion of larger SMEs (10-249 employees) use VoIP,[216] which suggests that VoIP may be a more suitable solution for them than smaller businesses.

Comments from stakeholders

4.165 Verizon said while there has been a significant increase in VoIP calls since the last review, this is largely due to unmanaged VoIP services and the lack of competitive constraints to fixed call origination remains. We consider this is consistent with the evidence set out above.[217]

4.166 [✂] said "SIP is not yet cost effective at the lower end of the business market" and that "CPS is the only competitive alternative" for "those that may rely on machine to machine calls that may experience IP interworking problems such as credit card payment machines or British Telecommunications plc's … RedCare alarms". This suggests calls made via a SIP service are unlikely to be a substitute for certain types of calls currently made using WCO.

Provisional conclusion

4.167 While both residential and business customers are making increasing volumes of VoIP calls, we consider that substitutability from fixed calls to VoIP is still relatively limited for the following reasons:

- Among residential consumers, managed VoIP is not used to any significant extent and we do not expect it will be widely used within the period of this review, so we do not consider it can be a credible substitute over the review period. Unmanaged VoIP volumes are increasing, but it appears that a minority of consumers use it and fewer use it frequently. Even these users mainly use VoIP calls for a limited range of call types (in particular international calls and calls to other VoIP users).

- For business consumers, managed and unmanaged VoIP are increasingly used for calls, but still only by a minority of SMEs and very often not as the main platform for making calls.

- In any event, to the extent that unmanaged VoIP is used over a traditional broadband line, the need for a landline and the bundled calls that come with it is likely to reduce the amount of calls that users would switch to VoIP in response to a SSNIP for a bundle of fixed lines and calls.

4.168 Based on this, we consider that, from a demand-side perspective, neither managed nor unmanaged VoIP is likely to exercise a sufficient indirect constraint over the review period on WCO to be included in the relevant product market.

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[215] *2015 Jigsaw SME survey (wave 1)*.
[216] 33% of SMEs with 10-249 employees compared to 19% among smaller SMEs (*2015 Jigsaw SME survey (wave 2))*.
[217] Verizon, April 2015 CFI response, page 1.

Indirect demand constraint from text-based messaging, email and social media

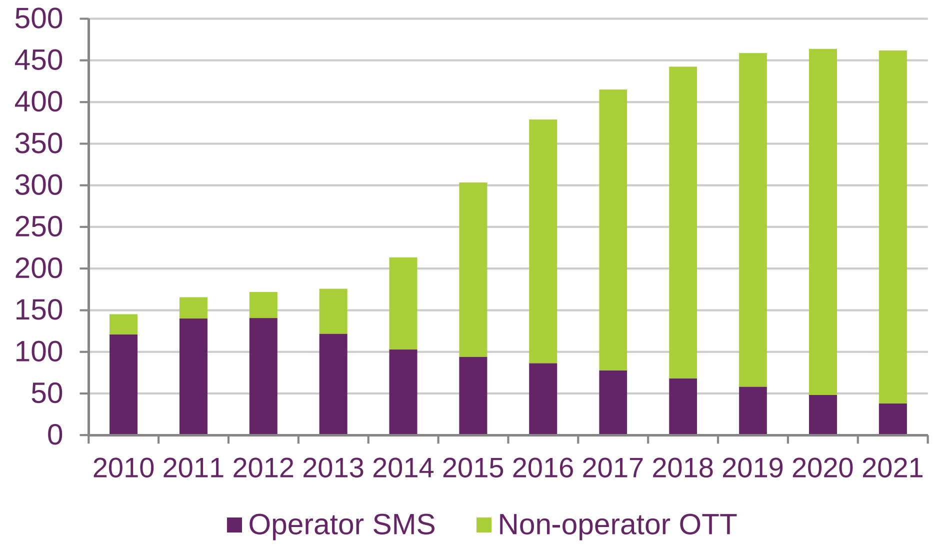
4.169 The fall in fixed voice call volumes has been accompanied by a rise in alternative modes of communication. The average adult reported spending 60 minutes using email, 48 minutes using instant messaging, 45 minutes using social networking, 21 minutes texting daily in 2016.[218] The share of adults using mobile messaging rose slightly from about 80% of adults in 2012 to about 83% in 2016.[219]

4.170 However, the number of outgoing SMS and MMS fell from its peak of 151 billion in 2012 to 101 billion in 2015[220] and the number of minutes spent texting per day fell by 14 minutes (40%) between 2014 and 2016. The share of residential consumers using email weekly fell from 77% to 70% between 2014 and 2016 and the share using SMS weekly fell from 71% to 63% in the same period.

4.171 These activities may have been displaced by increased use of OTT instant messaging applications. The share of residential consumers using instant messaging rose by 15% to 43% between 2014 and 2016. [221]

4.172 Separate data from Analysys Mason, reproduced in Figure 4.5 below, forecasts that growth in OTT volumes will more than compensate for the fall in SMS volumes.

Figure 4.5: Trends and forecast (from 2016) OTT and SMS message volumes (billions)



Source: Analysys Mason, July 2016.

4.173 However, survey data suggests that substitutability for fixed voice calls is likely to be limited:

- Both residential consumers and SMEs value voice calls for the personal contact involved, with SMEs also valuing their convenient and real-time nature compared to text-based communication. When residential survey respondents were asked why they do not use SMS/Email/Instant Messaging often at home, instead of making calls on their landline, 22% of respondents said they prefer to talk to the other person and 13% said they are not suitable for certain types of

218 Ofcom, *CMR 2016*, figure 1.18.
219 Ofcom*, CMR 2012*, figure 5.18; Ofcom, *CMR 2016*, figure 4.36.
220 Ofcom*, CMR 2016*, figure 4.1.
221 Ofcom*, CMR 2016*, page 16.

conversation.[222] When SME survey respondents were asked why they don't use email or messaging more often, 32% said they prefer to talk to the other person, 27% said it is not suitable for certain types of conversation, 22% said voice calls are quicker and 20% said customers need a personal touch.[223]

- 18% of residential survey respondents said they would be certain or very likely to switch some landline calls to email, mobile phone texts or instant messages in response to a SSNIP for landline calls.[224] The equivalent figure for SMEs was only 4%.[225]

- We also note from Figure 3.2 that the combined volume of calls over fixed and mobile have been relatively stable over the past 10 to 15 years, although the mix of fixed and mobile in that total has changed. This suggests that messaging appears to remain an imperfect substitute for voice calls.

Provisional conclusion

4.174 We do not consider that retail switching to text-based messaging (including SMS via a mobile device, instant messaging and OTT-based messaging services), email and social media would be sufficient to make a price increase in wholesale call origination unprofitable. We consider that such services are outside the relevant product market.

Provisional conclusion on indirect constraints for WCO

4.175 We do not consider that mobile, VoIP or text-based messaging, email and social media are sufficient collectively to constrain a hypothetical monopolist in WCO and so have excluded them from the relevant wholesale market definition. However, we recognise the increasing significance of mobile (and to a lesser extent VoIP) calls at the retail level. We therefore consider the indirect constraints from mobile and VoIP (particularly for larger businesses) in our market power assessment (see Section 6).

Wholesale product market

Focal product

4.176 For our analysis of direct constraints, we consider WCO on a fixed narrowband network as our focal product.

Wholesale demand-side substitution to broadband

4.177 Substitution at the wholesale level to call origination on a broadband network is technically feasible. This would result in a VoIP based retail offering.

4.178 If the broadband access network operator were to provide fixed WCO to fixed-line operators selling calls at the retail level, the service provided would most likely be a managed VoIP service since the broadband provider would also be providing the VoIP service, at least at the wholesale level in such a scenario. Such a service would look like a narrowband service, and substitution would require a CP to switch over

[222] *2015 Jigsaw residential survey (wave 1).*
[223] *2015 Jigsaw SME survey (wave 1).*
[224] *2015 Jigsaw residential survey (wave 1).*
[225] *2015 Jigsaw SME survey (wave 1).*

entirely to the managed VoIP service (rather than substitution occurring on a call-by-call basis).

4.179 While we expect businesses to increasingly use VoIP services (especially as fibre roll-out increases), there are nevertheless costs associated with switching to this solution from narrowband voice including the cost of new equipment (e.g. telephones) and possibly costs associated with exiting existing contracts. Our retail analysis highlighted how these managed services are more likely to be suitable for larger companies, which may limit the constraint on WCO for CPs that serve the remaining, smaller business customers.

4.180 Alternatively, if the VoIP service was provided by a CP other than the broadband network operator, the service would be an unmanaged VoIP service and so suffer from some of the issues related to such services (such as quality of service concerns), as well as the issues highlighted above for managed VoIP services. Therefore, we do not consider that WCO on a broadband network will act as an effective direct constraint over the period of this review.

Supply-side substitution

4.181 Wholesale supply-side substitution would mean the supply of WCO on an exchange line. However, since this can only be done by the access provider – and we identified the barriers to supply-side substation in relation to WFAEL above – we do not consider that supply-side substitution into WCO is a relevant competitive constraint.

Provisional conclusion on the product market

4.182 WCO is the wholesale service that enables voice calls over a narrowband access line (i.e. WFAEL, ISDN2 or ISDN30). We assessed the indirect constraints at the retail level from mobile; VoIP; from text-based messaging, email and social media; and direct constraints at the wholesale level from broadband. We propose to exclude each of these from the relevant product market.

Other considerations

Different call types

4.183 As set out in the NMR 2013 Statement,[226] retail consumers use their fixed lines to make various types of calls, including calls to other geographic numbers, mobile numbers, international numbers and non-geographic numbers. A hypothetical supplier of WCO for one call type could easily switch to providing WCO for another call type following a change in relative prices.

4.184 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.

Customer segments

4.185 While there may be some differences between business and residential consumers at the retail level, at the wholesale level they cannot be clearly distinguished. For the reasons set at out at paragraph 4.133, discrimination on a line-by-line basis is not feasible. We note, with reference to off-net, fixed voice-only and SME customers, BT

[226] NMR 2013 Statement, paragraph 5.117.

said there is "no realistic prospect of any type of price discrimination for such a small group of consumers" and that there is "no realistic possibility of a geographic form of discrimination".[227] We consider that any discrimination of WCO would be at best imperfect (e.g. discriminating between CPs based on the type of customers they are thought to serve) and would not lead to materially different wholesale charges for different types of customers.

4.186 We note the segments identified as being more reliant on WLR will also be more reliant on WCO. The factors considered in the discussion of WFAEL for these groups are also relevant for WCO.

4.187 In its April 2015 CFI response, BT highlights the small and declining size of the groups Ofcom indicated were reliant on WCO in the NMR 2013 Statement.[228] In contrast, Sky said the percentage of affected retail customers has not reduced since 2013 [✂].[229] Customers in the groups of interest account for a significant proportion of WFAEL (e.g. residential fixed voice-only, split purchasers, off-net and business analogue lines account for up to 38% of analogue lines) and we expect they would account for a similar share of WCO volumes. In addition, ISDN users will also account for a significant proportion of WCO minutes.

4.188 In light of these considerations, we propose defining a single market for WCO including all consumers encompassing both business and residential customers irrespective of the bundle they purchase – even if there may be some variation in the constraints operating at the downstream level for different segments.

Geographic market

4.189 In the NMR 2013 Statement we defined two geographic markets:

- the UK excluding the Hull Area; and
- the Hull Area.

4.190 We consider our assessment of geographic market definition for WFAEL is also relevant for WCO. At the retail level, the USC is likely to lead to a common national pricing constraint. At the wholesale level, a vertically integrated hypothetical monopolist, subject to a USC at the retail level, is likely to price uniformly across all areas. In addition, as set out above, we consider there is a limited prospect of geographic price discrimination for WCO.

4.191 Therefore, we propose defining two geographic markets:

- the UK excluding the Hull Area; and
- the Hull Area.

Three-criteria test for WCO

4.192 The market for WCO was removed from the EC's list of product and services markets identified as being susceptible to *ex ante* regulation in the 2014 EC Recommendation (which replaced the 2007 EC Recommendation). At the time of the NMR 2013

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227 BT, April 2015 CFI response, Annex B, page 10.
228 See for example, BT CFI response, Annex B, pages 5 and 10.
229 Sky, April 2015 CFI response, paragraph 2.7.

Statement, the 2007 EC Recommendation identified WCO on the public telephone network provided at a fixed location at the wholesale level as a service market susceptible to *ex ante* regulation.

4.193 The 2014 Recommendation provides that NRAs should apply the three criteria test to those markets listed in the 2007 Recommendation if they are currently regulated in light of national circumstances, in order to assess whether, on the basis of such national circumstances, such markets are still susceptible to ex ante regulation.[230]

Presence of high and non-transitory barriers to entry

<u>2014 EC Recommendation</u>

4.194 We recognise that the 2014 EC Recommendation found WCO is no longer susceptible to *ex ante* regulation. The Explanatory Note to the 2014 EC Recommendation said that WCO is "no longer considered as being characterised by significant barriers to entry on a Union level from a forward-looking perspective".[231] It supported this by citing market developments including progressing fixed-mobile substitution, operators producing their own VoIP services, and the availability of wholesale access products.

4.195 We consider the market circumstances are sufficiently different in the UK at the present time to propose a different approach. As discussed in our assessment of market definition above, we do not consider that the indirect constraints from mobile or VoIP[232] are sufficiently strong to include them in the product market definition is appropriate at this time. We also consider barriers persist to serving those consumers who are outside the LLU footprint or cannot be viably supplied using MPF.

<u>UK excluding the Hull Area</u>

4.196 The same factors considered in the SMP analysis for WCO in Section 6 (and set in our assessment of the three criteria for WFAEL) are also relevant here, including:

- the prohibitive costs of a sufficiently large direct access network; and
- the use of WLR and WCO rather than MPF by CPs to provide fixed voice-only services which suggests it has not been cost effective to use MPF to supply these consumers.

4.197 For these reasons, we consider that barriers to entry are likely to remain high and non-transitory over the period of this review in the UK excluding Hull Area.

<u>Hull Area</u>

4.198 The same factors considered in the SMP analysis of WCO in Section 6 (and as part of our WFAEL assessment of the three criteria test) are also relevant here. In particular:

[230] Recital 22 of the 2014 Recommendation.
[231] EC, *Explanatory Note accompanying 2014 EC Recommendation*, page 26.
[232] In particular, managed VoIP is not used widely among residential consumers and we do not anticipate this changing during the review period.

- the significant investment required to either build alternative networks or deploy MPF, particularly when combined with the relatively small population over which the fixed costs of entry could be spread; and

- the absence of entry based on cable or MPF in the Hull Area to date.

4.199 For these reasons, we consider that barriers to entry are likely to remain high and non-transitory over the period of this review in the Hull Area.

A market structure which does not tend towards effective competition

2014 EC Recommendation

4.200 We recognise that the 2014 EC Recommendation found WCO "tends towards effective competition from a forward-looking perspective".[233] In support of this it cited competitive pressure from mobile and OTT services, self-supply of WCO via MPF or other alternative infrastructure, and the absence of high and persistent barriers to entry.

4.201 We consider the market circumstances are sufficiently different in the UK at the present time to propose a different approach. As discussed above, we consider barriers to entry remain high and persistent. While mobile, VoIP and OTT services create some competitive pressure, we consider they will impose a limited constraint on WCO during the review period. In particular, managed VoIP is effectively absent from the residential retail sector. We also note a significant groups of consumers (and therefore the CPs that supply them) are likely to remain reliant on BT's WCO during the review period.

UK excluding the Hull Area

4.202 We have assessed competition in WCO in the UK excluding the Hull Area as part of our SMP analysis in Section 6. In particular:

- BT's high market share which although declining was still high (49% in Q4 2015/16);[234]

- the limited potential for CPs using BT's WCO to switch to alternative wholesale services;

- the groups of interest whose services are based on BT's WLR, who could not be (economically) supplied using MPF and for which BT would have a larger market share than it does in the wider market;

- although there is increasing substitution from fixed to mobile and VoIP by some types of users for some types of calls, the overall constraint imposed by such switching is limited;

- BT has been charging at the regulated price cap for WCO, which is consistent with pricing not being constrained by competition;

- barriers to entry and expansion as discussed above; and

[233] EC, *Explanatory Note accompanying the 2014 EC Recommendation,* page 27.
[234] See Section 6.

- weak countervailing buyer power.

4.203 For these reasons, we consider that the market structure will not tend towards effective competition in the review period in the UK excluding the Hull Area.

Hull Area

4.204 We have assessed competition in WCO in the Hull Area as part of our SMP analysis in Section 6. In particular:

- KCOM's market share remains nearly 100% at the wholesale level;
- the absence of likely wholesale entrants and consider that barriers to entry or expansion remain substantial and CPs have no countervailing buyer power; and
- as in the rest of the UK, there is a limited constraint imposed by switching to broadband and mobile.

4.205 For these reasons, we consider that the market structure will not tend towards effective competition in the review period in the Hull Area.

Competition law alone would not adequately address the market failure(s)

4.206 For WCO in both the UK excluding the Hull Area and the Hull Area, we consider barriers to entry will persist and the relevant markets will not tend towards competition within the relevant time horizon. We also consider that the speed of an intervention based solely on competition law in response to anti-competitive behaviour may not be sufficient to prevent harm in certain circumstances. For these reasons, in this instance, we consider that competition law would not be sufficient, by itself, to address concerns in this market and therefore *ex ante* regulation is necessary to maintain effective competition.

Provisional conclusion

4.207 In light of the analysis set out above, we are of the view that our proposed WCO market definitions satisfy the three criteria test set out in the 2014 EC Recommendation and that it is appropriate to analyse these markets to determine whether any provider holds SMP.

Provisional conclusions on market definition

4.208 In light of the analysis set out in this section and having applied the three criteria test, we propose to identify the following markets for the purposes of making a market power determination:

- a market for WFAEL services in the United Kingdom excluding the Hull Area;
- a market for WFAEL services in the Hull Area;
- a market for WCO on a fixed narrowband network in the United Kingdom excluding the Hull Area; and
- a market for WCO on a fixed narrowband network in the Hull Area.

Consultation questions

Question 4.1: Do you agree with our provisional conclusion regarding market definition for WFAEL? Please provide reasons and evidence in support of your views.

Question 4.2: Do you agree with our provisional conclusion regarding the three-criteria test for WFAEL? Please provide reasons and evidence in support of your views.

Question 4.3: Do you agree with our provisional conclusion regarding market definition for WCO? Please provide reasons and evidence in support of your views.

Question 4.4: Do you agree with our provisional conclusion regarding the three-criteria test for WCO? Please provide reasons and evidence in support of your views.

Section 5

Market definition and three-criteria test: ISDN30 and ISDN2

5.1 This section explains our proposals for product and geographic markets in relation to ISDN30 and ISDN2 and applies the three-criteria test to these markets. In defining markets, we follow the analytical framework set out in Annex 11.

Summary of findings

5.2 Based on an assessment of indirect constraints at the retail level and direct constraints at the wholesale level, we propose to define separate product markets for each of ISDN30 exchange lines and ISDN2 exchange lines. We define geographic markets for the UK excluding the Hull Area and separately the Hull Area.

5.3 ISDN30 and ISDN2 are narrowband access services, most commonly used by businesses to provide multiple lines for calls.[235] ISDN2 services are appropriate for business sites requiring fewer than eight voice channels, whereas ISDN30 services are more appropriate when larger number of channels are required. We continue to consider that ISDN30 and ISDN2 services are in separate product markets.

5.4 We have considered in particular the competitive constraints imposed on ISDN30 and ISDN2 by IP-based services, and whether these warrant inclusion in the markets. Although we recognise the growth in IP-based services we consider that, overall, they do not pose a sufficiently strong constraint on the supply of ISDN30 and ISDN2 to warrant inclusion in the relevant markets. Nevertheless, we consider that IP-based services may increasingly provide some level of competitive constraint in future, particularly for new connections, and have taken this into account in our market power analysis (Section 6) and design of remedies (Sections 7 and 8).

5.5 In relation to the three-criteria test, we believe that *ex ante* regulation of wholesale ISDN30 and wholesale ISDN2 exchange line services continues to be appropriate.

5.6 We first discuss ISDN30 then consider ISDN2. For each service, we discuss our reasoning in relation to market definition, taking account of information provided by stakeholders, survey evidence and reports provided by Illume Research.[236]

ISDN30 market definition

Regulatory background

5.7 The ISDN30 market is not listed in the 2014 EC Recommendation as a market in which *ex ante* regulation may be warranted. However, in the 2014 FAMR Statement we considered that *ex ante* regulation of the wholesale ISDN30 exchange line services market was warranted under the three-criteria test.[237] Absent wholesale

[235] 2015 Jigsaw market research report, Figures 78 (base: 100 ISDN2 respondents) and 80 (base: 100 ISDN30 respondents) show that ISDN30 and ISDN2 are most commonly used for calls and internet services.
[236] Illume Research, 2015, *Hosted VoIP Report and Forecast (2015-2020)*; and Illume Research, 2015, *SIP & IP Trunking Market Report & Forecast 2015-2020*.
[237] 2014 FAMR Statement, paragraph 4.85.

regulation we did not consider that the corresponding retail market would be effectively competitive.

5.8 In the 2014 FAMR Statement we considered that there were a number of potential retail substitutes for ISDN30, but that they were insufficiently strong substitutes to constrain wholesale ISDN30 prices. These potential substitutes included analogue exchange lines, ISDN2 exchange lines, leased lines and IP-based services.

5.9 When considering the wholesale market for ISDN30 we determined that there were no direct demand-side substitutes for wholesale ISDN30 exchange lines, while supply-side substitution was neither feasible nor likely. We therefore defined a wholesale product market for ISDN30 exchange line services. We considered that there were two separate geographic markets: the UK excluding the Hull Area, and the Hull Area.

Retail services

5.10 As explained in Annex 11, in defining the relevant wholesale product market we start by considering retail services and the indirect constraints they may place on wholesale services.

ISDN30 users

5.11 ISDN30 is a narrowband access service designed to cater for large business sites. ISDN30 supports up to 30 channels of 64kb/s each and is most commonly used to provide multiple telephone lines to private branch exchanges (PBXs). Data gathered under our formal powers shows that, on average, each ISDN30 line has 18 channels (out of a possible maximum of 30).[238]

5.12 We commissioned a survey of retail users of ISDN30 services and asked them to list what they used them for. The most frequently mentioned uses were outgoing calls (mentioned by 79% of respondents), incoming calls (76%) and calls between different sites (55%).[239]

5.13 Our survey evidence also suggests that while many ISDN30 users are large businesses (with 250 or more employees) more than half (53%) are SMEs, with 249 or fewer employees).[240]

Stakeholder input

5.14 We did not issue a Call for Inputs relating to ISDN30 but we did invite input from stakeholders. BT and Vodafone provided comments about ISDN30 markets and the

[238] Based on data received from BT, COLT, EE, [✂], KCOM, TalkTalk, Verizon, Virgin Media and Vodafone in response to the s.135 notices of August 2015.
[239] 2015 Jigsaw market research report, Figure 80 (base: 100 respondents). Other reported uses that were mentioned include: internet services (53%), fax services (47%), data services (41%), security/alarm systems (36%), video conferencing (35%) and card payments (30%). This survey question was multiple choice, meaning that the totals would not be expected to sum to 100%.
[240] 2015 Jigsaw ISDN survey data tables, question S6a, page 35. 19% had 49 or fewer employees, suggesting that there are even some quite small businesses that use ISDN30.

growth of IP-based services.[241] We summarise their input and our views in the appropriate places in our analysis below.

Starting point

5.15 As the starting point for the product market definition exercise, we have taken ISDN30 exchange line services as the focal product. Looking at the demand-side, we consider whether the supply of ISDN30 exchange lines is constrained by the provision of:

- IP-based services;
- leased lines;
- analogue exchange lines and ISDN2 exchange lines; and
- mobile access.

IP-based services as a substitute for ISDN30

5.16 In this section, we discuss the growth of IP-based services and the indirect constraint that they may place on wholesale ISDN30 services. We are concerned with two main types of IP-based technologies: Hosted VoIP and SIP Trunking.[242] This sub section is structured as follows:

- we consider the evidence from our survey and input from CPs about the extent to which IP-based services are viable substitutes for ISDN30;
- we present volume trends for ISDN30 and IP-based services;
- we discuss the main barriers we have identified to migrating from ISDN30 to IP-based services, based on our survey evidence and information provided by CPs; and
- finally, we set out our provisional conclusions on IP-based services.

IP-based services are perceived as the best substitute for ISDN30

5.17 In our market research we sought to understand substitutes to ISDN30 services and the extent to which ISDN30 users would stop using these services if they faced a SSNIP.[243] Respondents were asked to what extent a SSNIP would influence their decision to continue or stop using ISDN30 and 11% of respondents said that they would ‘definitely’ switch away from ISDN30 in response to a SSNIP.[244]

[241] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services* and Vodafone, *Input to Narrowband Markets Review: The need for regulation of provision of Wholesale Lines*.
[242] Hosted VoIP is a service whereby the features that would typically reside on an IP-PBX are instead provided within the CP’s network, so that the business customer of that CP needs to maintain less equipment. SIP Trunking is a service whereby the business customer maintains equipment such as an IP-PBX and connects to the network via IP.
[243] 2015 Jigsaw market research report, Figure 96 (base: 88 respondents).
[244] In addition, 40% reported that they would be ‘more likely’ to switch away, 36% that it would be unlikely to affect their decision, 5% that it would have no impact and 8% did not know.

5.18 However, it is important to note that because some customers were already planning to stop using ISDN30 and migrate to IP-based services, the survey results might overestimate the impact that a SSNIP could have.[245] Although 11% of ISDN30 users said they would 'definitely' switch away from ISDN30 in response to a SSNIP, the true response to a SSNIP is likely to be less than the reported switching levels.[246]

5.19 Survey evidence suggests that IP-based services are perceived as the best substitute for ISDN30. When asked what they would use if they had to stop using ISDN30, 58% of respondents mentioned an IP-based alternative.[247] However, as we discuss in paragraph 5.32, our survey evidence showed that almost half (46%) of ISDN30 users that were not already using IP-based services were unaware of IP-based services.[248]

5.20 Respondents that were already considering migrating from ISDN30 were asked about the perceived benefits of doing so. A large proportion (39%) considered that doing so would allow for greater functionality and lower costs (these were the two most mentioned benefits).

5.21 Stakeholder responses also suggest that IP-based services are the best substitute for ISDN30. BT noted that ISDN30 volumes have continued to decline and forecast that this decline will accelerate as alternative products become cheaper and more widely available. It also noted the increase in IP-based services, particularly SIP Trunking and Hosted VoIP, and considered that its announcement about turning off its PSTN network by 2025 will encourage more migration from ISDN30 to newer, substitute services.[249]

5.22 In addition, BT believes that over the next few years, including the period covered by this market review, ISDN30 will be subject to greater levels of substitution and that "recent moves in the market have been significant enough to thoroughly examine the market definition" of ISDN30.[250]

5.23 Vodafone argued that over coming years, its ISDN30 customers "will be migrated to an IP infrastructure with gateways continuing to provide the ISDN connectivity". Vodafone sees "little need for regulatory intervention in the market, with a regulated ISDN2 wholesale service acting as a pricing constraint while demand remains".[251] We discuss Vodafone's points and our response in more detail in paragraph 5.54.

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[245] Among ISDN30 users that were aware of IP-based services, 51% were planning to migrate from ISDN30 to IP-based services within the next year, while 36% were not planning to do so and 13% did not know. Source: 2015 Jigsaw ISDN data tables, question C2, page 1090.

[246] For ISDN30 and ISDN2 users combined, 15% reported that they would 'definitely' switch and 35% reported that they would be 'more likely' to switch (2015 Jigsaw ISDN survey data tables, question B10, page 852). After removing respondents that were already planning to migrate to IP-based services, these figures fall to 7% and 32%, respectively (2015 Jigsaw ISDN survey data tables, question B10, page 856). The sample sizes are too small to split these results by ISDN30 and ISDN2 users separately.

[247] 2015 Jigsaw market research report, Figure 100 (base: 100 respondents). This question was multiple choice.

[248] Source: 2015 Jigsaw market research report, Figure 104 (base: 79 respondents).

[249] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 1.

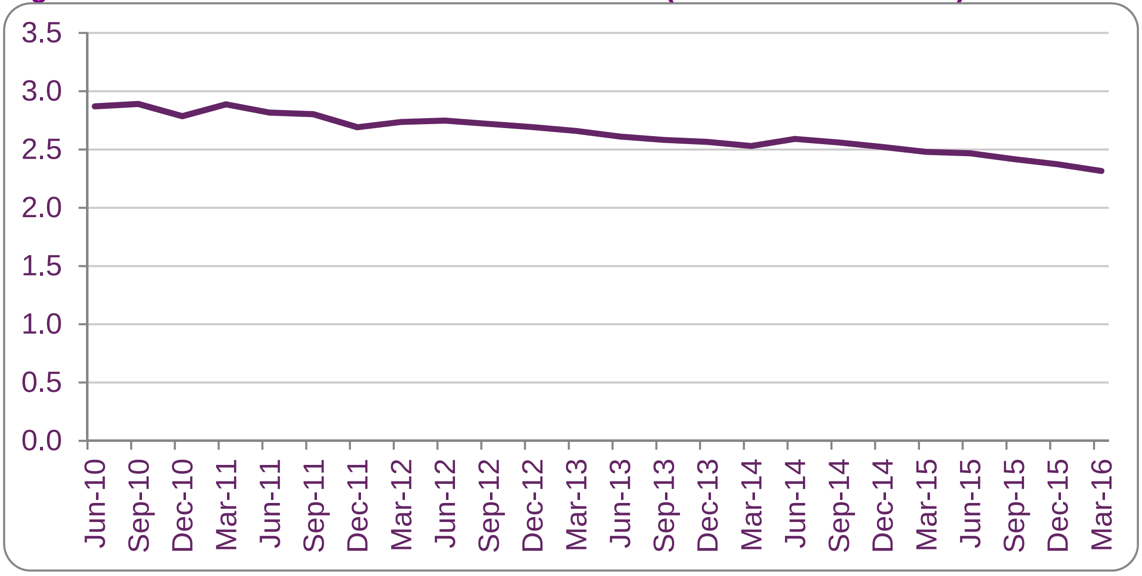
[250] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 1.

[251] Vodafone, *Input to Narrowband Markets Review: The need for regulation of provision of Wholesale Lines,* page 7.

Volume trends for ISDN30 and IP-based services

5.24 ISDN30 volumes have been declining gradually, as shown in Figure 5.1 below. Over the period from March 2011 to March 2016, the total volume of ISDN30 channels fell by a compound annual rate of approximately 4.3%.

Figure 5.1: Historic wholesale ISDN30 volumes (millions of channels)



Source: Data until December 2013 from 2014 FAMR Statement, Figure 4.1. Data from January 2014 onwards from BT, Colt, KCOM, Verizon, Virgin and Vodafone in response to the s.135 notices of August 2015 and July 2016.

5.25 BT forecast that its ISDN30 volumes would decline at a quicker rate than we have seen historically as alternative products reduce in price.[252] It forecast that ISDN30 volumes will fall by over 30% over five years to 2020, which would equate to a compound annual decline rate of over 10%.[253] However, we note that forecasting ISDN30 volumes has proven to be difficult in the past. Indeed, the actual decline shown above in Figure 5.1 has been slower than that anticipated at the time of the FAMR 2014.[254]

5.26 In our survey, customers were asked about their future plans for using ISDN30 sevices.[255] On average, customers that were using ISDN30 said that they planned to continue using it for three years from the time of the survey, i.e. until September 2018. However, the range of responses varied significantly. 54% of respondents indicated that they would stop using ISDN30 before the start of the next market review period (September 2017). However, these results should be treated with caution because they are stated preferences in response to a survey rather than necessarily reflecting committed plans. In addition, 46% of respondents indicated that

[252] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 1.
[253] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 13.
[254] 2014 FAMR Statement, paragraph 4.37. Forecasts based on data provided to us by BT, TalkTalk, Verizon, Virgin and Vodafone suggested that ISDN30 volumes would decline at an average annual rate of 9% from March 2014 to March 2017. However, over the two years from March 2014 to March 2016, the average annual decline was approximately 4.3%.
[255] 2015 Jigsaw market research report, Figure 98 (base: 100 respondents).

they planned to continue using ISDN30 during the next market review period or did not know when they would stop using it.[256]

5.27 In Section 3 we discuss how the volumes of Hosted VoIP seats and SIP Trunks (which are both IP-based services) have grown in recent years, based on data from Illume Research. It is important to note that ISDN channels and Hosted VoIP seats are not perfectly comparable: each ISDN channel or SIP Trunk allows one concurrent phone call, whereas a Hosted VoIP seat is needed for each employee or phone handset.

5.28 Over the period June 2010 to March 2016, the same time period as shown for ISDN30 channel volumes in Figure 5.1 above, the number of Hosted VoIP seats increased from approximately 0.5m to 2.3m, and the volume of SIP Trunks increased from approximately 0.2m to 2m. Illume Research forecasts that this growth will continue during the period of this market review.

5.29 The historical growth in the volumes of Hosted VoIP seats and SIP Trunks reported by Illume Research is greater in absolute terms than the decline in ISDN30 channels. This could be at least partly explained by several factors:

- As discussed in paragraph 5.27, it is likely that a business migrating from ISDN30 to Hosted VoIP would need a larger number of Hosted VoIP seats than the existing number of ISDN30 channels.

- Not all new IP connections are migrations from ISDN30 services. There may be businesses that adopted IP-based services that had not previously used ISDN30 services. New businesses in particular may find IP-based services more attractive than ISDN30, so an increase in the number of businesses could explain some of the disparity between the decline in ISDN30 volumes and the increase in IP-based volumes. Over the period from 2010 to 2016 (the same time series as the ISDN30 and IP-based volumes discussed above), the number of private sector businesses in the UK rose from 4.5 million to 5.5 million, a 22% increase[257].

- Some businesses that were using ISDN30 may migrate to IP-based services but continue to use ISDN30 as well, although we might expect that they would reduce their ISDN30 volumes as part of the process. Among businesses that reported using both ISDN30 and IP-based services, 58% reported that they primarily used IP-based services.[258]

5.30 In summary, ISDN30 volumes are in gradual decline and while this decline is likely to continue, there is uncertainty about the rate. In contrast, volumes for IP-based services have continued to grow and this is forecast to continue. However, not all of the increase in IP-based volumes is a result of business migrating from ISDN30; it also partly reflects new or expanding businesses connecting to IP-based services.

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[256] 5% stated that they planned to continue using ISDN30 for up to six months, 17% for six months to a year, 32% for one to two years, 27% for two to five years, 13% for six years or longer and 6% didn’t know. Source: 2015 Jigsaw market research report, Figure 98 (base: 100 respondents).

[257] *Business population estimates 2016*. Available at: https://www.gov.uk/government/statistics/business-population-estimates-2016 [accessed 30 November 2016]

[258] 2015 Jigsaw market research report, Figure 113 (base: 100 respondents).

Barriers to migrating from ISDN30 to IP-based services

5.31 Our market research indicates several possible reasons for the relatively slow observed rates of migration:

- among ISDN30 users that were not already using IP-based services, awareness of IP-based services is far from universal, with almost half being unaware of them;
- ISDN30 users are concerned about the costs of migrating from ISDN30 to IP-based services; and
- ISDN30 users have concerns about the quality and reliability of IP-based services.

Awareness of IP-based services is far from universal

5.32 Our survey evidence showed that almost half (46%) of ISDN30 users that were not already using IP-based services were unaware of them.[259] Smaller businesses, which typically have lower turnover and telecoms spend, were significantly less likely to be aware of IP-based services: of those not already using IP-based services: only 29% of business with up to £1m annual turnover were aware of them.[260] A lack of awareness of IP-based services will prevent many existing ISDN30 users from migrating to IP-based services in the short- to medium-term.

5.33 As part of our survey, respondents were asked how long they had been trading. It appears that new businesses are more likely to be using IP-based services: among businesses that had started trading within the last five years, 21% reported that they were only using IP-based services, compared with 12% that reported that they were only using ISDN30.[261]

Costs of migrating from ISDN30 to IP-based services

5.34 For businesses wishing to migrate from ISDN30 to IP-based services, there are likely to be equipment and staff training costs, as well as the possibility of being tied into long-term contracts, which may incur charges for early cancellation.[262]

5.35 Migration costs could include PBXs (although some businesses may already have IP-enabled PBXs), upgrades to IP-enabled handsets and other upgrades such as to office networks. Our survey evidence shows that 69% of respondents that had migrated to IP-based services required new investment to do so, with an average reported cost of approximately £650k.[263] There were large differences in the costs reported by respondents: 49% said that migrating to IP-based services cost under £20k but some businesses (18%) reported costs in excess of £250k.

[259] 2015 Jigsaw market research report, Figure 104 (base: 79 respondents).
[260] 2015 Jigsaw ISDN data tables, question C1, page 1077. This figure is for all ISDN users, as the sample sizes are insufficient to provide data for ISDN30 and ISDN2 users separately.
[261] 2015 Jigsaw ISDN data tables, question S7, page 105. For businesses that had been trading for at least six years, the proportion using only IP-based services was smaller than the proportion only using ISDN30.
[262] While businesses may face early termination charges, Ofcom has put in place protections to ensure that conditions or procedures for contract termination do not act as a disincentive to switch: https://www.ofcom.org.uk/advice-for-businesses/knowing-your-rights/gen-conditions.
[263] 2015 Jigsaw market research report, Figure 117 (base: 150 respondents).

5.36 Further, the business case for migrating to IP-based services can be 'event driven': it can be economic to migrate when existing equipment has reached the end of its life or when businesses consolidate or move premises. Our survey evidence showed that, of those that had adopted IP-based services, the main trigger was a general upgrade (mentioned by 46% of respondents), followed by switch replacement and changing supplier (both mentioned by 27% of respondents).[264]

5.37 It is possible that the costs of migrating to IP-based services are falling over time, e.g. gateways[265] can provide an intermediate step for those without an IP-PBX, as these allow traditional PBXs (which are not IP-enabled) to communicate with an IP network. However, there is an additional cost of gateways so this upgrade path would not be without capital expenditure.

5.38 Existing ISDN30 users are likely to be tied into a contract with their CP for the provision of their service. There are two reasons that this could delay migration to IP-based services. First, businesses may not look for alternative voice and data solutions during their contract period, instead choosing to wait until the end of the contract before comparing other services or considering switching CP.[266] Second, even if a business wanted to migrate to IP-based services before their ISDN30 contract had finished, they could face early cancellation charges which would make it less attractive to migrate.[267]

5.39 While businesses without ISDN30 could still face equipment and staff training costs in adopting IP-based services, we consider that they will be less than for existing ISDN30 users. Businesses without ISDN30 will not face any costs associated with removing existing ISDN30 equipment and will not be tied into an ISDN30 contract, meaning that they can adopt IP-based services without any cancellation charges.

Concerns about quality, security and reliability of IP-based services

5.40 BT argued that lack of confidence in the reliability, quality and security of IP-based services was a key barrier to early adoption, but that these concerns are reducing over time.[268] Research conducted by BT Business in January 2014 quoted a number of businesses that had migrated from ISDN30 to IP-based services (SIP Trunking) because of the improvements they had seen in reliability.[269]

5.41 However, while it may be the case that these concerns are reducing, the results from our survey indicate that some ISDN30 users still had concerns about migrating to IP-based services. ISDN30 users that were aware of IP-based services but not currently using them were asked if they had any concerns about moving to IP-based

[264] 2015 Jigsaw market research report, Figure 107 (base: 150 respondents). This question was multiple choice.
[265] A gateway is a node that allows entrance into a network.
[266] Our 2015 Jigsaw market research report, Figure 107 (base: 150 respondents) showed that 20% of those that migrated from ISDN30 to IP-based services reported that switching supplier was a trigger for migrating.
[267] See paragraph 5.34.
[268] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 8.
[269] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 8.

services.[270] The most cited concern was reliability (19% of respondents), with other responses including quality of service (13%), resilience (13%) and security (11%).

Provisional conclusion on IP-based services

5.42 We recognise that IP-based services have continued to grow since our 2014 FAMR Statement and consider that this growth will continue during the period of this review. Evidence from our survey suggests that IP-based services can offer the same functionality as ISDN30 (and in some cases additional features), and as such may act as substitute to ISDN30 services, particularly for new connections which require the installation of a line to a new business or new sites.

5.43 However, for many existing ISDN30 users, IP-based services may be a less effective substitute. Almost half of existing ISDN30 users are not aware of IP-based services, and migration costs could be significant for some businesses. In addition, ISDN30 customers have concerns over the reliability and quality of IP-based services, although these might be reducing over time.

5.44 We also note that the volume decline in ISDN30 has only been gradual since our 2014 FAMR Statement. While we expect the decline to continue, we consider that a substantial user base will still remain on ISDN30 at the end of the current market review period.

5.45 Therefore, while we recognise that there is a degree of substitutability with IP-based services, and that this may be increasing, we do not consider that the constraint from IP-based services is likely to be sufficiently strong within the period of this review to warrant the inclusion of these services within the relevant product market from a demand-side perspective.

Leased lines

5.46 Our survey evidence suggests that the vast majority of ISDN30 users do not perceive leased lines to be a viable retail substitute for ISDN30. When ISDN30 users were asked what they would use instead if they had to stop using ISDN30, 9% of respondents mentioned leased lines and of these, 6% ranked leased lines as the best alternative to ISDN30.[271]

5.47 It is technically possible for a wholesale CP to use a leased line as the bearer over which it could provide ISDN30 services to an end user, rather than buying a wholesale ISDN30 line. However, there are fundamental differences in the characteristics of ISDN30 and leased line services. An ISDN30 service consists of two components – a bearer service that connects the customer premise to the exchange, and the call control/switching functions provided by the exchange. In contrast, a leased line only consists of the bearer service and would require additional equipment to gain the functionality of ISDN30 services, including the capabilities for voice calls, which are a key use of ISDN30.

5.48 To replicate the capacity of an ISDN30 line, it is possible that a CP could use a 2Mbit/s leased line at a cost of approximately £2,500 per year.[272] This could initially

[270] 2015 Jigsaw market research report, Figure 106 (caution, low base of 31 respondents). This question was multiple choice.
[271] 2015 Jigsaw market research report, Figure 100 (base: 100 respondents).
[272] Figure A6.1 from Ofcom, 2016. *Business Connectivity Market Review Statement, Annexes 1 to 13:* https://www.ofcom.org.uk/__data/assets/pdf_file/0024/54249/final-annexes-1-13.pdf

appear cheaper than the wholesale ISDN30 rental charges (which are £118.56 per year per channel)[273], but only under the limiting assumptions that:

- the CP has its own core network to the exchange, so that it would not need to pay any distance-related leased line charges;
- the ISDN30 line in question has 21 or more channels (out of a possible 30), such that the leased line rental would be cheaper than the ISDN30 rentals; and
- the additional costs involved in upgrading the leased line to gain the functionality of ISDN30 services, including the capabilities for voice calls (which are a key use of ISDN30) were negligible.

5.49 However, we consider it unlikely that a wholesale leased line would be a viable alternative to wholesale ISDN30 rentals in many cases, because:

- not every CP is active in every exchange;
- even for CPs active in a given exchange, an average ISDN30 line has 18 channels[274], so there will be many lines for which the wholesale leased line rental would exceed the ISDN30 channel rentals; and
- even if an ISDN30 line had more than 21 channels, such that it initially appeared that a wholesale leased line rental would be cheaper, there will be additional equipment required in order for an end user to have the capabilities for voice calls.

5.50 As a result of our survey evidence, wholesale pricing information and the technical differences between ISDN30 and leased lines, we do not consider leased lines are likely to constrain retail or wholesale ISDN30 prices from either a demand- or supply-side perspective.

Analogue exchanges lines and ISDN2

5.51 From a technical perspective, analogue and ISDN2 exchange lines would allow users to make and receive calls in the same way as they would over an ISDN30 line. Therefore, for a user that only made and received calls, analogue, ISDN2 and ISDN30 exchange lines might in principle provide the required functionality.

5.52 However, because a single ISDN30 line can support up to 30 channels, it would need to be replaced by multiple analogue or ISDN2 lines to achieve the same capacity and functionality. Based on a simple analysis of retail prices, BT Business charges a similar price for an ISDN30 channel, an ISDN2 channel and an analogue line. [275] However, a customer that wished to stop using ISDN30 and start using analogue or ISDN2 lines instead would need to pay to install these new lines. Based on the information available on BT Business's website, installation charges are at least £184

[273] Openreach price list: https://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=PpWeCzECG8JmtoBJNFixXaOTHi1KSqGR%2BFatYdZZL1ElMnGHsqdC0vzO163bJmh34D91D7M0q8u%2FIlSgtIFAKw%3D%3D

[274] See paragraph 5.11.

[275] Based on BT Business website on 6 October 2016, the list prices for ISDN and analogue services are: £22.40 per ISDN30 channel, £22.80 per ISDN2 channel, £15.90 for a value phone line that cannot be connected to a phone system and £21.20 for a standard phone line that can be connected to a phone system.

for each new ISDN2 line[276] and at least £120 for a new analogue line (and there may be a charge for each new analogue line).[277] Our evidence suggests that an average ISDN30 line uses 18 channels, so it would need to be replaced with nine ISDN2 lines or 18 analogue lines.

5.53 When ISDN30 users were asked in our survey what they would use if they had to stop using ISDN30, no respondents mentioned analogue exchange lines and only 18% of respondents mentioned ISDN2.[278] This evidence suggests that the vast majority of ISDN30 users do not perceive analogue exchange lines or ISDN2 to be viable substitutes for ISDN30, supported by the fact that only 7% of survey respondents reported that they use both ISDN30 and ISDN2.[279] In addition, 49% of businesses in our survey that were using ISDN30 also had analogue exchange lines, further suggesting that analogue exchange lines are not a substitute for ISDN30 exchange lines.

5.54 Vodafone saw "little need for regulatory intervention in this market, with a regulated ISDN2 wholesale service acting as a pricing constraint" in the event that ISDN30 were deregulated, but did not provide any further reasoning as to why this could be the case.[280] We do not consider that ISDN2 is sufficiently substitutable for ISDN30 such that it would provide an indirect constraint on wholesale ISDN30 prices because ISDN2 may not be cost effective for ISDN30 customers using many channels and there may be charges for customers wanting to switch from ISDN30 to ISDN2.

5.55 Therefore, despite Vodafone's arguments and in light of the survey evidence and a simple analysis of BT Business's retail prices, we consider that substitution to analogue or ISDN2 exchange lines is unlikely to prevent a hypothetical monopolist raising the retail price of ISDN30 above the competitive level by a small but significant amount.

Mobile access

5.56 As discussed above in paragraph 5.12, a large proportion of ISDN30 users stated that they use it for incoming and outgoing calls. While call services are clearly provided by mobiles, our analysis of WFAEL explained that few businesses saw mobiles as a substitute for fixed access.[281] We consider that for much the same reasons, mobiles are unlikely to provide a sufficient substitute for many ISDN30 customers. Moreover, our survey evidence also shows that ISDN30 is used for several purposes which mobile phone access could not replicate, such as fax services (used by 47% of ISDN30 respondents), security/alarm systems (36%) and videoconferencing (35%).[282]

5.57 Our survey evidence suggests that among businesses that use ISDN30, 77% also have mobile phones.[283] This is not consistent with mobile access being a good

[276] BT. *ISDN pricing*. Available at: http://btbsecure.business.bt.com/phone-services/isdn/pricing/.
[277] BT. *Busienss pgone lines*. Available at: https://business.bt.com/products/voice/phone-lines/, in the FAQs.
[278] 2015 Jigsaw market research report, Figure 100 (base: 100 respondents).
[279] 2015 Jigsaw market research report, Figure 75 (base: 301 respondents).
[280] Vodafone*, Input to Narrowband Markets Review: The need for regulation of provision of Wholesale Lines,* page 7.
[281] See paragraph 4.57.
[282] 2015 Jigsaw market research report, Figure 80 (base: 100 respondents).
[283] 2015 Jigsaw ISDN data tables, question S6b, page 48.

substitute for ISDN30 access, and appears to indicate that businesses value having mobiles in addition to ISDN30, rather than instead of ISDN30.

5.58 Therefore, we do not consider that mobile services are likely to provide an effective indirect constraint on the provision of ISDN30.

Provisional conclusion on indirect constraints

5.59 Our provisional view is that, for the period of this market review, there are not any sufficiently close substitutes to ISDN30 at the retail level to warrant expanding the focal product for the purposes of wholesale market definition. However, we consider that IP-based services may increasingly provide some level of competitive constraint in future, particularly for new connections, and have taken this into account in our market power analysis (Section 6) and design of remedies (Sections 7 and 8).

Wholesale market definition

Product market

Focal product

5.60 As discussed above and in light of our analysis of possible indirect constraints from the retail level, we consider that the relevant focal product is wholesale ISDN30 exchange line services.

Demand-side substitution

5.61 From the point of view of wholesale demand, we do not consider that other types of wholesale exchange lines, such as ISDN2, leased lines and IP-based services, provide an effective direct demand-side substitute. This is because a retailer of ISDN30 exchange lines needs to purchase wholesale ISDN30 inputs in order to supply its ISDN30 retail customers.

Supply-side substitution

5.62 To warrant inclusion in the relevant market, supply-side substitution to an alternative product needs to be both technically feasible and economically likely. In principle any form of access network could be upgraded to provide ISDN30 access. However, we do not consider this to be likely. The main reason for this is that it is unlikely to be economically viable to invest in network upgrades when ISDN30 is in decline, reducing the period over which to recover these costs.

Provisional conclusion on wholesale product market definition

5.63 In light of the factors discussed above, our provisional view is that, for the period of this market review, a wholesale market definition based on ISDN30 only is appropriate. This proposed product market definition matches our findings in the FAMR 2014.

Proposed geographic markets

5.64 BT's wholesale prices for ISDN30 exchange line services are uniform across the UK excluding the Hull Area and, given that competitors tend to price relative to BT, this suggests national pricing outside of the Hull Area.

5.65 We consider that the Hull Area is distinct from the rest of the UK due to KCOM facing little competition in the supply of ISDN30 and BT is not present in the Hull Area.

5.66 We therefore propose to find two separate geographic wholesale markets:

- UK excluding the Hull Area; and
- Hull Area.

5.67 The proposed geographic markets match our conclusion in the FAMR 2014 Statement.

Three-criteria test for ISDN30

5.68 The ISDN30 market is not listed in the 2014 EC Recommendation. Therefore, taking utmost account of the 2014 EC Recommendation, we have applied the three-criteria test to assess whether *ex ante* regulation is appropriate.

Presence of high and non-transitory barriers to entry

UK excluding the Hull Area

5.69 We consider barriers to entry and expansion in our SMP analysis in Section 6. Barriers to entry and expansion are high due to the large sunk costs that would need to be incurred to establish the infrastructure required to provide an ISDN30 exchange line, and the fact that these costs would need to be recovered in a declining market.

5.70 For these reasons, we propose that barriers to entry are likely to remain high and non-transitory over the period of this review in the UK excluding the Hull Area.

Hull Area

5.71 We consider that significant barriers to entry remain. Any potential new entrant wishing to enter the market would need to invest considerably in rival infrastructure to KCOM, and given the small geographic area and declining ISDN30 volumes, would likely have a limited customer base and limited time period over which to recover these costs.

5.72 For these reasons, we propose that barriers to entry are likely to remain high and non-transitory over the period of this review in the Hull Area.

A market structure which does not tend towards effective competition

UK excluding the Hull Area

5.73 We assess the state of competition in detail in our SMP analysis in Section 6. Notwithstanding the growth in IP-based services, our provisional conclusion is that the wholesale ISDN30 market does not display a tendency towards effective competition in this review period. BT has maintained a high market share over time (65% as of March 2016), barriers to entry and expansion remain substantial, ISDN30 channel volumes have continued to decline and BT is currently pricing at the cap imposed by the charge control.

5.74 For these reasons, we propose that the market structure will not tend towards effective competition in the review period in the UK excluding Hull Area.

Hull Area

5.75 Our provisional conclusion is that the wholesale ISDN30 market in the Hull Area does not display a tendency towards effective competition. KCOM has virtually a 100% share of the relevant market, barriers to entry and expansion remain substantial, ISDN30 channel volumes have continued to decline and there is no effective countervailing buyer power.

5.76 For these reasons, we propose that the market structure will not tend towards effective competition in the review period in the Hull Area.

Competition law alone would not adequately address the market failure(s)

5.77 For both the UK excluding the Hull Area and the Hull Area, we consider barriers to entry will persist and the relevant markets will not tend towards competition within the relevant time horizon. Based on this, we consider that competition law would not be sufficient, by itself, to address concerns in this market and therefore *ex ante* regulation is necessary to promote effective competition.

Proposal on the three-criteria test for ISDN30

5.78 Based on the above, we consider that the markets we propose to define satisfy the criteria set out in the 2014 EC Recommendation and that it is therefore appropriate to analyse these markets to determine whether any provider holds SMP.

ISDN2 market definition

Regulatory background

5.79 The ISDN2 market is not listed in the 2014 EC recommendation. However, in the 2014 FAMR Statement we considered that *ex ante* regulation of the wholesale ISDN2 exchange line services market was warranted under the three-criteria test.[284] Absent wholesale regulation we did not consider that the corresponding retail market would be effectively competitive.

5.80 In the 2014 FAMR Statement we considered that there were potential retail substitutes for ISDN2, but that they were insufficiently strong substitutes to constrain wholesale ISDN2 prices. These substitutes included analogue exchange lines, ISDN30 exchange lines, leased lines and IP-based services.

5.81 When considering the wholesale market for ISDN2 we determined that there were no direct demand-side substitutes for wholesale ISDN2 exchange lines, while supply-side substitution was neither feasible nor likely. We therefore defined a wholesale product market for ISDN2 exchange line services. We considered that there were two separate geographic markets: the UK excluding the Hull Area, and the Hull Area.

Retail services

ISDN2 users

5.82 ISDN2 is a narrowband access service that provides two channels of 64kbit/s each. The most frequently mentioned uses of ISDN2 in our survey evidence were outgoing

[284] 2014 FAMR Statement, paragraph 4.85.

calls (mentioned by 76% of respondents), incoming calls (74%) and internet services (55%).[285]

5.83 Our survey evidence also suggests that many ISDN2 users are small and medium-sized businesses: 41% had 49 or fewer employees and 32% had 50 to 249 employees. Only 27% of businesses that reported using ISDN2 were large businesses (with 250 or more employees).

Starting point

5.84 As the starting point for the product market definition exercise, we have taken ISDN2 exchange line services as the focal product. Looking at the demand-side, we consider whether the supply of ISDN2 exchange lines is constrained by the provision of:

- IP-based services;
- leased lines;
- analogue exchange lines;
- ISDN30 exchange lines; and
- mobile access.

IP-based services as a substitute for ISDN2

5.85 In this section, we discuss the growth of IP-based services and the indirect constraint that they may place on wholesale ISDN2 services. This sub section is structured as follows:

- we consider the evidence from our survey and input from CPs about the extent to which IP-based services are viable substitutes for ISDN2;
- we present volume trends for ISDN2 services;
- we briefly discuss the main barriers we have identified to migrating from ISDN2 to IP-based services, based on our survey evidence and information provided by CPs; and
- finally, we set out our provisional conclusions on IP-based services.

IP-based services are perceived as the best substitute for ISDN2

5.86 Our survey evidence suggests that 18% of ISDN2 users would ‘definitely’ switch away from ISDN2 in response to a SSNIP.[286]

[285] 2015 Jigsaw market research report, Figure 78 (base: 100 respondents). Other reported uses that were mentioned include: data services (46%), calls between different sites (45%), fax services (36%), security/alarm systems (35%), card payments (29%) and video conferencing (23%) and other (1%). This survey question was multiple choice and therefore the totals do not sum to 100%.
[286] In addition, 31% reported that they would be ‘more likely’ to switch away, 30% that it would be unlikely to affect their decision, 15% that it would have no impact and 5% did not know.

5.87 However, it is important to note that because some businesses were already planning to stop using ISDN2 and migrate to IP-based services, the survey results might overestimate the impact that a SSNIP could have.[287] Although 18% of ISDN2 users said they would 'definitely' switch away from ISDN2 in response to a SSNIP, the true response would be less than the reported switching levels.[288]

5.88 It is clear that IP-based services are perceived as the best substitute for ISDN2. When asked what they would use if they had to stop using ISDN2, 48% of respondents mentioned an IP-based alternative.[289] However, almost half (49%) of ISDN2 users that were not already using IP-based services were unaware of them.[290] This compares to 46% of ISDN30 users.[291]

5.89 Respondents that were already considering migrating from ISDN2 were asked about the perceived benefits of doing so. A large proportion (43%) cited greater functionality and better service features.

5.90 BT argued that IP-based services are becoming increasingly substitutable for ISDN2. It noted that ISDN2 volumes have continued to decline and forecast that this decline will accelerate as alternative products become cheaper and more widely available. BT believes that over the next few years, including the period covered by this market review, ISDN2 will be subject to greater levels of substitution and that "recent moves in the market have been significant enough to thoroughly examine the market definition" for ISDN2.[292]

5.91 However, Vodafone argued that "there is clearly ongoing demand, and absent a wholesale capability there is a risk that the wider enterprise market would be compromised". Vodafone therefore considered that "ongoing regulation is appropriate".[293]

Volume trends for ISDN2 and IP-based services

5.92 ISDN2 volumes have been declining gradually, as shown in Figure 5.2 below. Over the period from March 2011 to March 2016, the total volume of ISDN2 channels fell by a compound annual rate of approximately 3.6%.

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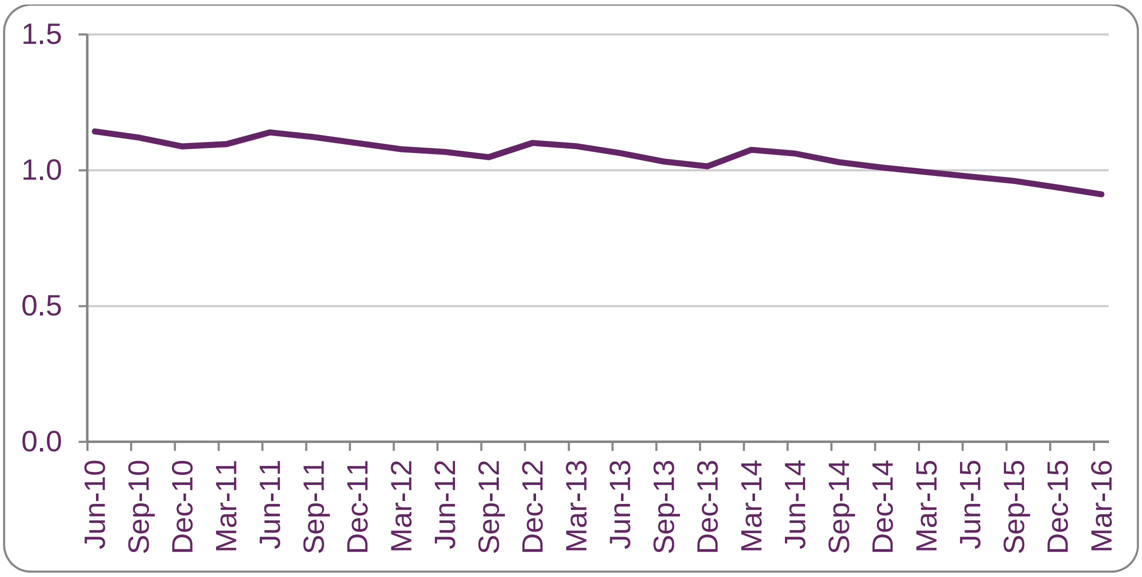
[287] Among ISDN2 users that were aware of IP-based services, 55% were planning to migrate from ISDN2 to IP-based services within the next year, while 33% were not planning to do so and 13% did not know. Source: 2015 Jigsaw ISDN data tables, question C2, page 1090.
[288] For ISDN30 and ISDN2 users combined, 15% reported that they would 'definitely' switch and 35% reported that they would be 'more likely' to switch. After removing respondents that were already planning to migrate to IP-based services, these figures fall to 7% and 32%, respectively. The sample sizes are too small to split these results by ISDN30 and ISDN2 users.
[289] 2015 Jigsaw market research report, Figure 100 (base: 100 respondents). This question was multiple choice.
[290] 2015 Jigsaw market research report, Figure 101 (base: 72 respondents).
[291] See paragraph 5.19.
[292] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 1.
[293] Vodafone, *Input to Narrowband Markets Review: The need for regulation of provision of Wholesale Lines*, page 7.

Figure 5.2: Historic wholesale ISDN2 volumes (millions of channels)



Source: Data until December 2013 from 2014 FAMR Statement, Figure 5.1. Data from January 2014 onwards from BT, KCOM and Virgin in response to s.135 notices of August 2015 and July 2016.

5.93 BT expects ISDN2 volumes to decline at a quicker rate than we have seen historically, as alternative products reduce in price. It forecasts that ISDN2 decline will accelerate over the next five years, at an average rate of 15% per year.[294] However, we note that such a marked decline is considerably in excess of the historical trend, suggesting that this might be unlikely.

5.94 When asked about their future plans for using ISDN2 sevices, ISDN2 users said, on average, that they planned to continue using it for two and a half years from the date of the survey, i.e. until March 2018. However, the range of responses varied significantly – 57% of respondents indicated that they would stop using ISDN2 before the start of the next market review period (September 2017). However, these results should be treated with caution because they are stated preferences rather than all being committed plans. In addition, 43% of respondents indicated that they planned to continue using ISDN2 during the next market review period or did not know when they would stop using it.[295]

5.95 As discussed above in paragraph 5.28 in relation to ISDN30, volumes of IP-based alternatives have grown and this is expected to continue.

5.96 In summary, ISDN2 volumes are in gradual decline and while this decline is likely to continue, there is uncertainty about the rate. In contrast, IP-based services have continued to grow and are forecast to continue growing. However, as discussed above in paragraph 5.29, not all of the increase in IP-based volumes is as a result of businesses migrating from ISDN2, it also partly reflects new or expanding businesses connecting to IP-based services.

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[294] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 13.

[295] 2015 Jigsaw market research report, Figure 98 (base: 100 respondents). 7% stated that they planned to continue using ISDN2 for up to six months, 22% for six months to a year, 28% for one to two years, 23% for two to five years, 7% for six years or longer and 13% didn't know.

Barriers to migrating from ISDN2 to IP-based services

5.97 Our market research indicates several possible reasons for the relatively slow observed rates of migration. These reasons were similar for both ISDN30 and ISDN2 users, i.e. low awareness of IP-based services, perceived costs of migration and concerns about the quality and reliability of IP-based services. Therefore, we do not repeat the full discussion of them here. For more information on the barriers to migrating to IP-based services, see paragraphs 5.31 to 5.45.

5.98 As is the case for ISDN30 users, ISDN2 users are likely to need to purchase new equipment to migrate to IP-based services. However, there are some technical differences in how ISDN2 users migrate to IP-based services, compared to ISDN30 users. ISDN2 lines are often replaced with IP-based services over broadband lines (as opposed to over leased lines in the case of ISDN30).

5.99 In summary, compared to ISDN30 users, ISDN2 users were less likely to be aware of IP-based services (49% of ISDN2 users compared to 46% of ISDN30 users were unaware) and more concerned about the quality of service of IP-based services (17% of ISDN2 respondents mentioned this compared to 13% of ISDN30 users).

Provisional conclusion on IP-based services

5.100 We recognise that IP-based services have continued to grow since our 2014 FAMR Statement and consider that this growth will continue during the period of this review. Our survey evidence suggests that IP-based services can offer the same functionality as ISDN2 (and in some cases additional features), and as such may act as substitute to ISDN2 services, particularly for new connections which require the installation of a line to a new business or new sites.

5.101 However, for many existing ISDN2 users, IP-based services may not be a viable substitute. Almost half of existing ISDN2 users are not aware of IP-based services, and migration costs could be significant for some consumers. In addition, some ISDN2 customers have concerns over the reliability and quality of IP-based services, although these might reduce over time.

5.102 We also note that the volume decline in ISDN2 has not been significant since our 2014 FAMR Statement. While we expect the decline to continue, we consider that a substantial user base is likely to remain on ISDN2 at the end of the current market review period.

5.103 Therefore, while we recognise that there is a degree of substitutability with IP-based services, and that this may be increasing, we do not consider that the constraint from IP-based services is likely to be sufficiently strong within the period of this review to warrant the inclusion of these services within the relevant product market from a demand-side perspective.

Leased lines

5.104 Based on our survey evidence, only a minority of ISDN2 users (10%) would use leased lines if they had to stop using their ISDN services.[296]

[296] 2015 Jigsaw market research report, Figure 100 (base: 100 respondents) for each of ISDN30 and ISDN2. By comparison, 9% of ISDN30 users reported that they would use leased lines.

5.105 We consider that providing ISDN2 services over a leased line is uneconomic. Even if a wholesale CP has its own core network (so that it would not incur any distance-related leased line charges), the wholesale rental for a leased line that would provide the same capacity as an ISDN2 line is significantly above the wholesale cost of an ISDN2 line. To provide the same capacity as an ISDN2 line, a wholesale CP could rent a 0.13Mb/s leased line, at a cost of approximately £1,166 per year.[297] This is already a much larger cost than the wholesale ISDN2 line rental, which is £211.92 per year.[298] As would be the case for providing ISDN30 services over a leased line, additional equipment would be required to gain the functionality of ISDN2 services, including the capabilities for voice calls.

5.106 In addition to providing ISDN2 services over a wholesale leased line being uneconomic, BT has announced plans to stop selling wholesale low-bandwidth leased lines (those that provide bandwidth below 2Mb/s) by 2020, in which case this approach would no longer be practical.

5.107 As a result of our survey evidence, wholesale pricing information, the technical differences between ISDN2 and leased lines and BT's announcement about wholesale low-bandwidth leased lines, we do not consider leased lines are likely to constrain retail or wholesale ISDN2 prices from either a demand- or supply-side perspective.

Analogue exchanges lines

5.108 From a technical perspective, analogue and ISDN2 exchange lines would allow users to make and receive calls in the same way. Therefore, for a user that only made and received calls, analogue and ISDN2 exchange lines might in principle provide the required functionality.

5.109 We have considered the retail price differential between analogue and ISDN2 exchange lines. An analogue line that can be connected to a phone system remains approximately half the price of an ISDN2 line.[299] However, given that two analogue lines would be required to provide a service equivalent to an ISDN2 line, the potential saving on line rental would be fairly small. We consider that these small potential savings would likely be outweighed by the connection charges for installing new analogue lines, which are at least £120 for a new analogue line (and there may be a charge for each new analogue line).[300]

5.110 Notwithstanding this, ISDN2 offers additional functionality over analogue access: ISDN2 provides the functionality for simultaneous internet access and voice calls and ISDN2 supports a much wider range of supplementary services such as DDI (direct dial in), which is needed to allocate extension numbers to different phone handsets.

[297] Figure A6.1 from Ofcom, 2016. *Business Connectivity Market Review Statement, Annexes 1 to 13:* https://www.ofcom.org.uk/__data/assets/pdf_file/0024/54249/final-annexes-1-13.pdf

[298] Openreach price list: https://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=Q7q6zKiBOPjc8wVEU6g1KJgeM4KDQquaoojXHrV0O80lMnGHsqdC0vzO163bJmh34D91D7M0q8u%2FIlSgtlFAKw%3D%3D

[299] As of 11 October 2016, BT Business's website listed retail prices of £22.80 per ISDN2 channel, £15.90 for a value business phone line that cannot be connected to a phone system and £21.20 for a standard business phone line that can be connected to a phone system.

[300] BT. *Business phone lines*. Available at: https://business.bt.com/products/voice/phone-lines/, in the FAQs.

5.111 In addition, ISDN2 is used for several niche purposes. In BT's submission, it stated that ISDN2 is used for a number of critical operations, including line resiliency, back-up services, ATMs that only require very low bandwidth but need 24-hour reliability, and public locations such as traffic lights, train stations and bus stops that display live information.[301] For these purposes, analogue lines would not be suitable because they cannot match the specifications of an ISDN2 line. Most of these niche uses relate to the reliable transmission of data, which cannot be replicated by an analogue line.

5.112 This is supported by our survey evidence. When ISDN2 users were asked what they would use if they had to stop using ISDN2, no respondents mentioned analogue lines.[302]

5.113 Therefore, in light of our survey evidence, retail pricing analysis and the niche uses of ISDN2, we consider that substitution to analogue exchange lines would not prevent a hypothetical monopolist raising the retail price of ISDN2 above the competitive level by a small but significant amount.

ISDN30 exchange lines

5.114 ISDN2 and ISDN30 are functionally very similar services but offered with differing numbers of channels. BT offers ISDN30 services with 8 to 30 channels, while each ISDN2 line comes with two channels.

5.115 ISDN2 services are appropriate for sites requiring fewer than eight voice channels. For businesses that require fewer than eight channels per site, ISDN30 would not be cost effective because some channels would be unused.[303] ISDN2 is not generally used for much larger sites, since ISDN30 would be a more cost effective service for businesses requiring more than eight channels. In addition, an ISDN2 user wishing to switch to ISDN30 would need to pay for at least one ISDN30 to be installed and would need to have a PBX that supported both ISDN30 and ISDN2 services. Based on the information available on BT Business's website, BT charges up to £155 to install an ISDN30 service.[304]

5.116 In addition, from the perspective of users that require a limited number of digital channels in a number of different physical locations, ISDN30 exchange line services are not likely to provide an effective demand-side indirect constraint.

5.117 These considerations may explain why only a limited number of survey respondents considered ISDN30 to be a substitute to ISDN2. When ISDN2 users were asked what they would use if they had to stop using ISDN2, only 27% of respondents mentioned ISDN30.[305]

5.118 Therefore, we do not consider that ISDN30 exchange line services are likely to provide an effective indirect constraint on wholesale ISDN2 exchange lines.

[301] BT, *Openreach Summary of Market and Customer Insight on the ISDN2 and ISDN30 Services,* page 5.
[302] 2015 Jigsaw market research report, Figure 100 (base: 100 respondents).
[303] Based on BT Business website on 6 October 2016, the list prices for ISDN services are: £22.40 per ISDN30 channel and £22.80 per ISDN2 channel, based on a three-year contract.
[304] BT. *ISDN lines*. Available at: https://business.bt.com/products/voice/isdn/ [accessed 30 November 2016]
[305] 2015 Jigsaw market research report, Figure 100 (base: 100 respondents).

Mobile phones

5.119 As discussed above in paragraph 5.83, a large proportion of ISDN2 users stated that they use it for incoming and outgoing calls. While call services are clearly provided by mobiles, our analysis of WFAEL explained that few businesses saw mobiles as a substitute for fixed access.[306] We consider that for much the same reasons, mobiles are unlikely to provide a sufficient substitute for many ISDN2 customers. Moreover, our survey evidence also shows that ISDN2 is used for several purposes which mobile phone access could not replicate, such as fax services (used by 36% of ISDN2 respondents), security/alarm systems (35%) and video conferencing (23%).[307]

5.120 Our survey evidence suggests that among businesses that use ISDN2, 75% also have mobile phones.[308] This is not consistent with mobile access being a good substitute for ISDN2 access, and appears to indicate that businesses value having mobiles in addition to ISDN2.

5.121 Therefore, we do not consider that mobile services are likely to provide an effective indirect constraint to ISDN2.

Provisional conclusion on indirect constraints

5.122 Our provisional view is that, for the period of this market review, there are not any sufficiently close substitutes to ISDN2 at the retail level to warrant expanding the focal product for the purposes of wholesale market definition. However, we consider that IP-based services may increasingly provide some level of competitive constraint in future, particularly for new connections, and we have reflected this in our market power analysis (Section 6) and design of remedies (Sections 7 and 8).

Wholesale market definition

Product market

Focal product

5.123 In the context of this market review, we are reviewing the overall effectiveness of competition in the supply of wholesale ISDN2 exchange lines. As discussed above and in light of our analysis of possible indirect constraints from the retail level, we consider that the relevant focal product is wholesale ISDN2 exchange line services.

Demand-side substitution

5.124 From the point of view of wholesale demand, we do not consider that other types of wholesale exchange lines, such as ISDN2, leased lines and IP-based services, provide an effective direct demand-side substitute. This is because a retailer of ISDN2 exchange lines needs to purchase wholesale ISDN2 inputs in order to supply its ISDN2 retail customers.

Supply-side substitution

5.125 To warrant inclusion in the relevant market, supply-side substitution to an alternative product needs to be both technically feasible and economically viable. In principle

[306] See paragraph 4.57.
[307] 2015 Jigsaw market research report, Figure 78 (base: 100 respondents).
[308] 2015 Jigsaw ISDN data tables, question S6b, page 48.

any form of access network could be upgraded to provide ISDN2 access. However, we do not consider this to be likely. The main reason for this is that it is unlikely to be economically viable to invest in network upgrades when ISDN2 is in decline, reducing the period over which to recover these costs.

Provisional conclusion on wholesale product market definition

5.126 In light of the factors discussed above, our provisional view is that, for the period of this market review, a wholesale market definition based on ISDN2 only is appropriate. This proposed market definition matches our findings in the FAMR 2014.

Proposed geographic markets

5.127 BT's wholesale prices for ISDN2 exchange line services are uniform across the UK excluding the Hull Area and, given that competitors tend to price relative to BT, this suggests national pricing outside of the Hull Area.

5.128 We consider that the Hull Area is distinct from the rest of the UK due to KCOM facing very limited or no competition in the supply of ISDN2 and BT is not present in the Hull Area.

5.129 We therefore propose to find two separate geographic wholesale markets:

- UK excluding the Hull Area; and
- Hull Area.

5.130 The proposed geographic markets match our conclusion in the FAMR 2014.

Provisional conclusion on market definition

5.131 Our provisional conclusion is that there remain distinct wholesale markets for the provision of:

- ISDN2 exchange line services in the UK excluding the Hull Area; and
- ISDN2 exchange line services in the Hull Area.

Three-criteria test for ISDN2

5.132 The ISDN2 market is not listed in the 2014 EC Recommendation. Therefore, taking utmost account of the 2014 EC Recommendation, we have applied the three-criteria test to assess whether *ex ante* regulation is appropriate.

Presence of high and non-transitory barriers to entry

UK excluding the Hull Area

5.133 We considered barriers to entry and expansion in our SMP analysis in Section 6. Barriers to entry and expansion are high due to the large sunk costs that would need to be incurred to establish the infrastructure required to provide an ISDN2 exchange line, and the fact that these costs would need to be recovered in a declining market.

5.134 For these reasons, we propose that barriers to entry are likely to remain high and non-transitory over the period of this review in the UK excluding the Hull Area.

Hull Area

5.135 We consider that significant barriers to entry remain. Any potential new entrant wishing to enter the market would need to invest considerably in rival infrastructure to KCOM, and given the small geographic area and declining ISDN2 volumes, would likely have a limited customer base and limited time period over which to recover these costs.

5.136 For these reasons, we propose that barriers to entry are likely to remain high and non-transitory over the period of this review in the Hull Area.

A market structure which does not tend towards effective competition

UK excluding the Hull Area

5.137 We assess the state of competition in detail in our SMP assessment in Section 6. Notwithstanding the growth in IP-based business telephony solutions, our provisional conclusion is that the wholesale ISDN2 market does not display a tendency towards effective competition. BT has maintained a share of nearly 100% of the relevant market over time, barriers to entry and expansion remain substantial, ISDN2 channel volumes have continued to decline and BT is currently pricing at the cap imposed by the charge control and there is no effective countervailing buyer power.

5.138 For these reasons, we propose that the market structure will not tend towards effective competition in the review period in the UK excluding Hull Area.

Hull Area

5.139 Our provisional conclusion is that the wholesale ISDN2 market does not display a tendency towards effective competition. KCOM has maintained a very high share of the relevant market over time, barriers to entry and expansion remain substantial, ISDN2 channel volumes have continued to decline and there is no effective countervailing buyer power.

5.140 For these reasons, we propose that the market structure will not tend towards effective competition in the review period in the Hull Area.

Competition law alone would not adequately address the market failure(s)

5.141 For both the UK excluding the Hull Area and the Hull Area, we consider barriers to entry will persist and the relevant markets will not tend towards competition within the relevant time horizon. Based on this, we consider that competition law would not be sufficient, by itself, to address concerns in this market and therefore *ex ante* regulation is necessary to promote effective competition.

Proposal on the three-criteria test for ISDN2

5.142 Based on the above, we consider that the markets we propose to define satisfy the criteria set out in the 2014 EC Recommendation and that it is therefore appropriate to analyse these markets to determine whether any provider holds SMP.

Provisional conclusions on market definition

5.143 In light of the analysis set out in this section and having applied the three-criteria test, we propose to identify the following markets for the purposes of making a market power determination:

- a market for wholesale ISDN30 exchange line services in the United Kingdom excluding the Hull Area;
- a market for wholesale ISDN30 exchange line services in the Hull Area;
- a market for wholesale ISDN2 exchange line services in the United Kingdom excluding the Hull Area; and
- a market for wholesale ISDN2 exchange line services in the Hull Area.

Consultation questions

Question 5.1: Do you agree with our provisional conclusion regarding market definition for wholesale ISDN30? Please provide reasons and evidence in support of your views.

Question 5.2: Do you agree with our provisional conclusion regarding the three-criteria test for wholesale ISDN30? Please provide reasons and evidence in support of your views.

Question 5.3: Do you agree with our provisional conclusion regarding market definition for wholesale ISDN2? Please provide reasons and evidence in support of your views.

Question 5.4: Do you agree with our provisional conclusion regarding the three-criteria test for wholesale ISDN2? Please provide reasons and evidence in support of your views.

Section 6

SMP analysis: WFAEL, WCO, ISDN30 and ISDN2

6.1 Having set out our analysis and proposals in relation to market definition in Sections 4 and 5 we now turn to assess market power in these markets. In this section we assess whether any operator has SMP in the WFAEL, WCO, ISDN30 and ISDN2 markets we propose to define.

6.2 Our assessment follows the market analysis framework set out in in Annex 11. For each service we focus in particular on market shares, switching, pricing, barriers to entry and expansion and countervailing buyer power.

6.3 We received comments on SMP from a number of stakeholders. We summarise these and our response to them under the appropriate headings below.

Summary of proposals

6.4 On the basis of the analysis set out in this section we propose that:

- in relation to WFAEL, BT has SMP in the UK excluding the Hull Area and KCOM has SMP in the Hull Area;
- in relation to WCO, BT has SMP in the UK excluding the Hull Area and KCOM has SMP in the Hull Area;
- in relation to ISDN30, BT has SMP in the UK excluding the Hull Area and KCOM has SMP in the Hull Area; and
- in relation to ISDN2, BT has SMP in the UK excluding the Hull Area and KCOM has SMP in the Hull Area.

WFAEL

Findings of the previous review

6.5 In the FAMR 2014 Statement, we found BT had SMP in the UK excluding the Hull area[309] and KCOM had SMP in the Hull area[310].

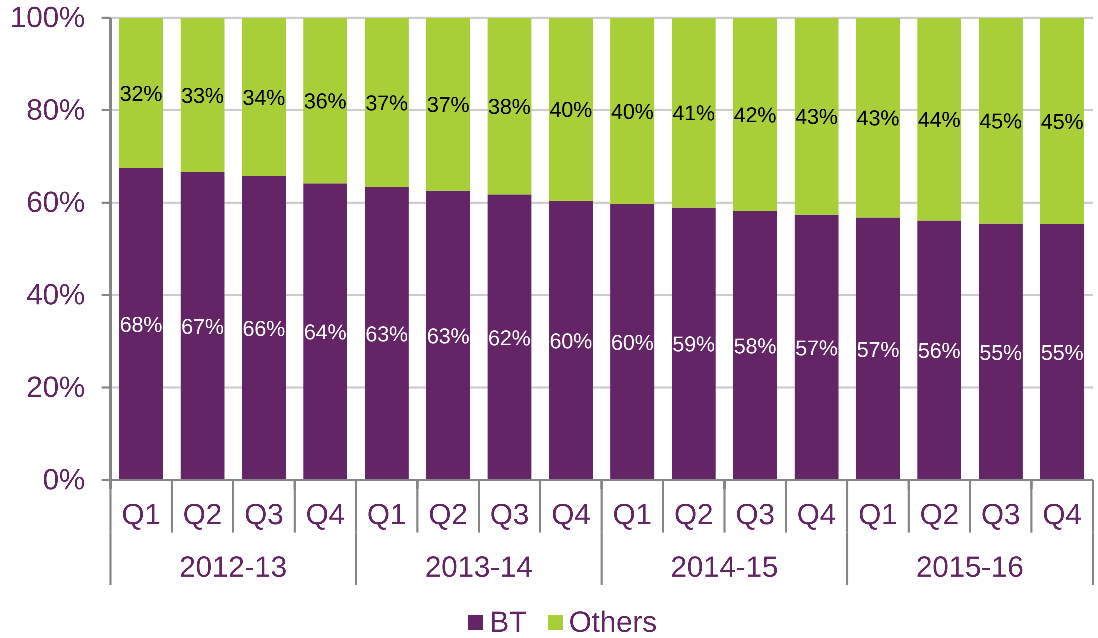
UK excluding the Hull Area

Market shares

6.6 Figure 6.1 below shows estimates of market shares for WFAEL in the UK excluding the Hull Area over a four-year period.

[309] Ofcom, *FAMR 2014 Statement*, Paragraph 3.144.
[310] Ofcom, *FAMR 2014 Statement* Paragraph 3.153.

Figure 6.1: Shares of WFAEL



Source: Ofcom analysis of s135 data and BT Regulatory Financial Statements
Note: Non-BT CPs have been aggregated for the published, non-confidential version of this document.

6.7 Figure 6.1 shows that BT's market share declined from 68% to 55% between Q1 2012/13 and Q4 2015/16.[311] We note that BT's share, while declining, is still over 50%, which gives rise to a presumption of SMP.[312]

6.8 Virgin Media's share was relatively stable over the period. From a forward-looking perspective, Virgin Media's Project Lightning will expand its footprint to about 60% of premises by 2020.[313] We anticipate this may lead to Virgin Media increasing its market share over the review period.

6.9 The growth of other CPs between Q1 2012/13 and Q4 2015/16 is driven primarily by Sky and TalkTalk. This is due to an increased share in areas where they are present and further rollout of MPF. While their growth may continue over the review period, we expect it to be slower as the scope for further LLU rollout is now limited. The remaining unbundled exchanges are in less densely populated areas where it would be more difficult to earn a return that justifies the rollout costs. Sky said [✂].[314] TalkTalk said it has finished its roll out of LLU to 95% of the UK and doesn't expect further expansion.[315] We expect these CPs will use MPF where it is available to support fibre broadband but we do not expect the transition to fibre to lead to further LLU rollout. Indeed, the availability of fibre could reduce demand for broadband based on MPF.

[311] We note the shares for 2012/13 and 2013/14 are higher than reported in 2014 FAMR statement (Table 3.3) which showed BT having a share of 57% for Q4 2013. We consider the difference is due to our use of BT's Regulatory Financial Statements which includes volumes which were not previously captured and respondents to s135 data requests revisiting their previous estimates.
[312] See Annex 11, page 8.
[313] See paragraph 4.39.
[314] Sky, April 2015 CFI response, page 2.
[315] TalkTalk meeting with Ofcom, April 2016.

6.10 We consider it is likely that BT's share of the market as a whole masks a stronger position among the customer segments considered in detail in Section 4 (as a corollary, it potentially overstates it in others, e.g. the dual-play or triple-play segments):

- we estimate BT has a share of over 90% at the wholesale level among residential fixed voice-only customers[316];

- LLU and cable are less commonly used to supply business analogue customers and so BT's competitors in that sector rely to a much greater extent on WLR (and WCO). We estimate BT has a wholesale share of over 80% at the wholesale level among SMEs[317];

- by definition, BT has a 100% share (or close to this) of WFAELs at exchanges that have not been fully unbundled (with MPF). There are also a number of exchanges where unbundling has been limited, where BT's market share is nearly 100%. Virgin Media is often not present in the areas served by these exchanges. In 2014, we estimated 9.5% of premises have (or were forecast to have) no more than two Principal Operators.[318] We expect that since 2014, the number of premises has declined. However, looking forward, we consider there to be a limited prospect of further decline. For example, in section 4 we noted over 95% of UK premises were connected to an LLU-enabled exchange in December 2014[319]; and

- BT also has a 100% share of WFAEL used to supply split purchasers (both residential and business) because the separate supply of voice and broadband over a single line requires WLR for voice services.

6.11 As set out in Section 4, these groups (i.e. fixed voice only, business analogue, off-net and split purchasers) account for a significant share of the overall market over the review period - up to 38% if all of these groups are included[320] and as a result we consider the existence of these groups makes it unlikely that BT's market share will fall below a level consistent with SMP during the review period.

6.12 The trend in market share indicates an increasing competitive constraint on BT. However, the level of BT's market share is still sufficiently high to give rise to a presumption of SMP, especially with respect to wholesale services used for

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316 Under the assumption that all fixed voice-only customers except those of Virgin Media are supplied using WLR. Based on *Ofcom Technology Tracker Survey: H1 2016* which estimates BT has a 65% share among residential fixed voice-only customers and that Virgin Media has an 8% share. The equivalent retail share for BT in Q1 2012 was 69%.

317 Under the assumption that the all SMEs who use analogue voice services are served using WLR except for customers of Virgin Media, TalkTalk and Sky. Based on *2015 Jigsaw residential survey (wave 2).* This research estimates that among SMEs Virgin Media, TalkTalk and Sky hold a combined share of about 16% of analogue lines which is significantly lower than their share in the residential retail sector. This implies a BT share of WFAEL at 84% and is broadly consistent with the 82% (Q4 2013) wholesale share of business analogue lines estimated for BT in the 2014 FAMR (see Table 3.4 of Ofcom, 2014, *FAMR 2014*).

318 Ofcom, 2014, *Review of the wholesale broadband access markets: Statement on market definition, market power determinations and remedies,* paragraph 1.7. See https://www.ofcom.org.uk/consultations-and-statements/category-1/review-wba-markets. This analysis will be updated in the forthcoming consultation on the review of the wholesale broadband access markets.

319 See paragraph 4.39.

320 See paragraph 4.100.

supplying the groups of concern which account for a significant share of all consumers. While market shares provide a useful indicator of the competitiveness of the market, we have also considered the following factors that affect competition in the provision of WFAEL.

Constraints from competing services at the retail and wholesale levels

Retail switching

6.13 There has been substantial growth in recent years in the number of fully unbundled fixed lines (from 2.2m in 2009/10 to 8.8m in 2015/2016)[321] and over 95% of UK premises are able to receive LLU-based fixed telecoms services. Virgin Media had [✂] analogue retail lines in Q4 2015/16[322], and we expect it to reach 60% of premises when its Project Lightning network expansion is completed in 2020.[323]

6.14 However, as noted above, there are certain groups of interest, which account for a significant share of consumers, for which these alternative options are either not available (i.e. consumers outside the MPF and cable footprint and split purchasers) or are little used (i.e. in supplying residential fixed voice-only customers, certain business customers). BT's wholesale market share comprises these groups, and also a substantial number of customers who may be more contestable but are currently subscribing to BT in preference to other suppliers in the market, or using services based on WLR.

6.15 We also consider that switching to mobile and broadband access is likely to impose only a limited constraint during the review period for the reasons set out in Section 4. These include:

- most survey respondents report having an attachment to their landlines, say they are unlikely to give it up in response to a SSNIP and retain a landline for broadband;
- the overall number of FAELs has remained stable despite significant increases in retail line rental prices;
- mobile access appears to be a weak substitute for fixed access; and
- broadband-only products that do not require a FAEL are not commonly offered by major CPs.

6.16 Overall we provisionally conclude that a significant proportion of retail customers have limited or no alternatives to services based on BT's WLR.

Suppliers of substitute wholesale services

[321] Figures refer to external (full) MPF rentals. See BT, *Current Cost Financial Statements for 2010 including Openreach Undertakings,* page 59. http://btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2010/CurrentCostFinancialStatements2010.pdf; BT, *Current Cost Financial Statements 2016 including Openreach Undertakings,* page 42, http://btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2016/CurrentCostFinancialStatements2016.pdf/.

[322] Response to 5th s135 data request.

[323] See paragraph 4.39.

6.17 MPF and access over Virgin Media's network both offer a potential alternative to BT's WLR. However, we consider that the competitive constraint due to direct substitution to these services is likely to be limited. MPF and cable are principally used for self-supply. Sky and Virgin Media do not currently provide wholesale services to third parties, although in principle they could be a source of potential competition. TalkTalk supplies at a wholesale level to third parties using its own MPF access connections, but this accounts for a small share of their overall WCO volume and a very small share of overall market volumes.[324] Other aspects of TalkTalk's supply to third parties also suggest the degree of competition from these services is likely to be limited.[325] Even if alternatives were available, there might be additional costs to CPs in buying WFAEL from suppliers other than BT.[326]

6.18 Additionally, MPF is not typically used to supply the consumer segments identified above (i.e. fixed voice only, business analogue, off-net and split purchasers), which constitute a significant proportion of consumers.

6.19 On the basis of the above considerations, we provisionally conclude that the potential for CPs currently using BT's WLR to switch to alternative suppliers is likely to be limited during the period covered by this review. As a result, we do not consider that alternative wholesale services represent a material constraint on BT's ability to increase the price of WLR above the competitive level.

Pricing

6.20 Although our analysis of SMP is conducted on the basis of an absence of SMP regulation on WFAEL and WCO, evidence of BT's actual pricing behaviour in the presence of regulation may be informative for the assessment of this hypothetical scenario.

6.21 BT has been charging at the regulated cap for WLR over the most recent review period. (i.e. 2014/15 and 2015/16), yet over that same period has managed to recover at least its cost of capital.[327] While it is difficult to predict how high BT might price absent regulation in the WFAEL market, in so far as we might expect returns in a competitive market to not exceed the cost of capital in the long-run, we consider that observed pricing and returns appear consistent with other factors that suggest BT may have SMP.

6.22 We also note that BT's retail residential line rental prices (and other large CPs) have been increasing at more than 5% percent per annum (see Figure 3.2). As this price is unconstrained by regulation, it could provide an indication of BT's potential pricing

[324] External WFAEL volumes are not available but we consider WCO volumes provide a useful proxy (that are unlikely to depart materially from WFAEL volumes). TalkTalk supplies at a wholesale level [✂].

[325] [✂]. [✂].

[326] Example of costs additional to the LLU/cable charge include: the costs of managing multiple contracts due to the sub-national coverage of the LLU/cable networks; the costs of connecting to the LLU/cable network; and the costs of migrating customers.

[327] In the 2014/15 RFS BT reported a return on Mean Capital Employed (MCE) of 9.6% for the WFAEL market. This compares to an Openreach copper access WACC of 8.6% used to set prices in the 2014 FAMR Statement. In the 2015/16 RFS BT reported a return on MCE of 13.2% for the WFAEL market for 2015/16 and a restated return of 11.5% for 2014/15. The 2015/16 return and restated 2014/15 return is notably higher than that reported in the 2014/15 RFS, in large part due to BT putting through its accounts the base year adjustments made in the 2016 LLCC Statement relating to the cost attribution review. The prevailing charge control on WLR was set using a 2011/12 base and thus the cost attributions used in the charge control predate the 2015/16 changes.

power in WFAEL, although we recognise that retail customers may be less responsive to line rental changes than CPs would be at the wholesale level.

Existence of barriers to entry and expansion

6.23 In the past, the costs of investing in a direct access network of a significant size have deterred this mode of entry in response to the prospect of SMP in the WFAEL market. We note the DCR strategy of promoting FTTP competition could reduce the costs of such entry, but in any case we note that such entry is unlikely to become established during the review period. LLU permits entry by providing access to BT's network infrastructure. There has been large scale entry by CPs using MPF, as well as entry by Virgin Media. As noted above, these alternative networks now reach a substantial proportion of customers. However, it is not sufficient to examine whether entry has occurred. Rather, the prospect of future entry (or expansion by existing competitors) must be of sufficient scale and likelihood to prevent the exercise of SMP.

6.24 As set out at paragraph 6.9, significant further rollout of LLU is unlikely. Therefore, we consider there are barriers to extending the MPF footprint and while expansion within the existing footprint could be possible, we observe that for certain retail segments MPF has not played a material role in providing a competitive retail alternative to provision by BT.

6.25 As noted at paragraph 4.94, we do not consider MPF is likely to be used to serve fixed voice-only customers. We expect the WLR charge would need to increase significantly for a CP to be able to offer a voice-only retail product over MPF at a comparable price to CPs using WLR. Residential fixed voice-only customers are less active in the market (e.g. a reported switching rate of 5% compared to 10% for other residential landline users) making it costlier to acquire these customers. As acquisition costs are incurred ahead of revenues, this will tend to deter entry and expansion. For example, with regard to fixed voice-only customers, TalkTalk said [✂].[328]

6.26 As noted above, MPF and cable together account for a significantly lower share of business FAELs than residential use. MPF is not suited to the needs of some businesses – particularly fixed voice-only customers and split purchasers. In addition, as set out above, we consider that there are barriers to the wider use of wholesale inputs over MPF or cable by a third party CP. We therefore consider that there are material barriers to expansion in the business sector for this review period.

6.27 CPs seeking to attract split purchasers who are willing to switch to a dual-play service face the same barriers to entry and expansion as they would for regular dual-play customers. However, we noted at paragraph 4.99 that the choice of some split purchasers may be motivated by particular needs not well served by a dual-play offer. CPs seeking to supply split purchasers with fixed voice services, while allowing them to continue buying voice and broadband services over the same line from separate CPs, have no alternative to WLR.

6.28 For these reasons, we propose that barriers to entry are likely to persist over the period of this review.

[328] TalkTalk email to Ofcom, November 2016.

Countervailing buyer power

6.29 Our analysis shows that there are limited alternatives to BT's WLR for CPs in a number of retail segments. The alternatives also require significant network investment by CPs (either using MPF or an alternative access network). We provisionally conclude that, under these circumstances, CPs will have limited countervailing buyer power which could temper BT's SMP, particularly in the short term.

Stakeholder responses

6.30 Stakeholder responses to the April 2015 CFI were largely made with reference to the WCO market and so are discussed separately in that section.

Proposal on SMP in the UK excluding the Hull Area

6.31 The trend in BT's market share suggests it may face a stronger competitive constraint than in the past. However, its market share remains high and creates a presumption of SMP. The constraint from switching to mobile or broadband-based access is limited, and BT's pricing is also consistent with it holding SMP in the WFAEL market. We do not consider entry, expansion or countervailing buyer power are likely to prevent SMP. For these reasons, we propose that BT has SMP in the UK excluding the Hull Area in the WFAEL market.

Hull Area

Market shares

6.32 KCOM currently holds nearly a 100% share of the market for WFAEL in the Hull Area.

6.33 KCOM is rolling out a fibre network in the Hull Area and has committed to providing 150,000 premises with a fibre connection. This amounts to about three-quarters of the approximately 200,000 premises on its network. [✂]. [329] As of October 2016, about 100,000 of these fibre connections have been completed, with the remaining 50,000 planned for completion by December 2017.[330] A sub-set of KCOM's FTTP deployment began as a formal trial using fibre-only (i.e. voice services provided over fibre and supported with battery back-up). All of KCOM's other FTTP deployments have copper-based voice services provided alongside the fibre service. [331]

6.34 We have observed an 18% decrease in the overall number of FAELs in the Hull Area between 2014/15 and 2015/16[332] and in so far as this represents a reduction in customers served using the KCOM network could represent an increase in the competitive constraints in the Hull Area – e.g. because of customers becoming mobile only and/or using alternative network access providers (see below). Nevertheless, the vast majority of fixed access connections continue to be provided

[329] KCOM meeting with Ofcom, September 2016.
[330] See https://www.kcomhome.com/news/articles/major-milestone-reached-in-ultrafast-broadband-rollout/.
[331] KCOM note these are alternative methods used to meet their General Condition 3.1c obligations to provide uninterrupted access to Emergency Organisations. (In contrast to copper-based services, fibre-based services require an external power source, and so need a battery back-up to provide power in case of outages).
[332] Based on responses to May 2015 and August 2016 s135 data requests.

by KCOM and even where fibre is deployed, managed voice services generally continue to be provided over the narrowband network.

6.35 To date, we are not aware of any request to KCOM by CPs interested in deploying MPF in the Hull Area. There also has been no cable entry in the Hull Area. MS3 has deployed a fibre network in the Hull Area. It is mainly focused on the business sector but has also begun a trial involving 1,200 residential premises in September 2016.[333] We note this product is still at a trial phase. Additionally, MS3 told us it does not provide any telephony services at present,[334] and so we expect its fibre services will not impose a constraint on KCOM's market power in WFAEL during the review period.

6.36 Therefore, our provisional conclusion is that KCOM's market share of WFAEL is likely to remain very high during the period covered by this market review, which creates a clear presumption of SMP.

Other competitive constraints

6.37 As in the rest of the UK, we consider switching to mobile or broadband access are only likely to impose a limited constraint on WFAEL in the Hull Area during the review period for the reasons set out in the market definition section.

Barriers to entry and expansion

6.38 To enter the market in the Hull Area, in any significant way, a CP would need either to build its own access network, deploy a solution based on MPF supplied by KCOM, or provide voice services over a wholesale fibre product, but where the quality of that connection is not dedicated to voice but shared with other broadband traffic. These solutions would either require a CP to make a significant investment, or in the case of voice over broadband, offer a less managed voice solution to the end user.

6.39 In this respect we note that the Hull Area has a relatively small population and, particularly in competition with an established incumbent, another CP is likely to find it challenging to gain market share rapidly – at least within the period of a single market review.

6.40 For these reasons, we provisionally conclude that barriers to entry are likely to remain over the period of this review.

Countervailing buyer power

6.41 There is no established alternative to WFAEL provided by KCOM. We also do not consider that a CP is likely to make the investments required for self-supply (at scale) of WFAEL in the Hull Area for the period covered by this review. CPs are therefore unlikely to hold sufficient buyer power to temper KCOM's SMP.

Proposal on SMP in the Hull Area

6.42 Overall we consider that KCOM's market share is strong evidence of SMP and that there are no features of the market that would negate that presumption of SMP. We also do not envisage material changes in the WFAEL market during the period of this

[333] See http://www.ispreview.co.uk/index.php/2016/09/ms3-confirm-first-trial-areas-ultrafast-ftth-broadband-hull-uk.html.
[334] MS3 meeting with Ofcom, September 2016.

review that would undermine KCOM's SMP. We therefore propose that KCOM has SMP in the Hull Area in the WFAEL market

WCO

Findings of the previous review

6.43 In the NMR 2013 Statement, we found BT had SMP in the UK excluding the Hull area and KCOM had SMP in the Hull area.[335]

UK excluding the Hull Area

Stakeholder comments

6.44 BT said it is "not able to exercise significant market power, due to the constraints imposed by mobile and the growth of LLU and cable supplying broadband services along with fixed voice"[336] and that "most consumers have considerable choice of supplier, competition is thriving and there is no evidence of likely market failure which needs to be addressed".[337] It also highlighted the decline in volumes and rise in bundling as evidence of competition.[338]

6.45 We have recognised the actual or potential constraints from mobile, LLU, cable, broadband, supplier choice, trends in volumes and differences in the characteristics of customers in our assessment of market definition (see Section 4) and SMP (below).

6.46 Vodafone said "it would be complacent to believe that LLU removes the need for ex ante regulation"[339] and that "LLU is not a panacea to negate the need for a call origination service", highlighting a number of groups cannot rely on LLU for call origination including residential fixed voice-only, those outside the LLU footprint and split purchasers.[340]

6.47 Verizon said "whilst there have been some changes in the market since the last review, overall Verizon does not consider that these have been of such an extent to justify de-regulating the wholesale call origination market", that "the degree of substitution from fixed voice calls to voice over broadband calls has not been sufficient to suggest the market is sufficiently competitive" and that "in the absence of regulation, BT would not face a sufficiently strong constraint on the price of wholesale call origination".[341]

6.48 Sky said that "a significant proportion of retail customers … had limited alternatives to services provided using BT's wholesale call origination", that it does "not consider that market circumstances have changed", and that "deregulation would likely enable BT to: increase the prices of its products; refuse to supply CPs such as Sky; or

[335] Ofcom, *NMR 2013 Statement* Paragraph 5.217 and 5.218.
[336] BT, April 2015 CFI response, page 3.
[337] BT, April 2015 CFI response, page 3.
[338] BT, April 2015 CFI response, pages 2 and 3.
[339] Vodafone, April 2015 CFI response, page 2.
[340] Vodafone, April 2015 CFI response, page 18.
[341] Verizon, April 2015 CFI response, page 2.

change its terms and conditions in a way that may be prejudicial to Sky's business."[342]

6.49 We consider that the comments made by Vodafone, Verizon and Sky are consistent with our proposals in respect of market definition (see Section 4) and in relation to our provisional assessment of market power below.

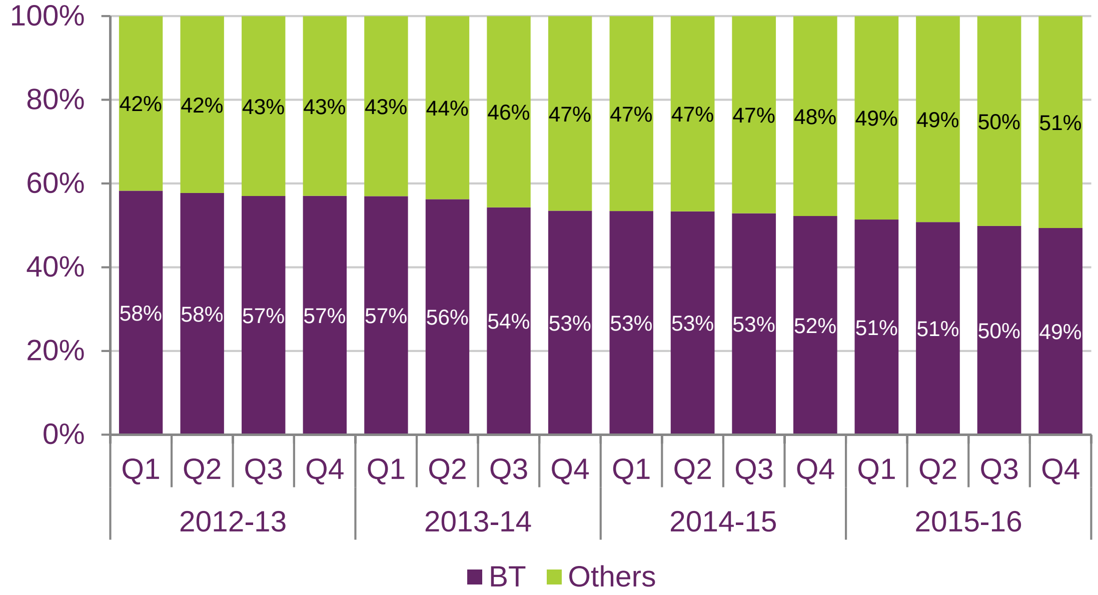
Market shares

6.50 Our product market includes WCO provided over all types of analogue and digital (ISDN) exchange lines including self-supply. Current CPs supplying WCO in the United Kingdom excluding the Hull Area include:

- BT;
- CPs using MPF (in particular, Sky and TalkTalk) who self-supply to their own retail business; and
- CPs using their own access lines (for example, Virgin Media) who self-supply their own retail businesses but may also provide some wholesale call origination to other CPs.

6.51 In estimating market shares for WCO, we include volumes supplied over own access connections to other CPs. We also include WCO that is self-supplied to retail arms, as these volumes can account for the indirect constraint from self-supply at a retail level. Some CPs resell BT's WCO onto other CPs. We attribute such volumes to BT rather than the reseller, as these sales are unlikely to impose a competitive constraint on BT absent regulation. The market shares in Figure 6.2 below shows estimates of market shares for WCO in the UK excluding the Hull Area over a four-year period.

Figure 6.2: shares of WCO minutes



Source: Ofcom analysis of s135 data

[342] All from Sky, April 2015 CFI response, page 2.

Note: Non-BT CPs have been aggregated for the published, non-confidential version of this document

6.52 On this basis, BT's share has declined from 58% to 49% between Q1 2012/13 and Q4 2015/16[343]. However, BT's share is above the level where dominance concerns normally arise.[344]

6.53 The growth in the market share of other CPs is driven primarily by Sky, Colt and Gamma. Others such as Virgin have remained relatively stable.

6.54 As in our assessment of WFAEL, BT's share in the overall market potentially understates its stronger position among certain customer segments and, as a corollary, overstates its position in relation to others (e.g. dual-play or triple-play customers). We estimate that BT would have wholesale shares of over 90% for WCO supplied to residential fixed voice-only customers, over 80% among SMEs using analogue lines and 100% for customers outside the MPF and cable footprint or who are split purchasers.[345] We also consider BT's wholesale share of WCO minutes over ISDN is likely to be high (similar to BT's wholesale shares in the ISDN2 and ISDN30 markets, discussed in Section 5 and below).[346] As we set out below in our assessment of WFAEL, these groups account for a significant share of the overall market over the review period and we anticipate that BT's share is likely to remain high in these segments.

Constraints from competing services at the wholesale and retail levels

Retail switching

6.55 As discussed below in relation to WFAEL, most retail customers could now switch to a CP that uses alternatives to BT's WFAEL (and WCO) services to provide retail voice services. However, there are also segments, which account for a significant proportion of consumers, for which these alternative options have not proved to be sufficient to deliver effective competition. These include off-net consumers, but also a significant proportion of on-net consumers including residential fixed voice-only, split purchasers, businesses, and ISDN customers. BT's wholesale market share comprises these groups, and also a substantial number of customers who may be more contestable but are currently subscribing to BT in preference to other suppliers in the market, or using services based on WLR.

6.56 We assessed the competitive constraint from mobile in Section 4. The same considerations set out there are relevant for the SMP assessment. The evidence on the strength of fixed-to-mobile substitutability is mixed. Mobile call prices have fallen in relative terms and this appears to be at least a partial driver of the continued fall in fixed voice volumes. Mobile is a relatively close substitute on a call-by-call basis with respect to some call types by certain consumers but a more limited substitute for others. Consumers report a limited willingness to abandon their landline (i.e. access and calls), and this is likely to limit the indirect constraint from mobile. Overall, we do

343 At 57% for 2012/13, we note that BT's share of WCO is slightly less than as reported in the 2013 NMR Statement (Table 5.2), when it was reported as 62%. This is because we collected data from more CPs and respondents to s135 data requests have revisited their previous estimates.
344 See SMP Guidelines, paragraph 75.
345 Using the estimates from the analysis of WFAEL above.
346 Most CPs were unable to provide data on WCO volumes disaggregated by line type (i.e. separate WCO volumes for ISDN2, ISDN30 and WFAEL).

not consider switching to mobile is a sufficiently strong indirect constraint to undermine BT's position in the WCO market in this review period.

6.57 We also assessed the constraint from VoIP on WCO in the market definition section and consider the factors we took into account there are also relevant here. We noted that managed VoIP is not used by residential customers to any significant extent. Only a minority of SMEs use it and very often not as the main platform for calls.[347] Unmanaged VoIP is used in the residential sector. However, despite increasing use of OTT services, VoIP is only used by a 27% of residential customers for a generally limited range of call types.[348] Based on these factors, we do not consider switching to VoIP is a sufficiently strong constraint to prevent SMP in the WCO market in the review period.

6.58 Trends in fixed and mobile volumes suggest a somewhat greater constraint from mobile than at the time of the 2013 NMR Statement. However, the evidence suggests switching at the retail level is unlikely to sufficiently constrain BT's position in the WCO market.

Suppliers of substitute wholesale services

6.59 WCO over MPF and Virgin Media's networks are potential alternatives to BT's WCO. However, TalkTalk is the only CP (apart from BT) [✂][349] to offer WCO to third parties, has a small share of overall volumes, and offers a limited supply of services.[350]

6.60 We also note that even Sky, TalkTalk and Virgin Media still use WCO supplied by BT for a proportion of their retail call services. Taken together, the proportion of calls offered by these three CPs using BT WCO would amount to [✂] of retail fixed calls.[351] This suggests that no CP is fully independent of BT at the wholesale level.

6.61 As with WFAEL, the potential for CPs currently using BT's WCO to switch to alternative wholesale services is likely to be limited during the review period.

Pricing

6.62 As with WFAEL, BT's WCO charges have effectively been at the maximum allowed by the regulated cap over the most recent review period, implying that BT's pricing does not appear to have been constrained by competition to date.

6.63 Retail prices are not regulated and could provide a potential indication of BT's pricing absent regulation – although it is not possible to control for the fact that WFAEL and WCO are presently regulated and could be influencing retail pricing outcomes to an extent. Retail call prices (see Figure 3.13) declined somewhat between 2010 and

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[347] *2015 Jigsaw SME survey (waves 1 and 2).*
[348] See paragraph 4.63.
[349] Responses to 1st and 6th s135 data request.
[350] BT is also the only CP we are aware of which supplies third parties with WCO over its own ISDN access connections.
[351] In Q4 2015/16, third-party call origination accounted for [✂]% of Sky's, [✂]% of TalkTalk's and [✂]% of Virgin Media's total retail call origination minutes. (Source: Operator data supplied in response to s135 data requests). This amounts to [✂]% of the retail traffic from these CPs who account for [✂]% of all retail call origination.

2015.[352] This is in contrast to the rise in line rental observed above, and may suggest that a greater competitive constraint exists in relation to calls than for access.

Barriers to entry and expansion

6.64 The supply of WCO requires an access line (or a CP willing to offer indirect access) and so much the same factors as considered under our analysis of WFAEL (in paragraphs 6.23 to 6.28) are relevant for our assessment of barriers to entry and expansion for WCO. We consider that:

- it is unlikely that the WCO market alone would attract new entry or expansion on a sufficient scale to prevent price rises within WCO. Indeed, to date, there is very little third-party supply of WCO by CPs other than BT;

- the decision to unbundle additional exchanges is unlikely to be affected even by a significant increase in the price of WCO alone[353];

- barriers to entry are likely to remain over the period of this review, in particular for CPs supplying the significant share of retail consumers in on-net areas for whom MPF and cable have to date played a more limited role in competition. This includes residential fixed voice-only customers, business customers (including those with ISDN lines) and split purchasers; and

- longer term, further entry may come at the downstream level through managed VOIP provided directly to end consumers. However, this has yet to become a significant offering for residential consumers and a number of SMEs.

6.65 For these reasons, we provisionally conclude that barriers to entry are likely to remain over the period of this review.

Countervailing buyer power

6.66 There are limited alternatives to BT's WCO in order to effectively serve a number of customer segments. Under these circumstances, CPs are unlikely to hold countervailing buyer power sufficient to constrain BT's SMP during the review period.

Proposal on SMP in the UK excluding the Hull Area

6.67 Although BT's market share has been falling, it remains high. The overall constraint from switching at retail or wholesale level is limited. However, mobile calls and other services outside the market are a greater competitive constraint than at the time of the last NMR. We also note mobile in particular exerts a relatively stronger constraint for WCO than WFAEL. We do not consider entry, expansion or countervailing buyer power are likely to prevent SMP. For these reasons, we propose that BT has SMP in the UK excluding the Hull Area in the WCO market.

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[352] (Compound average) annual decline of 4% for calls to mobile, 7.7% for international calls and 2.3% for UK geographic calls over the previous 5 years. Note this measure is computed using a fixed basket of services at real (2015) price levels. (Source: Ofcom Market Intelligence).
[353] WCO is an even smaller item of wholesale expenditure than WLR (BT's *Revised Current Cost Financial Statements 2015 including Openreach Undertakings* lists total external WFAEL revenue as £469.3m and total external WCO revenue as £40.8m in 2014/15 (see http://btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2015/index.htm), and so creates lower incentives for entry for the same percentage price increase. The downward trend in volumes is also likely to deter entry.

Hull Area

Market shares

6.68 We are not aware of any alternative network across which WCO could be provided. KCOM has nearly a 100% share of access connections in the Hull Area and so has a similar share of WCO.

6.69 We consider that KCOM's market share is likely to remain very high during the period covered by this market review, which creates a clear presumption of SMP.

Other considerations

6.70 As in the rest of the UK, we consider switching to mobile and VoIP is likely to impose a limited (albeit increasing) constraint during the review period for the reasons set out in the market definition section.[354]

6.71 For the same reasons set out in the WFAEL section, we expect barriers to entry and expansion to remain and persist and that CPs will not have countervailing buyer power to KCOM for the provision of WCO over the review period.

Proposal on SMP in the Hull Area

6.72 Overall, we consider that KCOM's market share is strong evidence of SMP and that there are no features of the market that would negate that presumption of SMP. We do not consider entry, expansion or countervailing buyer power are likely to prevent KCOM's SMP. For these reasons, we propose that KCOM has SMP in the Hull Area in the WCO market

ISDN30

UK excluding the Hull Area

Market shares

6.73 The major ISDN30 retailers predominantly obtain access through self-supply. BT's two biggest competitors, Vodafone and Virgin Media, use their own networks to meet the bulk of their retail demand, although they also purchase small amounts of wholesale ISDN30 from BT, largely to meet demand in locations where they have no network coverage.[355] In contrast, the smaller ISDN30 retailers tend to rely on wholesale ISDN30 provided by BT to be able to provide retail ISDN30 access.

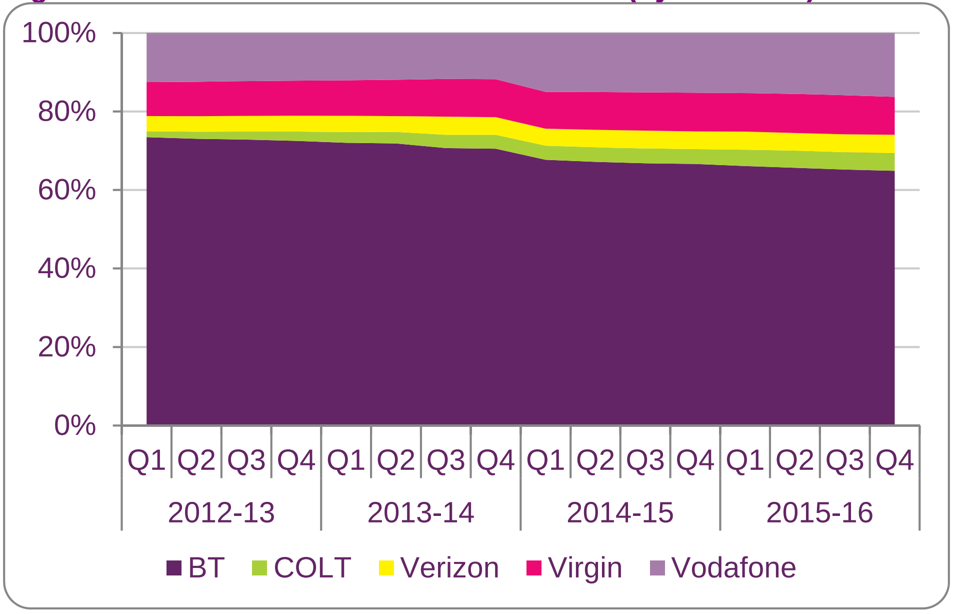
6.74 As discussed in Section 3, the total volume of ISDN30 channels has been falling gradually. Figure 6.3 below shows the wholesale market shares of various CPs. BT's market share of wholesale ISDN30 channels has been decreasing, albeit slowly: it

[354] For example, we note trends in volumes of call origination on fixed networks in the Hull Area are similar to the rest of the UK. See KCOM, *KCOM Group PLC Regulatory Financial Statements for the year ended 31 March 2016*, page 23, http://www.kcomplc.com/media/1571/ofcom-statements-201516.pdf

[355] As of March 2015, Virgin Media bought approximately 5-10% of its retail ISDN30 channels from Openreach at the wholesale level, with the remainder being supplied on its own network. The equivalent figure for Vodafone was approximately 10-15%. Source: Data received from BT, Virgin and Vodafone in responses to the s.135 notices of July 2016.

has fallen from 73% to 65% over the past four financial years. Relatively stable market shares in excess of 50% create a presumption that BT has SMP.[356]

Figure 6.3: ISDN30 wholesale market shares (by channels)



Source: Data from BT, Colt, Verizon, Virgin and Vodafone in responses to the s.135 notices of August 2015 and July 2016.

6.75 As discussed in Section 5, we accept that there is an increasing degree of substitutability with IP-based services but do not consider that it is sufficiently strong to warrant the inclusion of these services within the relevant product market for the period covered by this review. Nonetheless, for the purpose of assessing an upper bound for the extent of the constraint that IP-based services may exert, we have also considered the impact on market shares if we were to include SIP Trunking/Hosted VoIP (the likely closest substitute to ISDN30) in the relevant market.

6.76 In March 2016, in a market including ISDN30 and SIP Trunking/Hosted VoIP, we estimate that BT had a notional share of supply of [✂]%.[357] This remains sufficiently high to give rise to the presumption of SMP. For the period covered by this review, we consider that SIP Trunking/Hosted VoIP lie outside the relevant market, so we would expect the constraint from these alternative access technologies to be lower than from ISDN30 networks operated by rival CPs.

6.77 BT's share of supply in a market including ISDN30 and SIP Trunking/Hosted VoIP is likely to decline as the number of ISDN30 connections continues to fall and use of IP-based services continues to grow (as discussed in Section 3). Nonetheless, BT appears particularly well placed to convert its current ISDN30 customers to SIP Trunking/Hosted VoIP as it currently has a large wholesale and retail ISDN30 customer base at which it can directly target marketing of IP-based services.

[356] See Annex 11, page 8.
[357] Based on data received from BT, COLT, EE, TalkTalk, Verizon, Virgin and Vodafone in response to the s.135 notices of July 2016. This market share is calculated using channel volumes for ISDN30, Hosted VoIP and SIP Trunking.

Constraints from competing services at the retail and wholesale levels

Retail switching

6.78 As discussed in Section 5, we consider that retail customers without an existing ISDN30 base are more likely to find IP-based services an attractive option than ISDN30. While customers with an existing ISDN30 base can face large financial and non-financial barriers to switching to IP-based services, customers looking for a new voice and/or data solution would need to choose a service and a retail provider, both of which are likely to lead them to search the market and consider IP-based services.

6.79 The fact that customers without an existing ISDN30 base, or those with an ISDN30 base looking to connect new sites or lines, can more easily switch to IP-based services should provide a greater indirect constraint on wholesale ISDN30 prices for new connections, even if BT retains a strong position in the ISDN30 market overall.

Suppliers of substitute wholesale services

6.80 As discussed in paragraph 6.73 above, BT is the only CP that supplies a material amount of wholesale ISDN30 services to CPs other than its own downstream CP. While Verizon and Vodafone told us that they do provide wholesale ISDN30 services to other CPs, this is only on a limited scale and, importantly, these volumes are provided over a third party's access connections, i.e. not over their own network.[358]

6.81 CPs without their own networks tend to be reliant on BT's wholesale services in order to offer retail services. Indeed, even larger CPs such as Vodafone and Virgin Media, which use their own wholesale ISDN30 services to self-supply their retail operations buy wholesale ISDN30 services from BT to some extent.[359]

Pricing and profitability

6.82 Since we imposed a charge control on wholesale ISDN30 prices for the first time in the 2012 ISDN30 Charge Control Statement, BT has set its ISDN30 prices at the maximum level permitted under the charge control. BT's pricing of these services since the current charge controls were introduced thus appears to be determined significantly by the regulatory controls imposed on it, rather than market forces and we expect this to continue to be the case over the forward-look period covered by this market review. This is consistent with our proposed finding of SMP.

6.83 As shown in Figure 6.4 below, BT's returns (as reported in the RFS) from selling wholesale ISDN30 services have been reasonably high. While they have fallen since 2009/10, BT's return was £115m in 2015/16, equivalent to a ROCE of 54.5%.

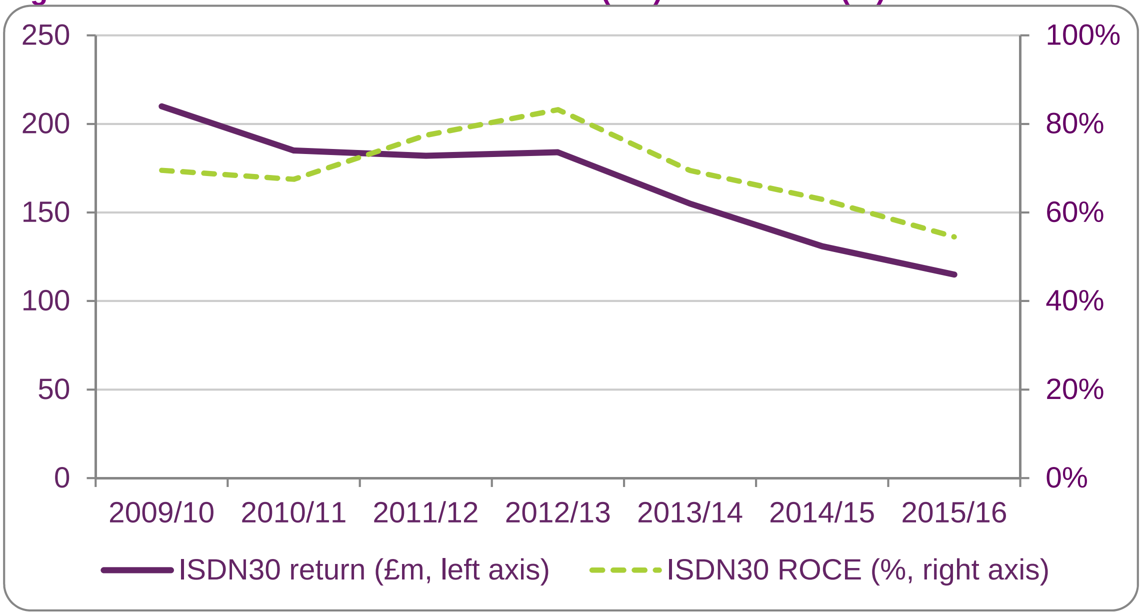
6.84 A large factor in BT's high ROCEs for ISDN30 is that its asset base is heavily depreciated. In our 2012 ISDN30 Charge Control Statement, we considered that an appropriate way of setting ISDN30 charges was to uplift the heavily depreciated ISDN30 assets (to base the controls on a hypothetical ongoing network (HON) in a steady state), such that BT was prevented from charging excessive prices but that investment and innovation incentives for IP-based services were not distorted.

6.85 However, even after uplifting the ISDN30 assets, BT's ROCEs would still be in excess of its cost of capital. We estimate that BT's ROCE for 2015/16 would fall from

[358] Based on data provided by Verizon and Vodafone in response to the s.135 notice of July 2016.
[359] See paragraph 6.73.

54.5% to 15.8%, with higher ROCEs in earlier years.[360] Over the period shown, we estimate that BT's cost of capital for this line of business was broadly between 10% and 11% pre-tax nominal during this period.[361] Consistent returns in excess of BT's cost of capital are consistent with our proposed finding of SMP.

Figure 6.4: BT's wholesale ISDN30 returns (£m) and ROCEs (%)



Source: BT's RFS including any subsequently restated data.

Barriers to entry and expansion

6.86 Barriers to entry and expansion in ISDN30 are high due to the large sunk costs that would need to be incurred to establish the infrastructure required to provide an ISDN30 exchange line. We expect that volumes will continue to decline, reducing the time and customer volumes over which these sunk costs could be recovered. This has the effect of increasing barriers to entry and expansion.

Countervailing buyer power

6.87 We do not consider that conditions for buyers in the wholesale ISDN30 market have changed materially since the 2014 FAMR Statement, and therefore retailers continue to have no effective choice of wholesaler. [✂] does not appear to sell access to other retail CPs and, while [✂] and [✂] indicate that they do sell wholesale access to other CPs, these volumes are provided over a third party's access connections, i.e. not over their own networks.[362] As a result, we provisionally conclude that retailers have very little countervailing buyer power.

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[360] We adjusted the heavily depreciated assets to reflect a network in a steady state by: using the restated 2010/11 mean capital employed reported in BT's RFS as a proxy for net replacement cost (NRC); uplifting the NRC to gross replacement cost (GRC) ratio to 50%; calculating the ROCE on the uplifted NRC for each year by multiplying by the relevant WACC for that year; and calculating depreciation as the steady state GRC divided by the accounting asset lives.
[361] This corresponds to the 'rest of BT' WACC used in Ofcom decisions over this period, specifically: a rest of BT WACC of 11% used in the May 2009 LLU Statement; 9.7% used in the July 2011 WBA Statement; 9.9% used in the March 2013 LLCC Statement and 10.8% used in the June 2014 FAMR Statement.
[362] Based on data provided in response to the s.135 notices of July 2016.

Proposal on SMP in the UK excluding the Hull Area

6.88 We provisionally conclude that:

- BT accounts for a high, stable share of wholesale ISDN30 channels;
- there is an increasing degree of substitutability with IP-based services although we do not propose to include these services in the market at this time. For customers who do not already have ISDN30 services, we consider that the availability of IP-based alternatives is likely to limit the extent of BT's market power in the ISDN30 market more broadly. While taking the constraint exerted by these 'out-of-market' products into account may mean that BT's market power diminishes over time, we anticipate that BT is likely to continue to enjoy a strong market position for the period of this review; and
- there are significant barriers to entry, a lack of countervailing buyer power and the potential for BT to charge high prices to its customers absent regulation.

6.89 Our provisional conclusion is therefore that BT has SMP in the supply of wholesale ISDN30 exchange lines in the UK excluding the Hull Area.

The Hull Area

6.90 In previous market reviews we found that KCOM had a market share of nearly 100% for wholesale ISDN30 lines in the Hull Area. In our 2014 FAMR Statement, we said that MS3 was in the process of entering the market with the intention of offering wholesale products. As part of this review, we have had discussions with MS3 about the extent to which it is active in the Hull Area. MS3 does not offer a wholesale ISDN30 product.[363] We therefore consider that KCOM will continue to have a very strong market position in the Hull Area.

6.91 Barriers to entry in this market are also increased by the fact that ISDN30 in the Hull Area is a small market. Any new entrant wishing to enter the market would need to invest considerably in rival infrastructure to KCOM, and given the small geographic area and declining ISDN30 volumes, would likely have a limited customer base and limited time period over which to recover these costs.[364]

6.92 Any form of countervailing buyer power is unlikely given KCOM is currently the only wholesale supplier of ISDN30 in the Hull Area. Our provisional conclusion is therefore that KCOM continues to hold SMP in the wholesale supply of ISDN30 exchange line services in the Hull Area.

[363] Email from MS3 to Ofcom, November 2016.

[364] Based on data received from KCOM in response to the s.135s notices on 9 October 2015 and 19 August 2016, we estimate that from March 2012 to March 2016, KCOM's wholesale ISDN30 volumes fell by an average annual rate of approximately 4%, which we interpret as overall market decline given KCOM's wholesale market position of a near monopoly.

ISDN2

UK excluding the Hull Area

Market shares

6.93 As of March 2016, BT had a market share of nearly 100% for wholesale ISDN2 exchange lines.[365] It is reasonable to presume that a firm that serves such a significant proportion of the market holds SMP.

Constraints from competing services at the retail and wholesale levels

Retail switching

6.94 As discussed in Section 5, we consider that customers without an existing ISDN2 base are more likely to find IP-based services an attractive option than ISDN2, whereas customers with existing ISDN2 services can face barriers to switching to IP-based services.

6.95 The fact that customers without an existing ISDN2 base or even those with an ISDN2 base looking to connect new sites or lines, can more easily switch to IP-based services should provide a greater indirect constraint on wholesale ISDN2 prices for new connections, even if BT retains a strong position in the ISDN2 market overall.

Suppliers of substitute wholesale services

6.96 BT is the only CP that supplies wholesale ISDN2 services to CPs other than its own retail business. Retail CPs are therefore wholly reliant on BT's wholesale ISDN2 services in order to offer retail services.

6.97 As discussed in Section 5, we recognise that there is a degree of substitutability with IP-based services, and that this constraint may be increasing over time but we do not consider that it is sufficiently strong to warrant the inclusion of these services within the relevant market.

Pricing and profitability

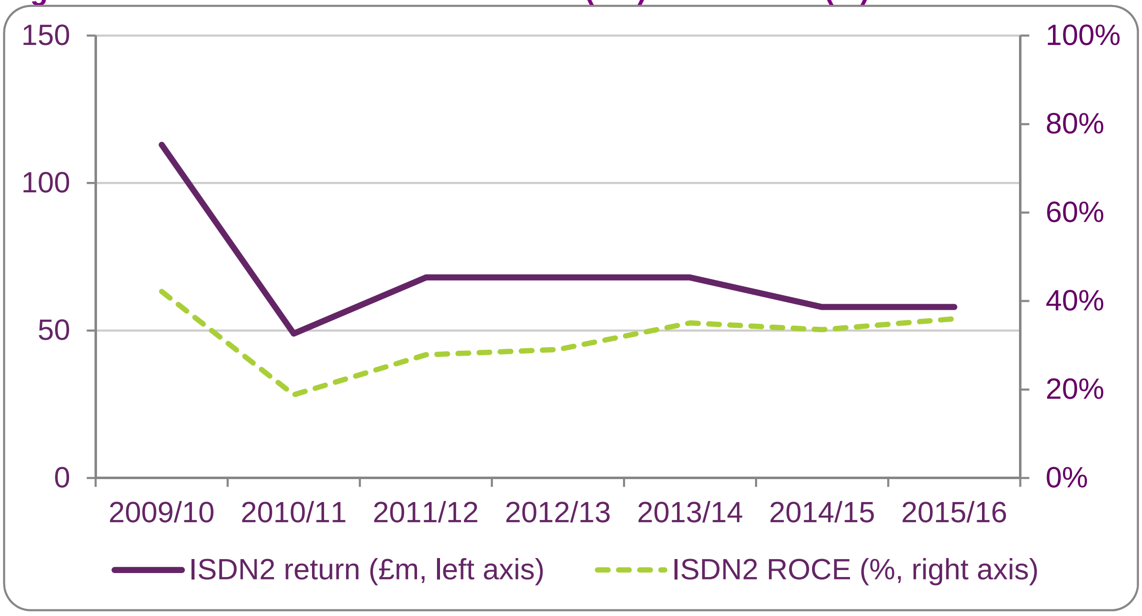
6.98 Since we imposed a charge control on wholesale ISDN2 prices in the 2014 FAMR Statement, BT has set its ISDN2 prices at the maximum level permitted under the charge control. BT's pricing of these services since the current charge controls were introduced thus appears to be determined significantly by the regulatory controls imposed on it, rather than competition. This is consistent with our proposed finding of SMP.

6.99 As shown in Figure 6.5 below, BT's returns (as reported in the RFS) from selling wholesale ISDN2 services have been fairly flat in recent years. However, BT's ROCEs have consistently been in excess of BT's cost of capital for this line of business, which we estimate to be broadly between 10% and 11% pre-tax nominal during this period.[366] Consistent returns in excess of BT's cost of capital are consistent with our proposed finding of SMP.

[365] Based on data received from BT, COLT, EE, TalkTalk, Verizon, Virgin and Vodafone in responses to the s.135 notices of July 2016.
[366] See paragraph 6.85.

6.100 As with ISDN30, a large factor in BT's high ROCEs for ISDN2 is that its asset base is heavily depreciated. However, we have not previously considered that it would be appropriate to set ISDN2 charges on the basis of a hypothetical ongoing network. If we were to adjust BT's ISDN2 returns on this basis, this would significantly reduce its returns.

Figure 6.5: BT's wholesale ISDN2 returns (£m) and ROCEs (%)



Source: BT's RFS including any subsequently restated data.

<u>Barriers to entry and expansion</u>

6.101 We consider that barriers to entry are largely similar to those identified for wholesale ISDN30. Barriers to entry and expansion are high due to the large sunk costs that would need to be incurred to establish the infrastructure required to provide an ISDN2 exchange line. Given the limited market size and forecast decline in ISDN2 volumes, there is a limited time period within which to recover this investment.

<u>Countervailing buyer power</u>

6.102 Purchasers of BT's wholesale ISDN2 service are highly unlikely to possess sufficient countervailing buyer power to undermine BT's market power given the lack of alternative suppliers.

<u>Proposal on SMP in the UK excluding the Hull Area</u>

6.103 In conducting the SMP assessment set out above we provisionally conclude that:

- BT's market share remains at nearly 100%;
- there is an increasing degree of substitutability with IP-based services although we do not propose to include these services in the market at this time. For customers who do not already have ISDN2 services, we consider that the availability of IP-based alternatives is likely to limit the extent of BT's market power in the ISDN2 market more broadly. While taking the constraint exerted by these 'out-of-market' products into account may mean that BT's market power

diminishes over time, we anticipate that BT is likely to continue to enjoy a strong market position for the period of this review;

- we do not propose to include IP-based services in the market: although the constraint exerted by these out-of-market services may mean that BT's market power diminishes over time. Therefore, we anticipate that BT is likely to continue to enjoy a strong market position for the period of this review. Other market conditions have not changed significantly since the 2014 FAMR Statement. There remain significant barriers to entry and a lack of countervailing buyer power; and

- there are significant barriers to entry, a lack of countervailing buyer power and the potential for BT to charge high prices to its customers absent regulation.

6.104 Our provisional conclusion is therefore that BT continues to have SMP in the supply of wholesale ISDN2 exchange lines in the UK excluding the Hull Area.

The Hull Area

6.105 We are not aware of any competitors to KCOM offering wholesale ISDN2 services in the Hull Area. In our 2014 FAMR Statement, we said that MS3 was in the process of entering the market with the intention of offering wholesale products. As part of this review, we have had discussions with MS3 about the extent to which it is active in the Hull Area. MS3 does not provide any retail telephony services in the Hull Area, but does provide wholesale products to a few CPs that provide retail VoIP services, but does not offer a wholesale ISDN2 product.[367]

6.106 Given the limited extent of MS3's network, it seems unlikely that MS3 will capture a significant proportion of KCOM's current customer base during the period covered by this market review. We therefore consider that KCOM will continue to have a very strong market position in the Hull Area.

6.107 Any form of countervailing buyer power is unlikely given KCOM is the most significant wholesale supplier of ISDN2 in the Hull Area. Our provisional conclusion is therefore that KCOM continues to hold SMP in the wholesale supply of ISDN2 exchange line services in the Hull Area.

[367] Email from MS3 to Ofcom, November 2016.

Consultation questions

Question 6.1: Do you agree with our provisional conclusion that, during the period covered by this market review, BT and KCOM will have SMP in the WFAEL markets? Please provide reasons and evidence in support of your views.

Question 6.2: Do you agree with our provisional conclusion that, during the period covered by this market review, BT and KCOM will have SMP in the WCO markets? Please provide reasons and evidence in support of your views.

Question 6.3: Do you agree with our provisional conclusion that, during the period covered by this market review, BT and KCOM will have SMP in the wholesale ISDN30 markets? Pleased provide reasons and evidence in support of your views.

Question 6.4: Do you agree with our provisional conclusion that, during the period covered by this market review, BT and KCOM will have SMP in the wholesale ISDN2 markets? Pleased provide reasons and evidence in support of your views.

Section 7

Remedies on BT: WFAEL, WCO, ISDN30 and ISDN2

Introduction

7.1 In Section 6, we propose that BT has SMP in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area.

7.2 In this section, we set out our proposals to impose certain remedies on BT in the relevant markets. We set out our proposals for imposing remedies on KCOM in the corresponding four markets in the Hull Area in Section 10.

7.3 The remedies that we propose are designed to address our competition concerns associated with our proposed finding that BT has SMP in each of the relevant markets.

7.4 We propose to maintain a number of the current remedies in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets, as imposed on BT in the NMR 2013 and the FAMR 2014. Our proposals include the requirement to provide general network access on fair and reasonable terms and specific access in the form of WLR in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets.

7.5 We also propose charge controls for wholesale ISDN30 and ISDN2, as set out in more detail in Section 8, and quality of service remedies for the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets, as set out in more detail in Section 9.

7.6 We propose to reduce regulation on BT in recognition of market developments and the reducing SMP that we have observed. We propose:

- removal of charge controls and replacing these with a fair and reasonable charges obligation in each of the WFAEL and WCO markets;
- removal of most remedies on newly installed lines in the wholesale ISDN30 and ISDN2 markets (after a transitional period);
- removal of the requirement not to unduly discriminate in the WCO market;
- removal of the new forms of access requests remedy in all four markets; and
- removal of the requirement to notify technical information in all four markets.

7.7 Table 7.1 summarises the current and proposed remedies on BT in the WFAEL and WCO markets. Table 7.2 summarises the current and proposed remedies on BT in the wholesale ISDN30 and ISDN2 markets.

Table 7.1: Summary of current and proposed remedies on BT in the UK excluding the Hull Area by wholesale market

	NMR 2013 and/or FAMR 2014 remedies	Proposed remedies
WFAEL	- Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requests for new forms of network access - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Notify technical information - Accounting separation - Cost accounting - Quality of service: transparency and quality of service standards	- Provide network access on reasonable request - Provide specific network access in the form of WLR - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting - Quality of service: transparency and quality of service standards
WCO	- Charge control - Provide network access on reasonable request - Requests for new forms of network access - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Notify technical information - Accounting separation - Cost accounting - Quality of service: transparency	- Provide network access on reasonable request - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting

Table 7.2: Summary of current and proposed remedies on BT in the UK excluding the Hull Area by wholesale ISDN market

	FAMR 2014 remedies	Proposed remedies in transitional period	Proposed remedies after transitional period
ISDN30	**All lines** - Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requests for new forms of network access - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Notify technical information - Accounting separation - Cost accounting - Quality of service: transparency	**All lines** - Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting - Quality of service: transparency	**All lines** - Accounting separation - Cost accounting **Existing lines** - Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Quality of service: transparency
ISDN2	**All lines** - Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requests for new forms of network access - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Notify technical information - Accounting separation - Cost accounting - Quality of service: transparency	**All lines** - Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting - Quality of service: transparency	**All lines** - Accounting separation - Cost accounting **Existing lines** - Charge control - Provide network access on reasonable request - Provide specific network access in the form of WLR - Requirement not to unduly discriminate and EOI - Publish a Reference Offer - Notify changes to charges - Quality of service: transparency

7.8 We consider that these proposed remedies address the competition concerns we have identified, are consistent with our statutory duties and satisfy the relevant legal tests. In reaching these proposals we have taken account of recent developments in the relevant markets, the maturity of the technology, expected developments over the course of the review period and views expressed by stakeholders in response to our April 2015 CFI.

Competition concerns

7.9 In the markets in which we propose BT has SMP, there are a variety of behaviours in which it could engage that might distort downstream competition, including:

- refusing to supply access at the wholesale level and thus restricting competition in the provision of products and services in the relevant downstream markets;

- setting charges that, in combination with retail prices, amount to a price squeeze; and

- in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets,[368] providing access on less favourable terms compared to those obtained by BT's own downstream businesses, e.g. for provision and repair.

7.10 In relation to existing wholesale ISDN30 and ISDN2 lines we have an additional concern about BT setting excessive charges. Excessive wholesale charges would not necessarily lead to a distortion in downstream competition (for example, if the wholesale charge allowed sufficient margin to competitors given BT's retail pricing), but nevertheless would be damaging to consumers as it would be expected to lead to higher retail prices than is efficient and result in a loss of welfare by consumers.

7.11 Overall, we consider that national and EU competition law remedies would be insufficient to address these competition problems we have identified. We therefore believe that it is appropriate to impose certain *ex ante* regulatory obligations on BT in each of the markets in which it holds SMP in order to address the competition concerns identified above.

Proposed remedies on BT

7.12 In this subsection, we set out our proposed remedies on BT in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets.

7.13 We assess each proposed remedy in turn by setting out:

- a summary of the existing and proposed requirements;

- the aim and effect of the proposed regulation;

- our proposals; and

- our consideration of the relevant legal tests for the proposed regulation.

7.14 First, we explain below our approach to imposing remedies in the wholesale ISDN30 and ISDN2 markets, given our proposal to remove most regulation for new lines.

Approach to imposing remedies in the wholesale ISDN30 and ISDN2 markets

7.15 In designing our proposed approach to remedies, we make a distinction between existing ISDN lines which will have been installed before the end of the transitional period (see below), and new ISDN lines which will be installed after the transitional period.

7.16 In Section 5 we set out our view that ISDN users can face barriers to switching to IP-based services and that IP-based services therefore fall outside the relevant markets for ISDN. However, as discussed in Section 6, we recognise there is a growing indirect competitive constraint from IP-based alternatives. Although we do not propose to include IP-based services in the market at this time, we acknowledge that there is an increasing degree of substitutability. For customers who do not already have ISDN, we consider that the availability of IP-based alternatives is likely to limit

[368] In respect of WCO, as discussed below, we no longer consider discrimination to be a significant risk to downstream competition and consumer outcomes.

the extent of BT's market power in the ISDN markets more broadly. While taking the constraint exerted by these 'out-of-market' products into account may mean that BT's market power diminishes over time, we anticipate that BT is likely to continue to enjoy a strong market position over existing customers of ISDN for the period of this review. We therefore propose to tailor the remedies accordingly, by removing most regulation for new ISDN lines over the period of this review and focusing our *ex ante* regulation on existing ISDN lines only.

7.17 The remedies we propose for existing lines are aimed at protecting against the risks of excessive wholesale pricing and price squeeze, and ensuring continued access to ISDN services, for those consumers for whom IP-based services are not a viable alternative.

7.18 With regard to new lines, we propose to remove most remedies, including network access requirements and all charge controls, after a transitional period (see below). The only remedies that we propose to apply to new lines following that transitional period are regulatory financial reporting remedies, as we propose accounting separation and cost accounting obligations in respect of all ISDN lines for the whole period of the review. This is because, while the competitive constraints may be greater for new customers, we do not propose that they form a separate market and, in order to understand the financial performance of both existing and new ISDN lines and the impact and effectiveness of our proposed remedies in the ISDN markets, we need to understand how costs and revenues are attributed to services in the whole market.

Definition of new lines

7.19 For the purpose of determining our differential approach to ISDN remedies, we define new ISDN lines as lines which require a new installation at the end user's premises, rather than the connection of additional channels to an existing installed line. BT sells ISDN30 rentals by channels (with a minimum of eight channels) with each line providing up to 30 channels, so new channels can be added to existing lines. The case is simpler for ISDN2; each line provides exactly two channels, so any additional channel capacity requires a new ISDN2 line to be installed.

7.20 We propose to continue to regulate new channels connected on existing lines during the market review period. The number of channels provided over an ISDN30 line can be increased via a configuration change, i.e. without the need to alter the physical connection between the exchange and the customer's premises, including the associated equipment at each end. We consider that the current way in which BT charges per channel on an existing ISDN30 line is the result of its current charging structure, rather than a reflection of cost causation. Therefore, given that the per channel connection cost could have been instead recovered through the installation charge and/or annual line rental, which would be covered by our proposed regulation of existing lines, we propose that it is appropriate to continue to regulate channel connections.

Transitional period

7.21 We have considered whether it is necessary to continue to regulate new ISDN lines for a transitional period in order to provide CPs with the opportunity to complete any existing contract negotiations after publication of our statement. Such a period would limit the potentially negative impact on providers that currently use wholesale ISDN services. Specifically, it would prevent BT stopping downstream competitors from accessing wholesale ISDN services or having their access suddenly restricted or provided on less favourable terms.

7.22 No transitional period would be consistent with our view that IP-based services are likely to be a viable substitute for ISDN for most new line connections. However, we think this would not provide sufficient time for CPs to complete any existing contract negotiations given the lack of certainty around access and pricing of new line connections after the transitional period.

7.23 We therefore propose a transitional period during which new line connections will continue to be regulated and be treated as existing lines for the rest of the market review period.

Length of the transitional period

7.24 We have considered how long the proposed transitional period needs to be. We consider that a period of up to 12 months from the start of the next market review period (which we currently expect to be 1 October 2017) is likely to be sufficient for CPs to complete contract negotiations. We have allowed a 12-month period in other markets in which we have removed SMP obligations, e.g. for transit markets in 2009. We welcome input from stakeholders as to whether they consider a 12-month transitional period to be appropriate or if a shorter transitional period would be sufficient to achieve our aims.

Remedies during the transitional period

7.25 For the transitional period, we propose to maintain the general and specific access remedies, and to impose charge controls (see Section 8) for all ISDN lines. However, from the end of the transitional period (currently, as proposed, the start of the second year of the review period), with the exception of accounting separation and cost accounting, the remedies proposed below (as well as the charge controls proposed in Section 8) would only apply to existing ISDN lines.

Requirement to provide network access on reasonable request

Current remedies

7.26 In the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets, BT is currently required to provide network access on reasonable request. It is required to provide such access as soon as it is reasonably practicable and on fair and reasonable terms and conditions or such other terms, conditions we may from time to time direct, including the directions of 20 March 2008 Directions relating to quality of service.

7.27 In the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets, the requirement on BT includes the obligation to provide network access on fair and reasonable charges. This obligation only applies where no charge control exists (e.g. where a charge control has expired).

7.28 A fair and reasonable charges obligation does not apply in the WCO market.

Aim and effect of regulation

7.29 An obligation requiring BT to provide network access to third parties on reasonable request is necessary to protect effective competition in downstream markets. We consider that, in the absence of such a requirement, BT could have an incentive and the ability to refuse access at the wholesale level, thereby benefiting its own downstream operations with the effect of hindering sustainable competition on the corresponding downstream markets, ultimately against consumers' interests.

Our proposals

7.30 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide such network access as Ofcom 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 for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions. Section 87(9) of the Act also authorises SMP services conditions imposing on the dominant provider: such price controls as Ofcom may direct in relation to matters connected with the provision of network access to the relevant network or with the availability of relevant facilities; and such rules as they may make in relation to matters connected with the provision of network access. In each case, in setting such conditions Ofcom must be satisfied that the conditions about network access pricing set out in section 88 of the Act are also satisfied.

7.31 We are proposing an SMP obligation requiring BT to provide network access where a third party reasonably requests it in the WFAEL and WCO markets, and in the wholesale ISDN30 and wholesale ISDN2 markets (for all ISDN lines in the transitional period and subsequently for existing lines only as discussed above), in the UK excluding the Hull Area. The proposed condition will require BT to provide network access on fair and reasonable terms and conditions.

7.32 In the ISDN markets, we consider the obligation is necessary for all lines in the first year only (and not for new lines thereafter) so as to enable CPs which currently use wholesale ISDN services to complete existing contract negotiations. This would prevent BT stopping CPs from accessing wholesale ISDN services or having their access suddenly restricted or provided on less favourable terms. In this way, the remedy we propose during the transitional period is designed to address our competition concerns in the ISDN markets.

7.33 We do not propose to apply the general network access remedy to new ISDN connections (and subsequent rentals) after the transitional period as we consider that BT's market power over CPs is weaker for new lines because of the competitive constraint from IP-based services.

7.34 For all four markets, we propose that it is appropriate for this SMP condition to include the power for Ofcom to make directions in order that we can secure the supply of services and, where appropriate, fairness and reasonableness in the terms and conditions and, where applicable, charges for providing third parties with network access. The proposed condition includes a requirement for the dominant provider to comply with any such direction(s), so any contravention of a Direction would constitute a contravention of the condition itself and would therefore be subject to enforcement action under sections 94-104 of the Act.

7.35 The proposed SMP conditions for BT in the WFAEL market and for new and existing ISDN30 and ISDN2 lines outside the Hull Area also include provision for the directions of 20 March 2008 relating to quality of service to apply for the next market review.[369] We continue to believe that the 2008 directions are appropriate and therefore the legal instrument (Annex 7) provides for the 2008 directions for WLR, ISDN30 and ISDN2, and continue to apply (until otherwise modified or withdrawn).

7.36 In its response to the April 2015 CFI, Colt said BT is its only provider of WLR and CPS services, and hence it strongly believed WCO should continue to be regulated.[370] Sky also submitted that BT's provision of WCO should continue to be regulated and that deregulation at this stage will enable BT to increase prices, refuse supply and change its terms and conditions so as to be prejudicial.[371] We are proposing to retain the requirement on BT to provide network access on reasonable request and on fair and reasonable terms and conditions in the WCO market to protect effective competition in the downstream market. In response to Sky's concern regarding increased prices, we consider that the increased competitive constraints on BT and a fair and reasonable charges obligation are sufficient to address our competition concerns regarding WCO pricing.

7.37 [✂], in its response to the April 2015 CFI, cited a continuation of existing remedies as being most appropriate on the basis that all stakeholders are familiar with them and the remedies work effectively enough in the round.[372] We consider that our proposed regulatory framework for WCO (which retains access, transparency and reporting requirements) will provide stakeholders with sufficient familiarity and will be effective in protecting competition. Where we do propose to remove some WCO remedies, this is because of market developments and the reducing SMP that we have observed, or because of the maturity of BT's TDM network.

7.38 In order to address our competition concerns identified above, we consider it necessary to impose some form of price regulation in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets. We have considered two options for price regulation: fair and reasonable charges and a charge control (cost-based or indexed). Our analysis is set out in the following paragraphs.

Pricing of network access: WFAEL

7.39 In light of our assessment of BT's position in the WFAEL market in Section 6, we consider price regulation is necessary to address our competition concern that BT may set charges that, in combination with downstream prices, amount to a price squeeze. Hence, we have considered whether it is necessary to impose a new charge control or whether a fair and reasonable charges obligation would be sufficient to address our concerns.

Fair and reasonable charges

7.40 BT's SMP has weakened due to infrastructure-based competition in the market. Our competition concern in the next review period is that BT could set high charges for access at the wholesale level which amounts to a price squeeze and thus restricts competition in the provision of products and services in the relevant downstream markets. Therefore, while we acknowledge that there is increasing competition which may provide some constraint on BT's wholesale charges, we are not confident that this constraint is sufficient and thus it is necessary to impose some further safeguard.

[369] Ofcom, *Service level guarantees: incentivising performance: Statement and Directions*, 20 March 2008. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0020/33617/statement.pdf.
[370] Colt, CFI response, page 6.
[371] Sky, CFI response, page 2.
[372] [✂].

We provisionally conclude that a fair and reasonable charging obligation would provide sufficient constraint on BT's pricing so as to mitigate the risks of consumer harm arising from BT's SMP in the WFAEL market (our proposals are set out in more detail below).

Charge control

7.41 We considered whether a charge control – either cost-based or capped against an index – is necessary to address our competition concerns in the WFAEL market.

7.42 A charge control on BT might be appropriate if our primary competition concern was to address the risk of excessive wholesale pricing. However, our competition concern is as above, to protect against a price squeeze and protect downstream competition. Given BT's weakened SMP, we consider it appropriate to permit BT some flexibility in wholesale pricing. We therefore provisionally conclude that it would not be appropriate to impose a charge control condition on WFAEL.

Pricing of network access: WCO

7.43 In light of our assessment of BT's position in the WCO market as set out in Section 6, we consider price regulation is necessary to address our competition concern that BT may set charges that, in combination with downstream prices, amount to a price squeeze. Hence, we have considered whether it is necessary to impose a new charge control or whether a fair and reasonable charges obligation would be sufficient to address our concerns.

Fair and reasonable charges

7.44 BT faces competitive constraints from infrastructure-based competition and, increasingly, indirect competitive constraints from mobile and IP-based services outside the WCO market. Our competition concern in the next review period is that BT could set high charges for access at the wholesale level which amounts to a price squeeze and thus, restrict competition in the provision of products and services in the relevant downstream markets. Therefore, while we acknowledge that there is increasing competition which may provide some constraint on BT's wholesale charges, we are not confident that this constraint is sufficient and thus it is necessary to impose some further safeguard. We provisionally conclude that a fair and reasonable charging obligation would provide sufficient constraint on BT's pricing so as to mitigate the risks of consumer harm arising from BT's SMP in WCO (our proposals are set out in more detail below).

7.45 Vodafone's response to the April 2015 CFI said it would be wrong to rely on an *ex post* margin squeeze test for WCO, stating that, "by the time sufficient evidence had been gathered to assert that there had been a margin squeeze, irrevocable damage will have been done at the retail level".[373] We note that our proposals do not rely on *ex post* competition law. Instead, we propose to impose an *ex ante* SMP fair and reasonable pricing obligation on BT. Such an obligation will enable Ofcom to intervene more quickly in the event that BT sets prices which amount to a price squeeze.

[373] Vodafone, CFI response, page 15.

Charge control

7.46 We considered whether a charge control – either cost-based or capped against an index – is necessary to address our competition concerns in the WCO market.

7.47 A charge control on BT might be appropriate if our primary competition concern was to address the risk of excessive wholesale pricing. However, our competition concern is, as above, to protect against a price squeeze and protect downstream competition. Given BT's weakened SMP, we consider it appropriate to allow BT some wholesale pricing flexibility. An increase in the wholesale charge would not necessarily lead to an increase in the retail price for calls, given the indirect constraints that we have found in the retail market. We therefore provisionally conclude that it would not be appropriate to impose a charge control condition on BT's provision of WCO.

7.48 In its response to the April 2015 CFI, Post Office stated that it would be inappropriate not to impose *ex ante* price regulation, and called for the continuation of the current charge control or the introduction of some other form of price regulation to prevent excessive pricing.[374] Our proposed primary competition concern in the WCO market is risk of a price squeeze and we consider that a fair and reasonable charges obligation would be sufficient to address this concern.

Pricing of network access: wholesale ISDN30 and ISDN2

7.49 We consider that a charge control remains necessary to help support downstream competition and to protect existing consumers of ISDN services from excessive pricing (see Section 8). As explained below, we consider that this protection is only required for existing ISDN lines as the competitive constraint from IP-based services is likely to be stronger for new lines. Therefore, we are not proposing to apply a charge control to new lines after an initial transitional period.

Fair and reasonable charges obligation

WFAEL and WCO

7.50 In light of our market analysis of the WFAEL and WCO markets, which suggests that SMP is likely to have reduced in these markets and that wholesale charge controls have become less important in driving retail pricing outcomes, our primary *ex ante* concern is in relation to the risk of adverse effects arising from BT fixing and maintaining its wholesale charges at a level that creates a price squeeze, thus undermining effective competition in downstream markets.

7.51 This is because our regulatory objective in relation to WLR and WCO is primarily around the protection, rather than the promotion, of competition. Taking into account this objective, we propose adopting an approach to the evaluation of costs and margins consistent with that which would be adopted under *ex post* competition law. We propose to impose this *ex ante* SMP fair and reasonable pricing obligation on BT to enable us to intervene more quickly in the event that BT sets prices which amount to a price squeeze.

7.52 We propose that all WLR charges (including ancillary services) are subject to the proposed fair and reasonable charging obligation.[375] But we welcome stakeholder

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374 Post Office, CFI response, page 1.

375 This includes BT's wholesale charges for Caller Display, which are currently subject to a charge control. Caller Display is a retail service that lets customers see who is calling before they answer the

views and evidence on whether additional safeguards would be needed in relation to the pricing of any specific WLR ancillary services.

7.53 We do not propose *ex ante* reporting obligations on BT to demonstrate its compliance with the proposed fair and reasonable charging obligation. As set out above, given BT's reduced SMP in the WFAEL and WCO markets and our objective of protecting rather than promoting competition we consider that *ex ante* reporting requirements would be disproportionate.

7.54 Nevertheless, BT must ensure compliance with all its regulatory obligations, including in relation to wholesale pricing of WFAEL and WCO. In the event that it does not, we would expect other CPs to refer to us disputes, which we would resolve as required under the Act. While we would assess any dispute on the relevant facts, our starting point for evaluating costs and margins would, as set out above, be to take an approach consistent with that which would be adopted under *ex post* competition law.[376]

7.55 When we resolve a regulatory dispute under the Act, our decision is binding only on the parties in dispute. However, we would expect dispute determinations to be read across and followed as appropriate. If we were to determine that BT had not complied with a fair and reasonable charging obligation, we would expect BT to take account of our conclusions in discussions (with CPs other than the parties to such a dispute) to the extent that they are relevant.

7.56 We welcome stakeholders' views on the clarity and practicality of our proposed approach to ensuring BT's compliance with the proposed fair and reasonable charging obligation for WFAEL and WCO.

Wholesale ISDN30 and ISDN2

7.57 We propose that a fair and reasonable charges obligation should apply to all charges for existing ISDN30 and ISDN2 lines (and for all ISDN lines during the transitional period).

7.58 Our competition concerns in the wholesale ISDN30 and ISDN2 markets are price squeeze and excessive pricing. While our proposed charge controls in these markets seek to address our concerns regarding excessive pricing, they may not be sufficient to address the risk of a price squeeze. For this reason, as part of the wider general access obligation, we propose to impose an obligation on BT to provide wholesale ISDN30, wholesale ISDN2 and ancillary services on fair and reasonable charges.

7.59 We do not intend the requirement for fair and reasonable charges to establish any additional constraint over and above the proposed charge control remedy on the maximum wholesale prices that BT can charge in relation to the products and services to which the charge controls specifically apply, except in as far as lower prices might be necessary to satisfy the requirement not to impose a price squeeze.

7.60 Our proposed fair and reasonable charges obligation in the wholesale ISDN30 and ISDN2 markets would also apply in the event that no other charge control does, i.e.

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phone. It can offer consumers some protection against nuisance calls and as such we think that it should be included at no additional charge to the retail line rental (as it is by most retail providers). While this policy outcome is not something that can be achieved through this review, we are considering more broadly how this might be achieved through other regulation.

[376] It may also be appropriate for such issues to be resolved through enforcement action, either as a result of a complaint or an own initiative investigation.

on new services not subject to the proposed charge control or in the event that the charge control on existing lines expires before the completion of the next market review. In these two scenarios, our proposed fair and reasonable charging obligation is further intended to protect against the risk of excessive wholesale pricing.

7.61 We consider that the requirement for charges to be fair and reasonable, in addition to our proposed charge controls, is sufficient to address any potential concerns regarding a price squeeze and excessive pricing.

7.62 As in the WFAEL and WCO markets, BT must ensure compliance with all its regulatory obligations, including in relation to fair and reasonable pricing of ISDN access lines. In the event that it does not, we would expect other CPs to refer to us disputes, which we would resolve as required under the Act

Legal tests

7.63 For the reasons set out below, we are satisfied that the proposed network access condition for BT in the WFAEL and WCO markets, and in the wholesale ISDN30 and ISDN2 markets (for all ISDN lines in the first year and subsequently for existing lines only as discussed above), in the UK excluding the Hull Area, meet the various tests set out in the Act.

7.64 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as Ofcom may from time to time direct. Section 87(9) of the Act also authorises SMP services conditions imposing on the dominant provider: such price controls as Ofcom may direct in relation to matters connected with the provision of network access and about the recovery of costs and cost orientation, subject to the conditions of section 88 of the Act being satisfied.

7.65 In proposing these conditions, we have taken into account the factors set out in section 87(4) of the Act. When considering the imposition of such conditions in a particular case, we must take into account the following six factors set out in section 87(4):

- the technical and economic viability (including the viability of other network access products, whether provided by the dominant provider or another person), having regard to the state of market development, of installing and using facilities that would make the proposed network access unnecessary;

- the feasibility of the provision of the proposed network access;

- the investment made by the person initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed (taking account of any public investment made);

- the need to secure effective competition (including, where it appears to Ofcom to be appropriate, economically efficient infrastructure based competition) in the long term;

- any rights to intellectual property that are relevant to the proposal; and

- the desirability of securing that electronic communications services are provided that are available throughout the Member States.

7.66 In reaching our proposal that BT should be subject to a requirement to provide network access on reasonable request, we have taken all of the above six factors into account. In particular, having considered the economic viability of building access networks to achieve ubiquitous coverage that would make the provision of network access unnecessary, we consider that the SMP condition is required to secure effective long-term competition in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets. The requirements for BT to meet only reasonable network access requests also ensures that due account is taken of the feasibility of the proposed network access, and of the investment made by BT initially in providing the network.

7.67 In proposing to impose a fair and reasonable charges obligation, we are also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act.

7.68 Section 88(1)(a) of the Act requires that Ofcom must not impose pricing 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 discuss above that it appears to us from the market analysis carried out that there is a relevant risk of adverse effects arising from price distortion in that BT might:

- in all four markets impose a price squeeze; and

- in the ISDN markets fix or maintain some or all of its prices at an excessively high level;

in each case so as to have adverse consequences for end users of public electronic communications services.

7.69 Section 88(1)(b) of the Act requires that the pricing condition should be appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on consumers of public electronic communications services.

7.70 We consider that fair and reasonable charges will prevent BT from setting charges that amount to a price squeeze (in the case of WFAEL and WCO, where we do not impose another form of pricing obligation) and in addition for wholesale ISDN30 and ISDN2, charging excessively high prices (where we do not impose another form of pricing obligation).[377] In this way, this condition supports the aim of promoting improved efficiency and sustainable competition.

7.71 We consider that the provision of network access on fair and reasonable terms will promote competition by ensuring that there is no distortion or restriction of competition and that other CPs can effectively compete at the downstream level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on consumers of the services.

7.72 We are also required, under Section 88(2) of the Act, to take account of the extent of BT's investment in the matters to which each proposed condition relates. We believe that a fair and reasonable charges obligation would not impact on BT's investment in

[377] So far as the obligation pertains to preventing a price squeeze in the wholesale ISDN30 and ISDN2 markets, the requirement will apply for the entirety of the market review period.

any of the WCO or wholesale access markets in that it allows BT's costs to be taken into account and also provides for common cost recovery.

7.73 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

7.74 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.

7.75 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 networks services.

7.76 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent.

7.77 In the WFAEL and WCO markets, and in relation to existing ISDN30 and ISDN2 lines, each proposed condition is:

- objectively justifiable, in that in each of the markets it facilitates access to BT's network and therefore protects competition to the ultimate benefit of consumers;
- not unduly discriminatory, in that it is imposed on BT and it is proposed that no other CP has been found to hold a position of SMP in these markets in the UK excluding the Hull Area;
- proportionate, in that it is targeted at addressing the market power that we propose BT holds in these markets, does not require it to provide access if it is not technically feasible or reasonable; and
- transparent, in that the condition is clear in its intention to ensure that BT provides access to its network in order to facilitate effective competition.

7.78 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that it enables a period of access to BT's network under the current regulatory framework in order to allow the completion of existing contract negotiations;
- not unduly discriminatory, in that it is imposed on BT and it is proposed that no other CP has been found to hold a position of SMP in these markets in the UK excluding the Hull Area;
- proportionate, in that it is imposed for a limited time only, is targeted at addressing the market power that we propose BT holds in these markets and does not require BT to provide access if it is not technically feasible or reasonable; and
- transparent, in that the condition is clear in its intention to ensure that CPs have the opportunity to complete any existing contract negotiations.

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

Provide specific network access in the form of WLR

Current remedies

7.80 BT is currently subject to a specific access remedy in the form of a requirement to offer WLR in the WFAEL and wholesale ISDN30 and ISDN2 markets, including such ancillary services as are reasonably necessary.

Aim and effect of regulation

7.81 Analogue WLR and ISDN WLR services are sold by BT, both to its own downstream businesses and to competing CPs. They are aimed at providing retail consumers (both residential and business) with access to narrowband telephony services.

Our proposals

7.82 We expect there to be continued material demand for WLR during the forward look period of our review and that the services will remain important for competition. In the absence of a regulatory requirement to provide access to BT's infrastructure for the purposes of providing retail services, BT could have the incentive and ability to refuse access to these services at the wholesale level and thereby favour its own retail operations. This would have the effect of hindering competition in the corresponding downstream markets, ultimately against consumers' interests.

7.83 In Section 6, we explain that there is a significant minority of consumers for which there are currently limited alternatives to BT's WLR in the WFAEL market, and the needs of this group are likely to limit any further decline in WLR during this period.

Specific access for WFAEL

7.84 For the reasons set out above, we propose to require BT to offer WLR in the WFAEL market, together with such ancillary services as may be reasonably necessary for the use of that service. The condition is set out in full in Annex 6.

7.85 This proposed obligation requires the provision of WLR services, together with ancillary services which are reasonably necessary for its use, on fair and reasonable terms and conditions and charges. This is in line with the above requirement to provide network access on reasonable request.

Specific access for wholesale ISDN30 and ISDN2

7.86 As noted in Section 5, while the wholesale ISDN30 and ISDN2 markets are gradually declining, there remains demand for wholesale services and we expect this to continue during the period of this market review.

7.87 We also therefore propose a WLR remedy to address BT's SMP in each of the wholesale ISDN markets. BT will be required to continue to make available the ISDN WLR product for existing lines, which allows other CPs to compete with BT in the provision of retail ISDN services on an equivalent basis. This obligation will not apply to the provision of new lines after the transitional period.

7.88 We consider the ancillary services which are reasonably necessary for the use of BT's ISDN2 and ISDN30 WLR services include connections and transfers.

7.89 In relation to ISDN30 ancillary services, we also consider that such ancillary services also include Service Maintenance Levels (SML) and Direct Dialling In (DDI).

Legal tests

7.90 We consider that the proposed obligations to provide analogue WLR and ISDN WLR services, together with such ancillary services as may be reasonably necessary for the use of those services, are appropriate and satisfy the legal tests set out in the Act.

7.91 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide such network access as Ofcom 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 for securing that the obligations in the conditions are complied with within the periods and at the times required by or under the conditions.

7.92 In proposing each condition, we have taken into account the factors set out in section 87(4) of the Act. When considering the imposition of such conditions in a particular case, we must take into account the following six factors set out in section 87(4):

- the technical and economic viability (including the viability of other network access products, whether provided by the dominant provider or another person), having regard to the state of market development, of installing and using facilities that would make the proposed network access unnecessary;

- the feasibility of the provision of the proposed network access;

- the investment made by the person initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed (taking account of any public investment made);

- the need to secure effective competition (including, where it appears to Ofcom to be appropriate, economically efficient infrastructure based competition) in the long term;

- any rights to intellectual property that are relevant to the proposal; and

- the desirability of securing that electronic communications services are provided that are available throughout the Member States.

7.93 In reaching our proposal that CPs should be subject to a requirement to provide network access on reasonable request, we have taken all of the above six factors into account. In particular, we consider that there is no alternative network on which the provision of analogue or digital WLR appears likely over this review period. Further, we consider that it is entirely feasible for BT to be required to provide analogue WLR and ISDN WLR in light of its widespread existing provision.

7.94 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

7.95 We have considered our duties under section 3 of the Act. In particular, we consider that each condition furthers the interests of citizens in relation to communications matters and furthers the interests of consumers in relevant markets in line with section 3 of the Act by encouraging competition in fixed narrowband services at the retail level.

7.96 We also consider that each proposed condition meets the requirements set out in section 4 of the Act. As noted above, the condition protects competition and secures efficiency and sustainable competition and the maximum benefit for consumers by enabling providers to compete in downstream markets.

7.97 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In the WFAEL market, and in relation to existing ISDN30 and ISDN2 lines, each proposed condition is:

- objectively justifiable, in that it seeks to support and protect competition in downstream markets for the benefit of consumers and removing the obligation may result in BT withdrawing the product or otherwise changing it to the detriment of the existing level of downstream competition that has developed;

- not unduly discriminatory, in that the condition aims to address BT's market power only in the market in which we find that BT has SMP (namely, the UK excluding the Hull Area);

- proportionate, in that is necessary to enable competition but is not unduly burdensome on BT and, in particular, the requirement to provide ISDN WLR will only apply to existing lines after the transitional period; and

- transparent, in that it is clear in its intention to ensure that BT provides analogue WLR and ISDN WLR services (and ancillary services which are reasonably necessary for their provision).

7.98 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that it enables a period of access to BT's network under the current regulatory framework in order to allow the completion of existing contract negotiations;

- not unduly discriminatory, in that it is proposed on BT and it is proposed that no other CP has been found to hold a position of SMP in these markets in the UK excluding the Hull Area;

- proportionate, in that it is imposed for a limited time only, is targeted at addressing the market power that we propose BT holds in these markets and does not require BT to provide access if it is not technically feasible or reasonable; and

- transparent, in that the condition is clear in its intention to ensure that CPs have the opportunity to complete any existing contract negotiations.

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

Requirement not to unduly discriminate and equivalence of inputs (EOI)

Current remedies

7.100 BT is currently prohibited from unduly discriminating in relation to the provision of network access in WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets. BT is also subject to a specific requirement to provide WLR (for WFAEL, ISDN30 and ISDN2) on an EOI basis.

Aim and effect of regulation

7.101 A non-discrimination obligation is intended to prevent the dominant provider from discriminating in favour of its own downstream divisions and, more generally, to ensure that competing providers are placed in an equivalent position.

Our proposals

7.102 Section 87(6)(a) of the Act authorises the setting of an SMP condition requiring the dominant provider not to discriminate unduly against particular persons, or against a particular description of persons, in relation to matters connected with the provision of network access. As explained above, this obligation has different forms of implementation:

- a strict form of non-discrimination which would result in the SMP operator providing exactly the same products and services to all CPs (including its own downstream divisions) on the same timescales, terms and conditions (including price and service levels), by means of the same systems and processes and by providing the same information, known as EOI; and

- a less strict interpretation of non-discrimination allowing for flexibility in cases where it is economically justified, which we refer to as no undue discrimination.

7.103 We propose that BT should continue to provide network access on an EOI basis in the WFAEL market, and in the wholesale ISDN30 and ISDN2 markets (for all lines in the first year and subsequently for existing lines only as discussed above).

7.104 This obligation applies to those services for which BT currently provides network access on an EOI basis. We consider that imposing EOI in these circumstances would not be onerous as it would not require BT to re-engineer existing systems and processes.

7.105 We propose to retain the condition on BT not to unduly discriminate in relation to the provision of network access in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets. This is to ensure that there is appropriate non-discrimination protection to remedy the incentive and ability for BT to engage in discriminatory pricing and/or discriminatory non-pricing practices for those services provided currently that will not be subject to an EOI obligation, or for any new network access services not subject to an EOI obligation (for example, where we give our consent that EOI should not apply).

7.106 We therefore propose an EOI obligation on BT in the WFAEL market, wholesale ISDN30 and wholesale ISDN2 markets (for all ISDN lines in the first year and subsequently for existing lines only as discussed above). Where BT is already providing a service not subject to an EOI obligation or where we have given our consent that EOI should not apply, we propose a no undue discrimination obligation.

7.107 We do not propose to apply the no undue discrimination and EOI obligation to the provision of new ISDN lines after the end of the transitional period as we do not propose a general network access obligation in relation to such lines.

7.108 We also do not propose to apply the no undue discrimination obligation (or any other form of non-discrimination remedy) in the WCO market. In Section 6 we set out our SMP analysis of the WCO market and our provisional conclusion that BT faces greater competitive pressures than at the time of the last review. We observe that BT's market share, in addition to the overall WCO market, is in decline.

7.109 We therefore consider that it is no longer necessary to impose a no undue discrimination obligation on BT in the WCO market, given the greater competitive constraints acting in this market (most notably from the indirect constraint of mobile call origination). We consider that BT is unlikely to discriminate in the provision of WCO to an extent which will restrict or distort competition and require *ex ante* regulation.

7.110 In its response to the April 2015 CFI, BT stated that the removal of the no undue discrimination obligation would allow it to "match its competitors' existing commercial wholesale strategies" by being able to design bespoke wholesale offers including both voice and broadband services.[378] We consider that removing the obligation will give BT the flexibility to undertake commercial negotiations and respond to increasing competition, subject to the requirement that pricing is fair and reasonable (see above).

Legal tests

7.111 For the reasons set out below, we are satisfied that each proposed condition for BT in respect of the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area, meets the various tests set out in the Act. As explained above, sections 87(6)(a) authorises the SMP condition we propose to make.

7.112 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

7.113 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 downstream competition.

7.114 We also consider that each proposed condition meets the Community requirements as set out in section 4 of the Act. Each 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 downstream businesses or particular third parties and therefore distort competition.

7.115 Section 47(2) requires such conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In relation to WFAEL and existing ISDN30 and ISDN2 lines, each proposed condition is:

[378] BT, April 2015 CFI response, page 4.

- objectively justifiable, in that it provides safeguards to ensure competitors, and hence consumers, are not disadvantaged by BT discriminating in favour of its own downstream activities or between competing providers;

- not unduly discriminatory, in that the non-discrimination requriements are proposed to apply to BT which is the only CP which we propose to find have SMP in the relevant markets in the UK excluding the Hull Area;

- proportionate, in that it seeks to prevent discrimination that would adversely affect competition and ultimately cause detriment to consumers, is only applied to the WFAEL market and existing ISDN services, and in relation to the requirement on BT to provide services on an EOI basis, that the requirement only applies where BT is already providing services on the basis of EOI; and

- transparent, in that the conditions are clear in what they are intended to achieve.

7.116 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that they provide a period of protection for the completion of contract negotiations to ensure competitors, and hence consumers, are not disadvantaged by BT discriminating in favour of its own downstream activities or between competing providers;

- not unduly discriminatory, in that the non-discrimination requirements are proposed to apply to BT which is the only CP which we propose has SMP in the relevant markets in the UK excluding the Hull Area;

- proportionate, in that they seek to prevent discrimination that would adversely affect competition and ultimately cause detriment to consumers, is only applied for a limited period of time, and in relation to the requirement on BT to provide services on an EOI basis, that requirement only applies where BT is already providing services on the basis of EOI; and

- transparent, in that the conditions are clear in their intention to ensure that CPs have the opportunity to complete any existing contract negotiations.

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

Transparency

7.118 The requirements for the transparency of charges, terms and conditions in markets in which one operator is dominant are complementary remedies to ensure that third party CPs are able to make effective use of the dominant provider's network access.

7.119 BT is currently subject to three transparency obligations in respect of its SMP in each of the relevant markets. They are:

- a requirement to publish a Reference Offer;

- a requirement to notify changes to charges in advance; and

- a requirement to notify technical information.

7.120 In the following sub-sections, we discuss the requirements to publish a Reference Offer and to notify changes to charges. As we explain at the end of this section, we are not proposing a requirement on BT to notify technical information.

Publish a Reference Offer

Current remedies

7.121 BT is currently required to publish a Reference Offer in relation to the provision of network access in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets. The requirement includes publishing terms and conditions for provisioning, technical information, Service Level Agreements (SLAs) and Service Level Guarantees (SLGs) linked to specific services, and availability of co-location.

Aim and effect of regulation

7.122 The main reason for requiring the publication of a Reference Offer is to give visibility to the terms and conditions on which other providers can purchase WFAEL, WCO, wholesale ISDN30 and ISDN2 services, which complements the general network access remedy.

Our proposals

7.123 Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a dominant provider to publish, in such manner as Ofcom may direct, all such information, 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 a 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. 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.

7.124 We propose to retain the condition on BT to publish a Reference Offer for its services in the WFAEL and WCO markets, and wholesale ISDN30 and ISDN2 markets (for all lines in the first year and subsequently for existing lines only as discussed above). We have proposed retaining the obligation to give visibility to the terms and conditions on which other providers can purchase wholesale services, and to enable for faster negotiations and to help avoid possible disputes.

7.125 As we are proposing to give BT more flexibility on terms and conditions in the WCO market by removing the no-undue discrimination remedy, we consider that the proposed requirement to publish a Reference Offer should apply to BT’s standard contract in this market. While we acknowledge that some CPs may negotiate terms and conditions that differ from BT’s standard contract for the same services, we expect that others may continue to use on the standard terms and conditions, and therefore consider it is important for transparency for changes to BT’s standard contract to be published.

7.126 We consider it appropriate for the published Reference Offer in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets to include:

- a clear description of the services on offer including technical characteristics and operational processes for service establishment, ordering and repair;

- the locations of points of network access and the technical standards for network access;
- conditions for access to ancillary and supplementary services associated with the network access including operational support systems and databases etc.;
- contractual terms and conditions, including dispute resolution and contract negotiation/renegotiation arrangements;
- charges, terms and payment procedures; and
- SLAs and SLGs.

7.127 To the extent that BT uses the service in a different manner to other CPs or uses similar services, it is required to publish a Reference Offer in relation to those services.

7.128 We propose to retain the condition in relation to existing ISDN30 and ISDN2 lines after the transitional period so as to give visibility to any amendments to the terms and conditions of BT's network access. However, we recognise that the main purpose of a Reference Offer is to give visibility to the terms and conditions on which other providers can purchase new services and therefore welcome views as to whether it is necessary to retain this requirement on BT for existing ISDN lines after the transitional period.

7.129 We do not propose a requirement to publish a Reference Offer with regard to the provision of new ISDN lines after the end of the transitional period as we propose a general network access obligation in relation to existing lines only.

7.130 We consider the obligation is necessary for all lines in the first year only, for existing lines as well as new lines (but not to new lines thereafter) so as to enable CPs which currently use wholesale ISDN services to transition to the new regulatory framework and provide sufficient time for them to complete existing contract negotiations.

SLAs and SLGs

7.131 Contracts for the provision of services include SLAs which specify the standard that a given service is to be delivered to, for example, the timeliness of repair or provisioning. SLGs are the compensation payments linked in the contract to specific SLAs in the event that the service is not delivered to the standard set in that SLA.

7.132 Ofcom's regulation specifies a minimum set of services which must have associated SLAs and SLGs within the access Reference Offer contracts offered by Openreach (see draft SMP Condition 6 at Annex 6). However, Openreach and its customers are free to negotiate the terms of these SLAs and SLGs and to incorporate additional terms. Such negotiations would be subject to the fair and reasonable obligation we have proposed to apply to BT with respect to access services and negotiations are, since the FAMR 2014, facilitated by the OTA2. The OTA2 facilitation process is subject to the principles and timeframes set out in the FAMR 2014.[379]

[379] Ofcom, *2014 Fixed Access Market Reviews Statement*, 26 June 2014, see SLA/SLG Negotiations paragraphs 11.394-11.431 https://www.ofcom.org.uk/__data/assets/pdf_file/0032/78863/volume1.pdf

Legal tests

7.133 For the reasons set out below, we are satisfied that each proposed condition for BT in respect of the WFAEL and WCO markets, and in the wholesale ISDN30 and ISDN2 markets in the UK excluding the Hull Area, meet the various tests set out in the Act. As explained above, sections 87(6)(c), (d) and (e) authorise the SMP condition we propose to make.

7.134 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

7.135 We have considered our duties under section 3 of the Act. The requirement to publish a Reference Offer would facilitate service interoperability and protect existing entrants to a market by ensuring that services, and any changes, are transparent. 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 markets 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.

7.136 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, the proposed condition would protect competition, and encourage 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 Reference Offer would mean that other CPs would have the necessary information readily available to allow them to make informed decisions about entry into and participation in the market.

7.137 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In the WFAEL and WCO markets, and in relation to existing ISDN30 and ISDN2 lines, each proposed condition is:

- objectively justifiable, in that it requires that terms and condition are published in order to encourage competition and provide stability in markets;
- not unduly discriminatory, in that the condition is proposed to apply to BT which is the only CP which we propose has SMP in the relevant markets in the UK excluding the Hull Area;
- proportionate, in that only information that is considered necessary to allow CPs to make informed decisions about competing in downstream markets is required to be provided; and
- transparent, in that the condition, is clear in its intention that BT publish details of its wholesale service offerings.

7.138 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that it provides regulatory and market stability by supporting a period of access under the current regulatory framework;

- not unduly discriminatory, in that the condition is proposed to apply to BT which is the only CP which we propose has SMP in the relevant markets in the UK excluding the Hull Area;

- proportionate, in that only information that is considered necessary to allow CPs to make informed decisions about competing in downstream markets is required to be provided for the appropriate period of time; and

- transparent, in that the condition is clear in its intention to support CPs to complete any existing contract negotiations.

7.139 Article 9(4) of the Access Directive requires that, where network access obligations are imposed, NRAs shall ensure the publication of a Reference Offer containing at least the elements set out in Annex II to that Directive – we are satisfied that this requirement is met.

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

Notify changes to charges

Current remedies

7.141 BT is currently required to give advance notice before making changes to its charges for the provision of existing or new network access in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets.

7.142 Table 7.3 below details the specific notice periods imposed on BT in each market by the NMR 2013 and FAMR 2014.

Table 7.3: NMR 2013 and FAMR 2014 notice period requirements

	Relevant notice periods by market
WFAEL	**90 days** for changes to the WLR rental charge; **28 days** for price reductions and price changes relating to the end of a temporary[380] price reduction (both in relation to WLR rental charges); and **28 days** for changes to charges for all other services
WCO	**56 days** for changes to charges for all services
ISDN30	**28 days** for changes to charges for all services
ISDN2	**28 days** for changes to charges for all services

Aim and effect of regulation

7.143 Notification of changes to charges at the wholesale level has the joint purpose of assisting transparency for the monitoring of potential anti-competitive behaviour and giving 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, as they may want to restructure the

[380] A 'temporary' price means a price reduction for a particular product or service, applicable to all customers on a non-discriminatory basis, which is stated to apply for a limited and predefined period and where the price immediately on expiry of that period is no higher than the price immediately before the start of that period.

prices of their downstream offerings in response to charge changes at the wholesale level.

7.144 There may be some disadvantages to notifications, particularly in markets where there is some competition. It can lead to a 'chilling' effect where other CPs follow BT's prices rather than act dynamically to set competitive prices. We do not consider, on balance, that this consideration undermines the rationale for imposing a notification of charges condition.

7.145 Each of the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area is characterised to varying extents by competitors' reliance on the provision of wholesale access products and services to enable them to compete in downstream markets. We therefore consider that the advantages of notifying charges are likely to outweigh any potential disadvantages.

Our proposals

7.146 Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a dominant provider to publish, in such manner as Ofcom may direct, all such information, for the purpose of securing transparency. 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.

7.147 We propose that it is appropriate for BT to be subject to an obligation to notify (by means of a written notice) changes to standard charges for wholesale network access in the WFAEL and WCO markets, and in the wholesale ISDN30 and ISDN2 markets (for all lines in the first year and subsequently for existing lines only). We consider that the current notice periods remain appropriate and propose to apply the same notice periods to BT in the next market review period.

7.148 As we are proposing to give BT more pricing flexibility in the WCO market by imposing a fair and reasonable charges obligation (instead of a more formal charge control) and removing the no-undue discrimination remedy, the proposed requirement to notify changes to charges would only apply to BT's published standard wholesale charges in these markets. While we acknowledge that some CPs may negotiate WCO charges that differ from BT's standard wholesale charges for the same services, we expect that others may continue to rely on the standard wholesale charges and therefore consider it is important for transparency for changes to BT's standard wholesale charges to be notified in advance. With regard to changes to charges which differ from BT's standard wholesale charges, we would expect CPs to agree terms for changes to these charges on a commercial basis.

7.149 While we are also proposing to give BT more pricing flexibility in the WFAEL market by imposing fair and reasonable charges, our proposal to impose an EOI obligation will prevent BT from being able to offer different WLR prices to different CPs.

7.150 In relation to ISDN30 and ISDN2, we consider the proposed obligation is necessary for existing lines throughout the market review period and for all lines in the first year only (and not to new lines thereafter). Retention of the notification requirement on all lines during the first year will enable CPs which currently use wholesale ISDN services to complete existing contract negotiations. If BT makes any changes to its ISDN charges (including connection charges) during this first year, the notification requirement will provide certainty to CPs about the wholesale charges during this time period.

7.151 We propose that a notice must include the following:

- a description of the network access in question;
- a reference as to where the terms and conditions associated with the network access in question can be found in the dominant provider's Reference Offer;
- the date on which the new charges take effect (or the period over which the new charges will apply);
- the current and proposed charge; and
- other charges for services that would be directly affected by the proposed charge.

Notice periods in WFAEL

7.152 In light of our review of the WFAEL market, we consider that the existing notification periods remain appropriate. A 90-day notification period for increases in BT's WLR rental charge provides CPs with the opportunity to plan for price increases in respect of the ongoing monthly charge,[381] while a reduced notification of 28 days for all other services provides flexibility.

7.153 In respect of the 90-day notice period for a WLR charge increase, again, without a strong justification for reducing this period and in light of increased pricing flexibility, we continue to consider that the current period remains appropriate.

Notice periods in WCO

7.154 We did not receive any information in response to the April 2015 CFI that suggests there is a strong justification to change the notification period from 56 days. In light of our proposals which give BT more pricing flexibility in the WCO market, we continue to consider that a 56-day notification period is appropriate so that BT's notified price changes can be reflected in downstream prices by CPs that rely on BT's standard wholesale charge.

Notice periods in wholesale ISDN30

7.155 In the wholesale ISDN30 market we have imposed a notice period of 28 days since 2003. We consider that the existing notice period remains appropriate, though we propose it should apply only to existing lines for the entire market review period.

7.156 As we do not propose to impose any form of price regulation on BT's provision of new ISDN lines, we do not consider it appropriate to propose an obligation to notify changes to charges for these lines after the transitional period.

Notice periods in wholesale ISDN2

7.157 In the wholesale ISDN2 market we have imposed a notice period of 28 days since 2003. We consider that the existing notification period remain appropriate, though we propose it should apply only to existing lines for the entire market review period.

[381] It also provides consistency for CPs which use LLU as the current WLA requirement is a 90-day notice period for LLU price increases.

7.158 As we do not propose to impose any form of price regulation on BT's provision of new ISDN lines, we do not consider it appropriate to propose an obligation to notify changes to charges for these lines after the transitional period.

Table 7.4: Proposed notice period requirements

	Relevant notice periods by market
WFAEL	**90 days** for changes to the WLR rental charge; **28 days** for price reductions and price changes relating to the end of a temporary price reduction (both in relation to WLR rental charges); and **28-days** for changes to charges for all other services
WCO	**56 days** for changes to charges for standard wholesale changes
ISDN30[382]	**28 days** for changes to charges for all services
ISDN2[383]	**28 days** for changes to charges for all services

Legal tests

7.159 For the reasons set out below, we are satisfied that the proposed SMP conditions for BT in respect of the WFAEL and WCO markets, and in the wholesale ISDN30 and ISDN2 markets (for all lines in the first year and subsequently for existing lines only) in the UK excluding the Hull Area meet the various tests set out in the Act. As explained above, sections 87(6)(b) and (d) authorise the SMP condition we propose to make.

7.160 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

7.161 We have considered our duties under section 3 of the Act. In particular, the proposed obligations would facilitate service interoperability. The proposed obligations would promote the interests of purchasers of wholesale services by ensuring that they have the necessary information about changes to terms, conditions and charges sufficiently in advance to allow them to make informed decisions about competing in downstream markets. Finally, the proposed obligations would make it easier for Ofcom and competitors to BT to monitor any instances of discrimination.

7.162 We also consider that the proposed conditions meet the Community requirements set out in section 4 of the Act. In particular, the proposed conditions promote 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.

7.163 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent.

7.164 In the WFAEL and WCO markets, and in relation to existing ISDN30 and ISDN2 lines, each proposed condition is:

[382] All ISDN30 lines during transitional period and existing ISDN30 lines only after the period.
[383] All ISDN2 lines during transitional period and existing ISDN2 lines only after the period.

- objectively justifiable, in that there are clear benefits from the notification of changes in terms of ensuring that providers are able to make informed decisions within an appropriate time frame when competing in downstream markets;

- not unduly discriminatory, in that the condition is proposed to apply to BT which is the only CP which we propose has SMP in the relevant markets in the UK excluding the Hull Area;

- proportionate, in that only information that other CPs would need to know in order to adjust for changes would have to be notified, and the proposed notification periods are intended to be the minimum required to allow changes to be reflected in downstream offers; and

- transparent, in that the condition is clear in its intention and implementation.

7.165 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that it enables a period of access to BT's network under the current regulatory framework in order to allow the completion of existing contract negotiations;

- not unduly discriminatory, in that it is proposed on BT and it is proposed that no other CP has been found to hold a position of SMP in these markets in the UK excluding the Hull Area;

- proportionate, in that it is imposed for the appropriate period of time only; and

- transparent, in that the condition is clear in its intention to ensure that CPs have the opportunity to complete any existing contract negotiations.

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

Approach to regulatory financial reporting

7.167 In the following sub-sections, we propose to re-impose accounting separation and cost accounting obligations in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area. We propose to implement these obligations by way of a single SMP Condition (draft SMP Condition 10).

7.168 Our proposed accounting separation and cost accounting obligations are underpinned by detailed requirements for regulatory financial reporting which specify what information we require BT to prepare and provide in each of these markets.

7.169 In the 2014 Regulatory Financial Reporting Statement[384] we set out our conclusions on the regulatory financial reporting policy that should be applied to BT across all regulated markets and the changes to the framework for BT's regulatory financial reporting. In Annex 2 to the 2014 Regulatory Reporting Statement we set out pro-forma SMP conditions which would implement the policy decisions made in that statement. We explained that in order to preserve the integrity and consistency of

[384] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.

BT's Regulatory Financial Reporting, we considered that our starting point should be that the changes we proposed should be implemented across all regulated markets, subject to this being appropriate in light of the market analysis in each review. We noted that there were significant advantages to BT and other stakeholders of BT applying one set of accounting rules across all markets and we also noted that BT was broadly supportive of the principle of applying a consistent approach across all markets.[385]

7.170 Consistent with this approach, we have therefore considered whether regulatory financial reporting obligations are appropriate in each of the WCO and wholesale access markets and, to the extent that they are, whether the pro-forma SMP conditions are appropriate in light of our market analysis.

7.171 For the reasons explained below and noting the benefits of applying a consistent approach across all markets, our provisional view is that it is appropriate to impose regulatory financial reporting obligations in these markets and we propose, subject to a minor modification, that it would be appropriate to impose these conditions in each of the markets covered by this review.

7.172 As discussed above, our proposed approach in the two ISDN markets is to discontinue most remedies in respect of new lines after the transitional period. However, we propose to retain accounting separation and cost accounting obligations in respect of all ISDN lines for the whole period of the review.

7.173 We consider that BT continues to have SMP in both ISDN markets; while the competitive constraints may be greater for new customers, we do not propose that they form a separate market. We consider that in order to understand the financial performance of both existing and new ISDN lines and the impact and effectiveness of our proposed remedies in the ISDN markets, we need to understand how costs and revenues are attributed to services in the market, including between new and existing lines.

7.174 The 2005 EC Recommendation states that "the imposition of accounting separation may cover markets where the operator does not have SMP, e.g. to ensure the coherence of data".[386] We consider that the principle of ensuring the coherence of data also applies here, where we propose that BT has SMP across all ISDN lines but that competitive constraints may be greater for new ISDN customers. We consider this applies equally to cost accounting obligations given that cost accounting supports the requirements to account separately for different markets and services and helps to ensure that the attribution rules are fair and do not unduly discriminate between different services or groups of customers.

7.175 We also note that in the 2015 Directions Statement, we set out the necessary directions to give effect to other decisions made in the 2014 Regulatory Reporting Statement about changes to BT's reporting requirements.[387] We discuss these further, and our proposals in respect of these, in Section 19.

[385] Ibid., paragraphs 7.15-7.19.
[386] European Commission, *Commission Recommendation of 19 September 2005 on accounting separation and cost accounting systems under the regulatory framework for electronic communications,* recital 5. Available at: http://www.akos-rs.si/files/APEK_eng/Legislation/l-26620051011en00640069.pdf.
[387] Ofcom, *Directions for Regulatory Financial Reporting*, 30 March 2015 pages 82-93

Accounting separation

Current remedies

7.176 BT is currently subject to accounting separation obligations in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area.

Aim and effect of regulation

7.177 Paragraph 3 of Point 1 of the 2005 Recommendation states that:

> "The purpose of imposing an obligation regarding accounting separation is to provide a higher level of detail of information than that derived from the statutory financial statements of the notified operator, to reflect as closely as possible the performance of parts of the notified operator's business as if they had operated as separate businesses, and in the case of vertically integrated undertakings, to prevent discrimination in favour of their own activities and to prevent unfair cross-subsidy".

7.178 In the 2014 Regulatory Reporting Statement we considered the purposes of regulatory reporting, which is supported by the imposition of an accounting separation obligation. In that statement we said that regulatory reporting "should provide us with the information necessary to make informed regulatory decisions, monitor compliance with SMP conditions, ensure that those SMP conditions continue to address the underlying competition issues and investigate potential breaches of SMP conditions and anti-competitive practices".[388] In addition, we said that it "should provide reasonable confidence to stakeholders that the SMP provider has complied with its SMP conditions and add credibility to the Regulatory Financial Reporting Regime".[389] We consider that our proposal to impose an accounting separation obligation, together with a cost accounting obligation (see below), will help ensure that these regulatory reporting objectives are met.

7.179 In order to carry out our duties it is important that financial information is available on the services and markets that we regulate. The availability of this information helps us understand the volumes, revenues, costs and returns of services and markets, which allows us to monitor the impact and effectiveness of, and (for certain remedies) compliance with, the remedies imposed as part of a market review.

7.180 The accounting separation obligation also requires BT to account separately for internal and external sales which allows Ofcom and stakeholders to monitor the activities of BT to ensure that, where relevant, in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets it does not discriminate unduly in favour of its own downstream business and to monitor BT's activities in respect of the EOI obligation. In practice these obligations require BT to produce financial statements that reflect the performance of the regulated wholesale markets as though they were separate businesses.

7.181 Requiring BT to produce financial statements on each regulated wholesale market, combined with an obligation to attribute costs in a fair, objective and transparent way (via the cost accounting obligation) can help monitor the possibility of unfair cross-

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[388] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014, paragraph 2.28. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.
[389] Ibid., paragraph 2.41.

subsidy by ensuring that costs are not inappropriately loaded onto one set of regulated products to the benefit of another set of regulated products or unregulated products.

Our proposals

7.182 Under sections 87(7) and 87(8) the dominant provider may be required to maintain a separation for accounting purposes between such different matters relating to network access or the availability of relevant facilities.

7.183 We propose an accounting separation obligation on BT in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area. We consider that this obligation is necessary to monitor the overall impact and effectiveness of the remedies proposed in Table 7.1 and, in particular, to monitor BT's activities with regard to, where relevant, its non-discrimination and EOI obligations. The proposed obligation is also necessary to support transparency by providing a greater detail of information on the relevant markets than that derived from BT's statutory financial statements and give visibility, and thus reassurance, to stakeholders that BT has complied with its SMP conditions and allow them to contribute to the regulatory regime.

7.184 In respect of the specific form of the accounting separation requirements we are proposing for BT in these markets, we propose imposing the form of condition set out in the 2014 Regulatory Financial Reporting Statement but modified to remove the reference to the Regulatory Accounting Guidelines[390]. This form of condition implements our policy decisions on regulatory financial reporting set out in that statement.[391] The purpose of the condition is to: give Ofcom a greater role in the way that BT prepares its regulatory financial statements;[392] improve the presentation of the published regulatory financial statements and supporting documentation;[393] and ensure that Ofcom and other stakeholders have the information they need.

Legal tests

7.185 For the reasons set out below, we are satisfied that our proposal to impose accounting separation requirements on BT in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets meet the various tests set out in the Act. As explained above, sections 87(7) and (8) authorise the SMP condition we propose to make.

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[390] As explained in the 2016 BCMR Statement (paragraph 8.175 and Annex 28), we no longer consider that it would be useful to establish high level guidelines and accounting rules in the Regulatory Accounting Guidelines by way of direction. Where we find concerns about BT's detailed application of cost attribution rules, in line with what we have done in the 2016 BCMR we will direct BT as to the specific reporting requirements consistent with the Regulatory Accounting Principles arising from each regulatory decision. The wording of our proposed condition reflect our decision not to issue the Regulatory Accounting Guidelines. Each proposed condition therefore require BT to prepare the RFS in accordance with the SMP conditions, the Regulatory Accounting Principles and the Accounting Methodology Documents.

[391] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014, page 1. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.

[392] This included establishing new Regulatory Accounting Principles (including a requirement for consistency with regulatory decisions) and a change control process whereby BT is required to notify us about proposed changes to its regulatory accounting methodology.

[393] This included a requirement on BT to publish annual reconciliation reports that show the impact of material changes and errors.

7.186 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

7.187 We have considered our duties under section 3 of the Act The imposition of an accounting separation obligation would protect competition in relation to the provision of electronic communications networks and services, ensuring the provision of network access and service interoperability for the purposes 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 would ensure that other obligations designed to curb potentially damaging leverage of market power, in particular the fair and reasonable charging obligation (where it applies) and the requirement not to unduly discriminate (in the markets where we propose to impose this), can be effectively monitored.

7.188 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, we believe section 4(8) is met, as the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services in that it helps to ensure that dominant providers comply with other obligations, including (with the exception of the WCO market) non-discrimination requirements.

7.189 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In relation to the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets we consider each proposed condition is:

- objectively justifiable, as it relates to the need to ensure competition develops fairly to the benefit of consumers;
- not unduly discriminatory, as it is only imposed on BT, which is the only CP which we propose to find has SMP in the relevant markets in the UK excluding the Hull Area;
- proportionate, in that it is the least onerous obligation necessary as a mechanism to allow us and third parties to monitor the impact and effectiveness of the remedies proposed, specifically fair and reasonable charging and non-discrimination; and
- transparent, in that it is clear the intention is to monitor the impact and effectiveness of the remedies proposed.

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

Cost accounting

Current remedies

7.191 BT is currently subject to a cost accounting obligation in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area.

Aim and effect of regulation

7.192 Recital 2 of the 2005 Recommendation states that the purpose of imposing the accounting separation and cost accounting obligations is “to make transactions between operators more transparent and/or to determine the actual costs of services provided". Also, paragraph 2 of Point 1 of the 2005 Recommendation states that:

> "The purpose of imposing an obligation to implement a cost accounting system is to ensure that fair, objective and transparent criteria are followed by notified operators in allocating their costs to services in situations where they are subject to obligations for price controls or cost-oriented prices."[394]

7.193 The imposition of cost accounting obligations ensures that BT has in place a system of rules that support the attribution of revenues and costs to individual markets and services. It therefore supports the accounting separation obligation, which requires BT to prepare and report financial information relating to individual markets and services, by ensuring that the rules attributing revenues and costs to individual markets and services are fair, objective and transparent. The cost accounting obligation is an important means of ensuring that:

- Ofcom and stakeholders can have confidence in the financial information prepared and provided by BT on individual markets and services since the attribution processes and rules supporting that financial information are fair, objective and transparent. Where we do not consider that the attribution process and rules are fair and objective, transparency (via publication of the processes and rules followed by BT) allows us to effectively challenge them.

- Revenues and costs are attributed to individual markets and services in a consistent manner. This mitigates the risk of double recovery of costs or that costs might be unfairly loaded onto particular products or markets.

- 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.

Our proposals

7.194 Section 87(9) to (11) (subject to section 88) of the Act authorises Ofcom to impose appropriate cost accounting obligations on BT.

7.195 We propose to impose cost accounting requirements on BT in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area. We consider that this proposed obligation is necessary to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent.

7.196 In respect of the specific form of the cost accounting requirements we are proposing for BT in these markets, we propose imposing the form of condition set out in the 2014 Regulatory Financial Reporting Statement but modified to remove the reference

[394] We also note that BT's 2014/15 RFS says that a "cost accounting system is a set of rules which supports the attribution of costs, revenues and capital employed to individual activities and services". BT, Revised Current Cost Financial Statements 2015 including Openreach Undertakings, page 137. Available at: http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2015/RevisedCurrentCostFinancialStatements2015.pdf.

to the Regulatory Accounting Guidelines.[395] This form of condition implements our policy decisions on regulatory financial reporting set out in that statement.[396] The purpose of the condition is to: give Ofcom a greater role in the way that BT prepares its regulatory financial statements;[397] improve the presentation of the published regulatory financial statements and supporting documentation;[398] and ensure that Ofcom and other stakeholders have the information they need.

Legal tests

7.197 For the reasons set out below, we are satisfied that the proposed cost accounting requirements for BT in respect of the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area meet the various tests set out in the Act. As explained below, sections 87(9), (10) and (11) authorise the SMP condition we propose to make.

7.198 Section 87(9)(c) authorises conditions imposing such rules as we may make for the purposes of matters connected with the provision of network access to the relevant network, or with the availability of relevant facilities about the use of cost accounting systems. Such conditions include conditions requiring the application of presumptions in the fixing and determination of costs and charges for the purposes of the price controls, rules and obligations imposed by virtue of that subsection (section 87(10)). Where such conditions are imposed, section 87(11) imposes a duty on us to set an SMP condition which imposes an obligation: to make arrangements for a description to be made available to the public of the cost accounting system used in pursuance of that condition; and to include in that description details of:

- the main categories under which costs are accounted for; and
- the rules applied for the purposes of that system with respect to the allocation of costs.

In setting such conditions, we must be satisfied that the conditions about network access pricing set out in section 88 are also satisfied.

7.199 Below we list the various price control obligations that we propose. At the paragraphs referenced below, we have set out how our proposals meet the conditions in section 88, in that they would address the risks of price squeeze and/or excessive pricing,

[395] As explained in the 2016 BCMR Statement (paragraph 8.175 and Annex 28), we no longer consider that it would be useful to establish high level guidelines and accounting rules in the Regulatory Accounting Guidelines by way of direction. Where we find concerns about BT's detailed application of cost attribution rules, in line with what we have done in the 2016 BCMR we will direct BT as to the specific reporting requirements consistent with the Regulatory Accounting Principles arising from each regulatory decision. The wording of our proposed condition reflect our decision not to issue the Regulatory Accounting Guidelines. Each proposed condition therefore require BT to prepare the RFS in accordance with the SMP conditions, the Regulatory Accounting Principles and the Accounting Methodology Documents.

[396] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014, page 1. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.

[397] This included establishing new Regulatory Accounting Principles (including a requirement for consistency with regulatory decisions) and a change control process whereby BT is required to notify us about proposed changes to its regulatory accounting methodology.

[398] This included a requirement on BT to publish annual reconciliation reports that show the impact of material changes and errors.

and promote efficiency and protect competition, to the benefit of consumers, and would not undermine investment by BT. We propose to impose on BT:

- fair and reasonable charges obligations in the WFAEL and WCO markets, which apply to all services including relevant WLR ancillary services;
- fair and reasonable charges obligations on all ISDN30 and ISDN2 lines in the transitional period, and on existing lines only thereafter;
- charge controls on rentals, line and channel connections and transfers in the wholesale ISDN30 and ISDN2 markets in the transitional period; and
- charge controls on rentals, channel connections and transfers of existing lines in the wholesale ISDN30 and ISDN2 markets after the transitional period.

7.200 We consider that imposing a cost accounting obligation is necessary for our price regulation obligations to work, and that imposing a cost accounting obligation is consistent with section 88.

7.201 We consider that the proposed condition fulfils our duty under section 87(11) in that the cost accounting obligation requires the publication of a description of the cost accounting system used and the main categories of cost and the cost allocation rules applied.

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

7.203 We have considered our duties under section 3 of the Act. In particular, we consider that the imposition of the proposed cost accounting obligation is justifiable and proportionate to protect competition in relation to the provision of electronic communications networks and services and to ensure the provision of network access (including supporting ancillary services) 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 or price squeeze – can be effectively monitored and enforced.

7.204 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, we believe that the proposed cost accounting obligations protect competition in relation to the provision of electronic communications networks, and encourage the provision of network access for the purpose of securing efficiency and protecting competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

7.205 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In relation to the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets we consider that each proposed is:

- objectively justifiable, in that it is necessary to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent;

- not unduly discriminatory, in that BT is the only CP on which we propose to impose a cost-accounting remedy;

- proportionate, in that the obligation is the minimum required in order to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent; and

- transparent, in that it is clear in its intention to ensure the appropriate maintenance and provision of accounts for the purposes set out above and the particular cost accounting requirements of BT are clearly documented.

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

Remedies that we propose to remove

Requests for new forms of network access

7.207 In previous market reviews we imposed a process for requests for new forms of network access in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets. We are now proposing to remove this remedy in recognition of the maturity of BT's TDM network and the provision of calls over it. It should be noted that, if BT wants to migrate to IP, we would expect it to engage with industry about replacement products in sufficient time.

7.208 The remedy in relation to requests for new forms of network access is intended to support access seekers and ensure that there is a reasonable and transparent process for assessing requests from them. However, as BT's TDM network is mature and well established, the case for requiring BT to set out a process for new requests is weaker than at the time of previous market reviews because innovations in narrowband network access are unlikely to be a necessary aspect of competing in the WCO market. Therefore, we no longer consider it necessary to prescribe the process that BT should follow in responding to such requests in order to protect downstream competition. In the event that an access seeker does require a new form of access, the access seeker will still be able to request this under the general access remedy and BT will be required to assess if the request is reasonable.

No undue discrimination

7.209 As set out above, we consider it is no longer necessary to impose a no undue discrimination obligation on BT in the WCO market as, given the greater competitive constraints acting in this market (most notably from the indirect constraint of mobile call origination), we consider that BT is unlikely to discriminate in the provision of WCO to an extent which will restrict or distort competition and require ex ante regulation.

Notify technical information

7.210 In previous market reviews we also imposed an obligation on BT to notify technical information in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets. The notification of technical information remedy was designed to ensure that competing providers had sufficient time to respond to technical changes that may affect them. We are now proposing to remove this remedy as we do not think it is necessary in recognition of the maturity of BT's TDM network and the provision of calls over it.

Consultation question

Question 7.1: Do you agree with the remedies that we propose for BT in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets? Please provide reasons and evidence in support of your views.

Section 8

Remedies on BT: ISDN30 and ISDN2 charge controls

Introduction

8.1 In this section we set out our proposed approach to price regulation on BT in the wholesale ISDN30 and ISDN2 markets in the UK excluding the Hull Area.

8.2 In Section 6 we set out our provisional conclusion that BT has SMP in the wholesale ISDN30 and ISDN2 markets in the UK excluding the Hull Area. In this section we set out our proposals to impose charge controls on BT's provision of wholesale ISDN30 and ISDN2 services, in addition to the other remedies we propose for these markets in Section 7.

8.3 As in Section 7, we refer to ISDN lines installed before the end of the transitional period as 'existing lines' and lines installed after the end of the transitional period as 'new lines'.

8.4 For existing ISDN lines, we propose to cap charges at their current nominal levels, including ancillary services reasonably necessary for the use of ISDN services. We propose that the form of the ISDN30 charge control should be a basket including rentals, channel connections[399] and Service Maintenance Levels (SML) 3 and 4[400] for existing lines, plus a separate three-year control for Direct Dialling In (DDI) services. We propose that the ISDN2 charge control should be a separate three-year control on rentals for existing lines.

8.5 In addition, for the transitional period only (see Section 7), we propose separate charge controls for ISDN30 and ISDN2 line connections at their current nominal levels.

8.6 We also propose separate charge controls for ISDN30 and ISDN2 transfers, for all lines during the transitional period and for existing lines only after the transitional period.

8.7 Table 8.1 summarises the charge controls imposed by the FAMR 2014 and the new charge controls we propose on BT for the next market review period in the wholesale ISDN30 and ISDN2 markets.

[399] As explained in Section 7, for ISDN30 we distinguish between the addition of channels on an existing ISDN30 line from the installation of a new ISDN30 line in our regulatory proposals.
[400] In Section 19 we refer to these as 'Enhanced Care'.

Table 8.1: Summary of FAMR 2014 and proposed charge controls on BT (in the UK excluding the Hull Area)

	FAMR 2014 charge controls	Proposed charge controls in transitional period	Proposed charge controls after transitional period
ISDN30	**All lines** - Charges capped at current levels in nominal terms - Charge control basket for rentals, connections[401] and SML 3 and 4 - +5% sub-cap on connections per annum - 0% sub-basket on SML 3 and 4 per annum - Separate charge control on DDI services - Separate charge control on transfers	**All lines** - Charges capped at current levels in nominal terms - Charge control basket for rentals, channel connections and SML 3 and 4 - +5% sub-cap on channel connections per annum - 0% sub-basket on SML 3 and 4 per annum - Separate charge control on line connections - Separate charge controls on DDI rentals - Separate charge control on DDI connections - Separate charge control on transfers	**Existing lines** - Charges capped at current levels in nominal terms - Charge control basket for rentals, channel connections SML 3 and 4 - +5% sub-cap on channel connections per annum - 0% sub-basket on SML 3 and 4 per annum - Separate charge controls on DDI rentals - Separate charge control on transfers
ISDN2	**All lines** - Charges capped at current levels in nominal terms - Charge control basket for rentals and connections[402] charges - Separate charge control on transfers	**All lines** - Charges capped at current levels in nominal terms - Separate charge control on rentals - Separate charge control on connections - Separate charge control on transfers	**Existing lines** - Charges capped at current levels in nominal terms - Separate charge control on rentals - Separate charge control on transfers

8.8 We set out our proposed remedies on KCOM's provision of wholesale ISDN30 and ISDN2 services in the Hull Area, including the provision of network access on fair and reasonable charges, in Section 10.

Approach to ISDN charge controls

8.9 In the 2014 FAMR Statement, we imposed charge controls on BT's wholesale ISDN30 and ISDN2 services. The charge controls were designed to protect against excessively high wholesale prices, but also to send efficient signals to encourage migration to IP-based alternatives. Our proposals in this review recognise that ISDN services are legacy services and seek to support efficient migration to IP-based alternatives. We therefore propose to focus our charge control remedies on protecting users of existing lines, by imposing a charge control for a period of three years from 1 October 2017 to 30 September 2020. Three years reflects the length of the forward-look period of this market review.

[401] Includes line and channel connections.
[402] ISDN2 connections refers only to line connections as there is no option of connecting new channels on existing ISDN2 lines.

8.10 For new ISDN line connections, we do not consider that *ex ante* price regulation is appropriate given the legacy nature of ISDN30 and ISDN2 services and the opportunity to use IP alternatives for new business customers or new sites for existing customers. Therefore, in accordance with our proposed approach to other remedies in the wholesale ISDN30 and ISDN2 markets, as set out in Section 7, we propose to only charge control new ISDN line connections for a transitional period. This is to provide sufficient time for CPs and businesses to conclude contract negotiations which may have commenced under the current regulatory regime. Thereafter, BT's wholesale charges for new ISDN connections and subsequent rentals for these new lines will not be subject to *ex ante* price regulation.

8.11 We propose to charge control new channel connections for existing ISDN30 lines throughout the market review period.

8.12 We propose that the charge controls should also apply to certain ancillary services, as set out in more detail below. In addition, we propose separate charge controls on wholesale transfers in both ISDN30 and ISDN2, as discussed below.

Wholesale ISDN charge control proposals

8.13 In this subsection we summarise our analysis in Sections 5 and 6 of BT's volumes and returns for wholesale ISDN services and then consider which form of price regulation is appropriate.

Analysis of BT's volumes and returns

<u>ISDN30</u>

8.14 The total volume of ISDN30 channels has steadily declined at an average annual rate of 4.3% (see Figure 5.1). BT's wholesale market share of ISDN30 channels has slowly reduced from 73% in June 2012 to 65% in March 2016.

8.15 Since we first imposed a charge control on wholesale ISDN30 prices in the 2012 ISDN30 Charge Control Statement,[403] BT has set its ISDN30 prices at the maximum levels permitted under our charge controls. BT's returns from selling wholesale ISDN30 services have been high (i.e. well above the relevant WACC – see Figure 6.4), largely because its ISDN30 asset base is heavily depreciated.

8.16 In our 2012 ISDN30 Charge Control Statement, we considered that an appropriate way of setting ISDN30 charges was to uplift the heavily depreciated ISDN30 assets to base the controls on the costs of a hypothetical ongoing network (HON) in a steady state, such that BT was prevented from charging excessive prices but that investment and innovation incentives for IP-based services were not distorted.

<u>ISDN2</u>

8.17 The total volume of ISDN2 channels has steadily declined at an average annual rate of 3.6% (see Figure 5.2).

[403] Ofcom, *Wholesale ISDN30 price control*, 12 April 2012. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0027/73908/isdn30_final_statement.pdf.

8.18 BT's wholesale market share of ISDN2 channels remains at nearly 100%, and since we imposed a charge control on wholesale ISDN2 prices in the FAMR 2014, BT has set its ISDN2 prices at the maximum level permitted under the charge control.

8.19 BT's returns from selling wholesale ISDN2 services have been fairly flat in recent years. BT's ROCEs have consistently been in excess of the relevant cost of capital (see Figure 6.5).

Proposed form of price regulation

8.20 We have considered two possible forms of price control for ISDN services: a charge control and a fair and reasonable charges obligation. In the following paragraphs we discuss which of these we consider to be appropriate for regulating ISDN services.

Fair and reasonable charges

8.21 We have considered whether an obligation on BT to provide access to wholesale ISDN30 and ISDN2 services on fair and reasonable charges would be sufficient to address our competition concerns in relation to existing ISDN lines.

8.22 For existing lines in the wholesale ISDN markets, we do not consider that such an obligation would be sufficient on the basis that:

- For CPs serving customers with existing ISDN lines, we consider there is the risk that BT may set excessively high wholesale charges thus undermining effective downstream competition.

- In contrast to the WCO and WFAEL markets, BT's market share is very high (for ISDN30, see Figure 6.3). While we recognise there is an increasing degree of substitutability with IP-based services, we consider such services are a less effective substitute for many existing users of ISDN30 and ISDN2 (see Section 5).

8.23 We have also considered whether a fair and reasonable charges obligation would be sufficient for new line connections in the transitional period. However, as above, we do not consider such an obligation would be sufficient. In Section 7 we set out our proposals to apply a transitional period of regulation for new ISDN line connections so as to allow CPs to complete existing contract negotiations. We consider that customers who are negotiating ISDN access should be treated as being in a similar position to existing customers such that there is a risk that BT can use its SMP to price excessively in relation to such customers. Therefore, we do not consider that a fair and reasonable charges obligation would be sufficient given the risk that BT may set excessively high wholesale charges for these connections during the transitional period and thus undermine effective downstream competition.

8.24 Therefore, we consider that charge controls are necessary to address our competition concern and we have considered below the options of a simple indexed or cost-based charge controls.

Indexed charge control without explicit cost forecasting

8.25 An indexed charge control would not require detailed cost modelling or large amounts of information from CPs (particularly BT). Furthermore, this approach would provide certainty and stability to the market as prices would be capped in advance.

We believe that this certainty would help to encourage efficient migration from wholesale ISDN30 and ISDN2 services to IP-based services.

Cost-based charge control

8.26 A cost-based charge control would limit price increases for ISDN30 and ISDN2 services by imposing a cost-based cap. As discussed above, and in Section 6, BT's reported returns are significantly above BT's cost of capital. This suggests that, from a cost-recovery perspective, a case could be made for charges to be reduced over time, such as under a cost-based charge control.

8.27 However, we expect that volumes of ISDN30 and ISDN2 services will continue to decline over the next market review period and so, all other things being equal, it would normally be expected that this would reduce revenues and hence returns.

8.28 In addition, there are factors that suggest a cost-based charge control may not be an appropriate remedy. First, there is uncertainty regarding BT's operating costs on the ISDN network as the network ages. We would need to make adjustments to the cost figures in order to take account of the heavily depreciated nature of the assets as, while in accounting terms the assets have been fully depreciated, the products are still being used. This means that the assets' accounting value may underestimate their true economic value.

8.29 Second, requiring the charge controls to be set on the basis of projected costs could risk prices being set at a level that would result in reduced incentives to migrate to IP-based services. BT and other CPs are investing in alternative technologies.

8.30 Substantially lower prices – which might be the consequence if we imposed a cost-based charge control – may deter the migration to IP-based services.

8.31 Balancing these different considerations, while we do not see a strong reason to allow wholesale charges to increase from their current level, we also consider that it may not be efficient, or in consumers' interests, for charges to fall materially.

Provisional conclusions

8.32 We have assessed whether it would be appropriate to impose simple indexed or cost-based charge controls. In light of the above, we consider that a simple indexation approach reduces the risk of regulatory failure, particularly in relation to incentives to invest. At the same time, such an approach should provide appropriate protection for downstream competitors and, ultimately, existing consumers of legacy ISDN services.

8.33 Given that returns have been consistently above BT's cost of capital, we do not propose holding average charges constant in real terms. We therefore propose to hold ISDN30 and ISDN2 wholesale charges at a constant level in nominal terms.

Wholesale ISDN30 charge control proposals

Structure of the wholesale ISDN30 charge control

8.34 The FAMR 2014 imposed a basket consisting of ISDN30 rentals, connections (lines and channels) and SML 3 and 4. Given our proposal to cease the regulation of ISDN30 line connections after the transitional period, we propose to impose a basket control covering ISDN30 rentals, channel connections and SML 3 and 4, with separate charge controls on transfers, DDI rentals and (for the transitional period only) ISDN30 and DDI line connections.

8.35 We propose to maintain the basket approach for rentals, channel connections and SML 3 and 4 as we consider that it remains appropriate to give BT some flexibility on individual charges. This will provide BT with the flexibility to recover common costs in the most efficient manner across these services.

8.36 Nevertheless, we propose to implement a sub-cap on channel connections and a sub-basket for SML 3 and 4 so as to set some limits on BT's pricing flexibility in order to prevent undue price volatility and, therefore, uncertainty. Over a three-year control period, large increases in individual charges (even if off-set on average across the basket) could result in some very high charges for individual services.

8.37 The current ISDN30 charge control imposes a +5% sub-cap on connections (lines and channels) and a 0% sub-basket on SML 3 and 4. We consider that a sub-cap for connections (channels only) and a sub-basket for SML 3 and 4 remain appropriate. With regard to the level of control, we propose to maintain a +5% sub-cap on channel connections and a 0% sub-basket for SML 3 and 4. Our objective is to protect customers from sudden price shocks without unduly restricting BT's pricing flexibility within the basket.

8.38 Finally, we are proposing a separate control on ISDN30 transfers because, if transfers were in the same basket as rentals, BT might have an incentive to meet the charge control by concentrating reductions on rental charges while increasing the transfer charges and thus increasing the financial exposure for CPs acquiring (or seeking to acquire) customers that switch provider.

Our proposals

8.39 For the wholesale ISDN30 charge control, we propose maintaining the structure of the current charge control, specifically:

- a basket of ISDN30 rentals, including SML 3 and 4 for existing lines, and ISDN30 channel connections with a cap on average charges at current nominal levels;
- a sub-cap for ISDN30 channel connections in the range of 5%;
- a sub-basket of ISDN30 SML 3 and 4 of 0%;[404]
- separate controls on DDI rentals at current nominal levels; and
- a separate control on ISDN30 transfers at current nominal levels.

8.40 We also propose, for the first year of the charge control period only:

- a separate control on ISDN30 line connections at current nominal levels; and
- a separate control on DDI connections at current nominal levels.

8.41 We further propose that the average basket price change BT is allowed to make in the second and third year of the control should reflect whether its actual price change

[404] Should BT replace these services, the replacement services would also be within the scope of the control.

in the previous year was in line with the maximum allowed under the charge control. That is, if BT reduces charges by more than is required under the cap, then it will be able to carry the excess into the following year of the charge control and increase its average prices to compensate. Conversely, If BT reduces the charges by less than is required, then it will have to carry the deficit into the next year and make up the shortfall by reducing prices more than the cap requires. In the last year of the control, if BT is likely to fail to secure that the change in price does not exceed the control, then we can direct that BT should make an appropriate adjustment to its charges

8.42 In addition, we propose that BT is required to supply information in order for us to monitor its compliance with the control. BT would be required to provide this information annually to Ofcom, three months after the end of the charge control year.[405]

Ancillary services

8.43 In the 2014 FAMR Statement, we imposed charge controls on certain ancillary services reasonably necessary for the use of BT's wholesale ISDN services. We propose to maintain these charge controls; specifically, we propose charge controls on SML 3 and 4 and DDI services for existing ISDN30 lines.

8.44 With regard to other ISDN30 ancillary services, we consider that the revenue from these services is so small that it would not be appropriate to impose a specific charge control on these services. These services, in line with our proposals in Section 7, would instead be subject to a fair and reasonable charges obligation.

Service Maintenance Levels

8.45 SML 3 and 4 offer customers services such as expedited repair and flexible appointments. In the FAMR 2014, we continued to impose price regulation on SML 3 and 4 by placing them in the same basket as ISDN30 rentals and connections. We propose to continue with this basket approach as it allows BT some flexibility to rebalance charges if necessary.

Direct Dialling In

8.46 DDI allows consumers to control their own numbering and receipt of calls and outside callers to direct dial into extension telephones from the PSTN. With regard to DDI connections (which includes separate number planning and connection charges) and DDI rentals on ISDN30 lines, we propose to regulate them in the same way as we are proposing to regulate ISDN30 line connections and rentals. We therefore propose to apply charge controls to new DDI connections made in the first year only of the next market review period and to DDI rentals connected before the start of the second year of the next market review period. We propose to maintain nominal prices for these existing DDI services.

Transfers

8.47 We propose to charge control the transfer of all ISDN30 lines in the transitional period and to charge control the transfer of existing ISDN lines only from the end of the transitional period. Our key competition concern in the wholesale ISDN30 market is protecting downstream competition for existing lines. We recognise the importance

[405] This requirement is set out in Condition 5A. BT is also required to publish non-confidential compliance schedules in relation to ISDN30 as set out in Section 19.

of transfer charges in facilitating switching and therefore downstream competition. In the absence of a charge control on transfers, BT might have an incentive to set these charges at an excessively high level, deterring switching and undermining the effectiveness of our wholesale remedies in protecting retail completion. Our proposals promote retail competition by supporting the ability of CPs to compete for existing users of ISDN30, who may face barriers to switching to an IP-based service.

Legal tests

8.48 For the reasons set out below, we are satisfied that the proposed charge control condition for BT on wholesale ISDN30 meets the tests set out in the Act.

8.49 Section 87(9) of the Act authorises Ofcom to set SMP services conditions imposing on the dominant provider, among others, such price controls as Ofcom may direct in relation to matters connected with the provision of network access to the relevant network, or with the availability of the relevant facilities provided the conditions set out in Section 88 of the Act are satisfied.

8.50 We consider that the proposed condition satisfies the requirements of Section 88(1) as our market analysis indicates that, absent the charge controls, there is a risk of adverse effects arising from price distortion as BT might fix and maintain some or all of its prices for wholesale ISDN30 at an excessively high level so as to have adverse consequences for end users of public electronic communications services.

8.51 We consider that the proposed charge control condition is appropriate for the purposes of promoting efficiency and sustainable competition by ensuring that there is no distortion or restriction of competition and 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 possible benefits on end users of public electronic communications services. We also consider that the proposed charge control conditions would ensure prices are set at a level which supports efficient migration to newer services and encourage efficient investment in new technologies.

8.52 In proposing the ISDN30 wholesale charge control condition we have taken account of the extent of investment by BT in the matters to which the condition relates in accordance with section 88(2) of the Act. In particular, we consider that a cap set at the prevailing level of average charges is likely to ensure that returns remain above the cost of capital for this line of business and should also maintain incentives to invest in (and promote) the take-up of newer IP-based alternatives.

8.53 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

8.54 We consider that the performance of our general and specific duties under sections 3 and 4 of the Act is secured or furthered by our proposal to adopt these charge controls. In particular, we consider that the charge controls would prevent excessive pricing by BT, while encouraging migration to newer IP-based services and efficient investment in new technologies. The existing charge control for wholesale ISDN30 services has promoted sustainable competition in the downstream market to the benefit of consumers. We provisionally conclude that such controls are necessary to sustain this level of competition for existing ISDN services.

8.55 We have had regard to the requirement to promote competition and to secure efficient and sustainable competition for the benefit of consumers, which are relevant to both sections 3 and 4 of the Act. In making our proposals and focusing our proposed remedies on existing ISDN services, we have also sought the least intrusive regulatory measures to achieve our policy objectives.

8.56 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- Objectively justifiable, in that, in the absence of any charge control on existing ISDN30 services, BT's SMP would allow it to set charges unilaterally and set prices excessively high which would distort downstream competition. The design of the proposed controls is also such that BT has an incentive to continue to seek efficiency gains.

- Not unduly discriminatory, in that Ofcom considers that the proposed charge controls do not discriminate unduly against BT as it is the only CP to hold SMP in the market (for the UK excluding the Hull Area) and the proposed controls seek to address that market position.

- Proportionate, in that the proposed charge controls are focused on ensuring that there are reasonable wholesale prices for existing ISDN30 services, which are important in maintaining effective downstream competition. We therefore consider the proposed charge controls are:

  - appropriate to achieve the aim of addressing BT's ability and incentive to charge excessive wholesale prices;

  - necessary, in that they do not impose controls on the prices that BT may charge that go beyond what is required to achieve the aim of addressing BT's ability and incentive to charge excessively for these services; and

  - are such that they do not produce adverse effects that are disproportionate to the aim pursued.

- Transparent, in that the aims and effects of the proposed charge controls are clear and they have been drafted so as to secure maximum transparency.

8.57 In relation to charge controls on ISDN30 line connections in the transitional period, the proposed condition is:

- objectively justifiable, in that it provides a period of protection against excessive wholesale pricing while CPs complete existing contract negotiations;

- not unduly discriminatory, in that it is proposed on BT and it is proposed that no other CP has been found to hold a position of SMP in these markets in the UK excluding the Hull Area;

- proportionate, in that it is imposed for a limited time only, is targeted at addressing the market power that we propose BT holds in these markets and important in maintaining downstream competition; and

- transparent, in that the aims and effects of the proposed charge controls are clear and they have been drafted so as to secure maximum transparency.

8.58 The text of the proposed conditions has been published in Annex 6 and the operation of those conditions is aided by our explanations in this document.

Wholesale ISDN2 charge control

Structure of the wholesale ISDN2 charge control

8.59 The FAMR 2014 imposed a basket consisting of ISDN2 rentals and connections. This basket structure will no longer be appropriate following our proposal to cease the regulation of ISDN2 connections after the transitional period. We therefore propose separate controls on ISDN2 rental, connection and transfer charges.

Our proposals

8.60 For the wholesale ISDN2 charge control, we propose:

- a separate control on ISDN2 rentals for existing lines at current nominal levels (and for all lines during the transitional period);
- a separate control on ISDN2 connections at current nominal levels (for the transitional period only); and
- a separate control on ISDN2 transfers for existing lines at current nominal levels (and for all lines during the transitional period).

8.61 We also propose that BT is required to supply information in order for us to monitor its compliance with the control. BT would be required to provide this information annually to Ofcom, three months after the end of the charge control year.[406]

8.62 Our aim in controlling wholesale ISDN2 charges is to protect competition for consumers of existing lines and we consider that it is appropriate to use a similar cap as imposed in the FAMR 2014.

Ancillary services

8.63 With regard to ISDN2 ancillary services, we consider that the revenue from these services is so small that it would not be appropriate to impose a specific charge control on these services. These services, in line with our proposals in Section 7, would instead be subject to a fair and reasonable charges obligation.

Transfers

8.64 We propose to charge control the transfer of all ISDN2 lines in the transitional period and to charge control the transfer of existing ISDN2 lines only from the end of the transitional period. Our key competition concern in the wholesale ISDN2 market is protecting downstream competition for existing lines. We recognise the importance of transfer charges in facilitating switching and therefore retail competition. In the absence of a charge control on transfers, BT might have an incentive to set these charges at an excessively high level, deterring switching and undermining the effectiveness of our wholesale remedies in protecting downstream competition. Our proposals protect downstream competition by supporting the ability of CPs to compete for existing users of ISDN which may face barriers to switching to an IP-based service.

[406] This requirement is set out in Condition 5B. BT is also required to publish non-confidential compliance schedules in relation to ISDN2 as set out in section 19.

Legal tests

8.65 For the reasons set out below, we are satisfied that the proposed charge control condition for BT on wholesale ISDN2 meets the tests set out in the Act.

8.66 Section 87(9) of the Act authorises Ofcom to set SMP services conditions imposing on the dominant provider, among others, such price controls as Ofcom may direct in relation to matters connected with the provision of network access to the relevant network, or with the availability of the relevant facilities provided the conditions set out in section 88 are satisfied.

8.67 We consider that the proposed condition would satisfy the requirements of section 88(1) of the Act as our market analysis indicates that, absent the charge controls, there is a risk of adverse effects arising from price distortion as BT might fix and maintain some or all of its prices for wholesale ISDN2 at an excessively high level so as to have adverse consequences for end users of public electronic communications services.

8.68 We consider that the proposed charge control condition is appropriate for the purposes of promoting efficiency and sustainable competition and conferring the greatest possible benefits on end users of public electronic communications services. We also consider that the proposed charge control conditions would ensure prices which encourage efficient migration from declining services to newer replacements and encourage efficient investment in new technologies.

8.69 In proposing the ISDN2 wholesale charge control condition we have taken account of the extent of investment by BT in the matters to which the condition relates in accordance with section 88(2) of the Act. In particular, we consider that a cap set at the prevailing level of average charges is likely to ensure that returns remain above the cost of capital for this line of business and should also maintain incentives to invest in (and promote) the take-up of newer IP-based alternatives.

8.70 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

8.71 We consider that the performance of our general and specific duties under sections 3 and 4 of the Act is secured or furthered by our proposal to adopt the charge controls. In particular, we consider that the charge controls would prevent excessive pricing by BT, while encouraging migration newer IP-based services and efficient investment in new technologies.

8.72 We have had regard to the requirement to promote competition and to secure efficient and sustainable competition for the benefit of consumers, which are relevant to both sections 3 and 4 of the Act. In making our proposals and focusing our proposed remedies on existing ISDN2 services, we have also sought the least intrusive regulatory measures to achieve our policy objectives.

8.73 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- Objectively justifiable, in that, in the absence of any charge control on existing ISDN2 services, BT’s SMP would allow it to set charges unilaterally and set prices excessively high which would distort downstream competition. The design of the proposed controls is also such that BT has an incentive to continue to seek efficiency gains.

- Not unduly discriminatory, in that Ofcom considers that the proposed charge controls do not discriminate unduly against BT as it is the only CP to hold SMP in the market (for the UK excluding the Hull Area) and the proposed controls seek to address that market position.

- Proportionate, in that the proposed charge controls are focused on ensuring that there are reasonable wholesale prices for existing ISDN2 services, which are important in maintaining effective downstream competition. We therefore consider the proposed charge controls are:

  - appropriate to achieve the aim of addressing BT's ability and incentive to charge excessive wholesale prices;

  - necessary, in that they do not impose controls on the prices that BT may charge that go beyond what is required to achieve the aim of addressing BT's ability and incentive to charge excessively for these services; and

  - are such that they do not produce adverse effects that are disproportionate to the aim pursued.

- Transparent, in that the aims and effects of the proposed charge controls are clear and they have been drafted so as to secure maximum transparency.

8.74 In relation to charge controls on ISDN2 connections in the transitional period, the proposed condition is:

- objectively justifiable, in that it provides a period of protection against excessive wholesale pricing while CPs complete existing contract negotiations;

- not unduly discriminatory, in that it is proposed on BT and it is proposed that no other CP has been found to hold a position of SMP in these markets in the UK excluding the Hull Area;

- proportionate, in that it is imposed for a limited time only, is targeted at addressing the market power that we propose BT holds in these markets and important in maintaining downstream competition; and

- transparent, in that the aims and effects of the proposed charge controls are clear and they have been drafted so as to secure maximum transparency.

8.75 The text of the proposed conditions has been published in Annex 6 and the operation of those conditions is aided by our explanations in this document.

Consultation question

Question 8.1: Do you agree with our charge control proposals for BT in the wholesale ISDN30 and ISDN2 markets? Please provide reasons and evidence in support of your views.

Section 9

Quality of service remedies on BT: WFAEL, ISDN30 and ISDN2

Introduction

9.1 In Section 7 we set out our proposals for SMP remedies on BT in the WCO and narrowband access markets in the UK excluding the Hull Area. In this section we set out our analysis of quality of service (QoS) performance in these markets and our proposals for QoS remedies on BT in the next market review period.

9.2 In summary, we are proposing to:

- set an SMP condition in the WFAEL market requiring BT to comply with such conditions relating to quality of service as Ofcom directs from time to time. Under that condition we are proposing to:
  - o retain the existing provision and repair QoS standards for WLR, pending a comprehensive review of those standards that will be presented in the WLA market review;
  - o retain the existing directions setting KPIs for WLR (including the requirement for BT to publish a sub-set of those KPIs on a publicly accessible website), pending a comprehensive review of those KPIs that will be presented in the WLA market review;
- set an SMP condition in the ISDN30 and ISDN2 markets requiring BT to publish such information relating to quality of service as Ofcom directs from time to time. Under that condition we are proposing to:
  - o make directions setting KPIs for ISDN30 and ISDN2 markets, based on the existing set of KPIs modified to remove those KPIs relating to provisioning;[407]
- retain the existing directions relating to service level agreements (SLAs) and service level guarantees (SLGs) for WLR, ISDN30 and ISDN2 set in 2008; and
- remove the requirement in the WCO market on BT to publish QoS information.

9.3 In Section 17 we set out our proposal to retain the obligation on BT to provide transparency as to QoS for its provision of interconnect circuits.

[407] The SMP condition would allow a further review of these KPIs if necessary during the charge control period.

Current remedies and regulation

2008 SLG Statement

9.4 On 20 March 2008 we published the statement *Service level guarantees: incentivising performance* (the 2008 SLG Statement).[408] The main changes in relation to WFAEL, ISDN30 and ISDN2 were to:

- require Openreach to pay compensation for WLR2 and WLR3 proactively;[409]
- introduce equivalence management platform (EMP) service credits for WLR3 and require Openreach to pay these proactively;
- require 60 full days compensation per line for ISDN2, WLR2 and WLR3 for any one failure; and
- require 60 full days compensation per 2Mb bearer for ISDN30 for any one failure.

FAMR 2014

9.5 In the FAMR 2014, Ofcom undertook a review of matters relating to QoS delivered by BT (through Openreach) in the supply of regulated wholesale fixed access services (which included the WFAEL, ISDN30 and ISDN2 markets).[410] We determined that over several years (from 2009) there had been a gradual decline in Openreach's performance, in particular in relation to fault repairs and provisioning of WLR and MPF services. We also concluded that the prevailing regulatory and contractual framework had not been sufficient to prevent material detriment to downstream competition in the fixed access markets, arising out of BT's SMP.

QoS standards for WLR and MPF

9.6 As a result of the observed decline in performance, we took a number of steps to incentivise better service quality outcomes. In particular, we imposed a number of new SMP obligations on BT setting service quality standards covering provisioning and repair.

9.7 In doing so, we were mindful of the potential for unintended consequences and of the need to be cautious in introducing such SMP regulation for the first time. Our analysis highlighted particular areas of concern with the provisioning of new lines and fault repair of the copper-based access services, specifically for WLR and MPF. These were the highest volume services and, therefore, we considered that they had the greatest impact on competition and on the engineering resource levels maintained by Openreach.

9.8 In the final year of the market review period (April 2016 to March 2017), the standards require BT (via Openreach) to:

[408] https://www.ofcom.org.uk/consultations-and-statements/category-2/slg
[409] WLR3 is the current version of the WLR product supplied by Openreach to CPs. It superseded WLR2 which became unavailable from 1 July 2011.
[410] https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/telecoms-competition-regulation/narrowband-broadband-fixed/fixed-access-market-reviews-2014

- offer an appointment for 79%[411] of new installations requiring an engineer visit within 12 working days;

- complete 89%[412] of new installations on the date agreed with the customer (the Committed Date; and

- repair 77%[413] of faults on time (i.e. according to the relevant service maintenance level (the SML)).[414]

9.9 The provision and repair standards increased to the levels above over the three-year, forward-look period of the FAMR 2014, and are summarised in Table 9.1 below.

Table 9.1: Openreach service quality standards for WLR and MPF products[415]

Minimum standard	First Year (2014/15)	Second Year (2015/16)	Final Year (2016/17)
12-day provision appointment availability	54%	67%	79%
Provision completion by Committed Date	89%	89%	89%
Repair completion within SLA timescales	67%	72%	77%

Source: Ofcom

9.10 We imposed these annual standards in each of Openreach's 10 geographic regions[416] but allowed BT to make use of what are referred to as 'High Level MBORC' declarations within the performance calculations for up to two of those 10 regions.[417] A failure to comply with the standards would represent a breach of the SMP conditions. Ofcom has the power under the Communications Act 2003 (the Act) to impose sanctions, including financial penalties, in the event of such a breach.

QoS for ISDN30 and ISDN2

9.11 We did not introduce QoS standards on BT in the two wholesale ISDN markets.

9.12 We acknowledged the risk that BT might focus on meeting the standards for WLR and MPF at the expense of other markets, such as ISDN30 and ISDN2, but considered that we needed to balance this risk against the risks associated with the

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411 80% minus a fixed 1% local MBORC allowance.
412 90% minus a fixed 1% local MBORC allowance.
413 80% minus a fixed 3% local MBORC allowance.
414 The FAMR determined that the relevant repair care levels were SML1 for WLR and SML2 for MPF (see paragraph 9.16 for further details).
415 Net of allowances for Matters Beyond Our (BT's) Reasonable Control (MBORC) events. MBORC means a *force majeure* event that releases Openreach from the liability to make any payment under the corresponding SLG.
416 These 10 regions include Openreach's nine General Manager (GM) areas plus Northern Ireland.
417 High Level MBORCs are typically *force majeure* events of significant magnitude for which no preparation by Openreach would be sufficient. For example, instances where over 2,000 lines or end-users are affected, incidents which are/are likely to become the subject of regional or national media interest, and anything likely to have a significant impact on the BT and/or Openreach brand.

imposition of further standards, including inflexibility and the potential for gaming. We were also mindful that this was the first time we had imposed QoS standards in the fixed access markets and therefore considered that a cautious approach was appropriate.

9.13 We determined that QoS standards should be limited to the provision and repair of WLR and MPF. We did, however, introduce enhanced reporting obligations for ISDN30 and ISDN2 markets to enable us to monitor more effectively Openreach's performance month-on-month.

KPI reporting requirements

9.14 In addition to QoS standards for WLR and MPF, in the 2014 FAMR Statement we directed BT to report a set of KPIs for WLR, LLU (MPF and SMPF), GEA (FTTC and FTTP), ISDN30 and ISDN2. This decision increased the range and granularity of the KPIs that BT is required to report to Ofcom and to industry allowing us to more closely monitor Openreach performance and respond, if necessary, to any trends.[418] The reporting requirements included an obligation for BT to publish a sub-set of those KPIs on a publicly accessible website, to aid transparency.

2016 Directions and Consents relating to the WLR and MPF minimum standards and KPIs

9.15 In our October and November 2016 Statements *Directions and Consents relating to the minimum standards and KPIs imposed in the 2014 FAMR*,[419][420] we used our direction-making powers under the Act and the relevant SMP conditions under the FAMR 2014 to give a set of directions and consents to ensure that the existing QoS remedies remain effective in the light of unanticipated changes in the take-up of products in the WFAEL and WLA markets and the risk of delay in our finalisation of the current WLA market review.

9.16 At the time of the FAMR 2014, the majority of WLR lines provided by Openreach were associated with a repair SLA of SML1 (a 'two-day' repair), while the majority of MPF lines were provided at SML2 (a 'one-day' repair).[421] Accordingly, and in light of the performance review we undertook, the standards described above were applied to these product/service maintenance level combinations.

9.17 However, in 2016 a number of CPs made the decision to change the service levels at which they rent WLR or MPF products from Openreach. These movements between SMLs meant that a large proportion of total WLR and MPF lines would fall outside our FAMR repair standards, thereby reducing the effectiveness of our QoS remedies.

9.18 The FAMR standards applied for three defined yearly periods, the third being the 2016/17 financial year. The standards would therefore have lapsed at the end of March 2017. Allowing the standards to lapse would risk a deterioration of service

[418] A subset of these KPIs (specifically in relation to the installation of new lines, repair of faults, and late installations and fault repairs) must be published with unrestricted access on a BT Group website every three months, within 14 working days of the end of that three-month period. See "Homes and smaller businesses": https://www.homeandwork.openreach.co.uk/OurResponsibilities/our-performance.aspx
[419] https://www.ofcom.org.uk/__data/assets/pdf_file/0032/92678/20161017-QoS-Statement_Non-confidential.pdf
[420] https://www.ofcom.org.uk/__data/assets/pdf_file/0016/94300/Further-QoS-Statement.pdf
[421] CPs may purchase different repair packages for their wholesale inputs (WLR, LLU, VULA, and ISDN) ranging from SML1 (a 'two-day' repair) to SML4 (a 'six-hour' repair).

quality, and the effectiveness of the access remedy. We considered that it was important for us to ensure their continuity by imposing ongoing standards for provisioning and repairs.

9.19 Therefore, to ensure that appropriate standards continue to apply in these markets and to 'future-proof' our regulation against potential care level switches in the future, on 1 November 2016 we implemented new standards that apply to standards of repair based only on the contracted SML and not the specific product – i.e. a standard on all SML1 lines (WLR and MPF) and all SML2 lines (WLR and MPF).

9.20 We will assess compliance for the new repair standards over a 17-month period running from 1 November 2016 to 31 March 2018. In order to avoid duplication of regulation, we consented to BT no longer applying the standards for repair on MPF SML2 and WLR SML1 imposed through the FAMR. The appointment availability and on time provision standards continue to apply in their current form.[422]

9.21 In addition, we have removed the expiry dates for all WLR and MPF standard obligations and replaced these with an ongoing obligation, set by Direction, to ensure that the standards remain in force until the WLA market review decision is published or until they are revoked, whichever is first.

DCR Statement

9.22 In the DCR Statement we set out our strategy for delivering a step change in quality of service in the light of the rising expectations of consumers and businesses. With regard to Openreach's service quality, we have had to intervene more actively over time because Openreach is subject to limited competitive pressure at the wholesale level.

9.23 We stated that we intend to take the following steps to drive a step change in Openreach's service performance:

- First, we intend to set standards at a level designed to ensure effective competition – so that they meet the needs of consumers and businesses – rather than at a level intended only to return performance to historical levels. Over time we expect to apply standards that rise significantly;
- Second, we anticipate specifying standards that protect consumers from being left without service for extended periods (i.e. standards that control long tails of incomplete orders);
- Third, we intend to apply standards to cover new aspects of service where we have concerns; and
- Finally, we will differentiate clearly between standards, which are a level below which service must never fall, and the average level of performance above the floor that we expect Openreach to achieve.

9.24 We explain our approach to implementing the strategy in relation to service quality for wholesale access lines below.

[422] We also made adjustments to BT's reporting requirements such that it must deliver monthly KPIs for MPF at SML1 and has an extra month to submit two MBORC-related KPIs.

QoS performance for WFAEL, ISDN30 and ISDN2 since the FAMR 2014 to date

9.25 The following sub-sections use data obtained from BT for the period before the FAMR 2014 and then from the KPIs mandated by the FAMR to provide an overview of BT's QoS performance in relation to the provision and repair of WLR, ISDN2 and ISDN30 in recent years.

WLR performance against the standards

9.26 With respect to WLR, the KPIs provided by Openreach show that it has met the three standards for the first two years of the FAMR 2014 review period, and that service delivered year-to-date for the first half of 2016/17 also met the standards.

9.27 When interpreting performance against the standards, it is important to recognise that resources are shared to a large extent between Openreach's repair and provisioning tasks. This means that Openreach is able to record stronger performance against the provision standards during periods when the repair intake is relatively low, for example during favourable weather conditions, but that provision performance can decline when additional resources are needed to complete repair tasks (for example, see late 2015 to early 2016 in Figure 9.1).

9.28 Openreach has reported to Ofcom that it has been able to outperform the standards relating to provisions, while its repair performance has met the standard by a narrower margin (see Figures 9.1, 9.3 and 9.5).

9.29 The evidence provided by Openreach indicates that the standards have resulted in an overall stabilisation and improvement of performance since 2014. We consider the evidence of performance against the three standards in more detail below.

Provisions: Appointment availability

9.30 The FAMR 2014 requires Openreach to offer an engineer appointment, where one is required, for a new installation within 12 working days of the order being registered by a third party. Historical data against this metric is limited as an SLA for appointment availability was not introduced until 2012; however, as stated in the FAMR 2014, Openreach's delivery against the SLA was just 42% in 2012/13.[423] Over the reporting period the KPIs indicate that Openreach has achieved the standard at the UK level in all but one month.

[423] See Table A17.3, page 269: http://stakeholders.ofcom.org.uk/binaries/telecoms/ga/fixed-access-market-reviews-2014/statement-june-2014/annexes.pdf

Figure 9.1: UK 12-day appointment availability for WLR services (%)

Source: Openreach mandatory non-discrimination KPIs

<u>Provisions: On time completion</u>

9.31 The FAMR 2014 requires Openreach to complete WLR provisions on the date agreed between Openreach and the customer – i.e. the Committed Date. This is also known in industry as the Contract Delivery Date, or CDD.

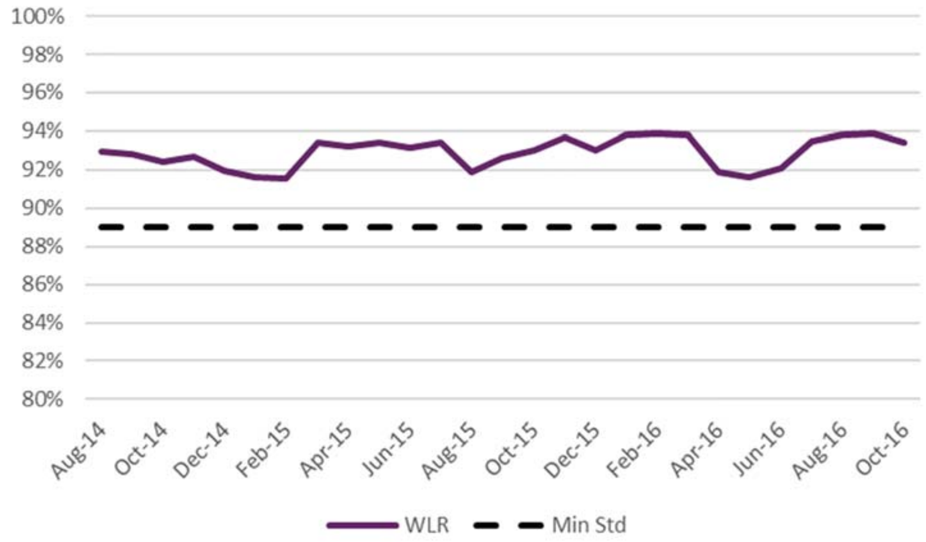
9.32 In the FAMR 2014, we found that provision completion rates by CDD were relatively stable around 95% during 2009/10, but declined sharply from early 2010/11. Performance then ranged between 85% and 92% (Figure 9.2).[424] Since August 2014, KPI performance at the UK level against the on time provision standard has been consistently above the 89% standard (Figure 9.3).

[424] Our analysis in the FAMR 2014 used 'Right First Time' measures that Openreach reports to the OTA as a proxy for the SLA measure of "installation orders completed by CDD". Both are measures of orders completed by the CDD, but the Right First Time measure additionally classifies orders that develop a fault within eight days of completion as failures.

Figure 9.2: UK WLR installation order completion by CDD, Right First Time measure (%)

Source: Ofcom analysis of BT data submitted to the OTA and received by Ofcom on 14 June 2013. Data considered supplementary to BT's updated response dated 23 May 2013 to question 1.12 of the First QoS BT Information Request. Includes all WLR2 and WLR3 provide and start order types

Figure 9.3: UK WLR orders provisioned on time, all orders (%)



Source: Openreach mandatory non-discrimination KPIs

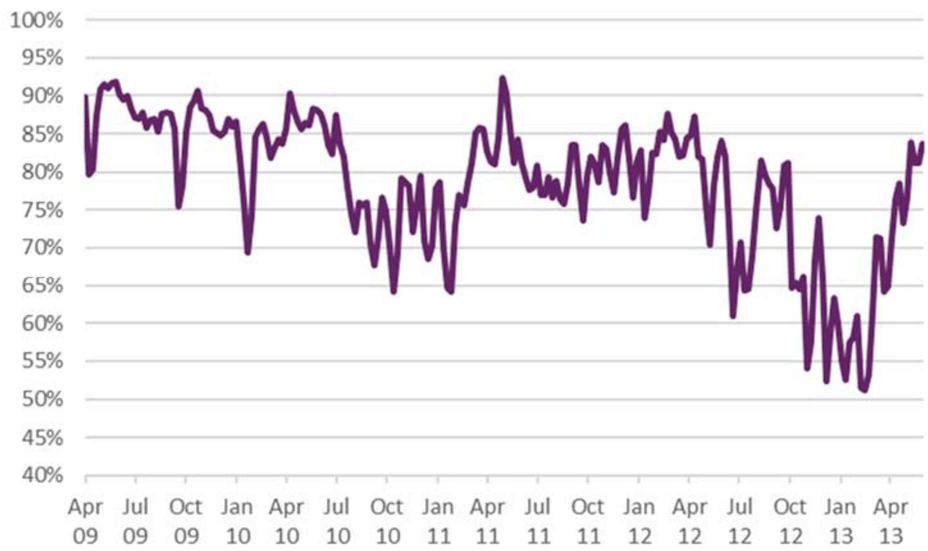
Repair performance against contractual timescales

9.33 The FAMR 2014 requires Openreach to complete the repair of WLR faults that are subject to SML1 by the end of the second working day after such faults have been registered with Openreach.

9.34 In the FAMR 2014, we identified two periods in which performance was of particular concern to CPs: July 2010 to February 2011 and the second half of 2012 (Figure 9.4 below).[425]

9.35 The KPIs provided by Openreach indicate that it has met the annual repair standards in the first two years of the control and there has been a reduction in significant volatility in performance that the FAMR identified during the period April 2009 to April 2013. Figure 9.5, which is derived from the KPIs reported by Openreach, shows that UK performance against the repair SLA for SML1 since August 2014 has not fallen below 68% in any given month. However, performance has not quite returned to 2009/10 levels.

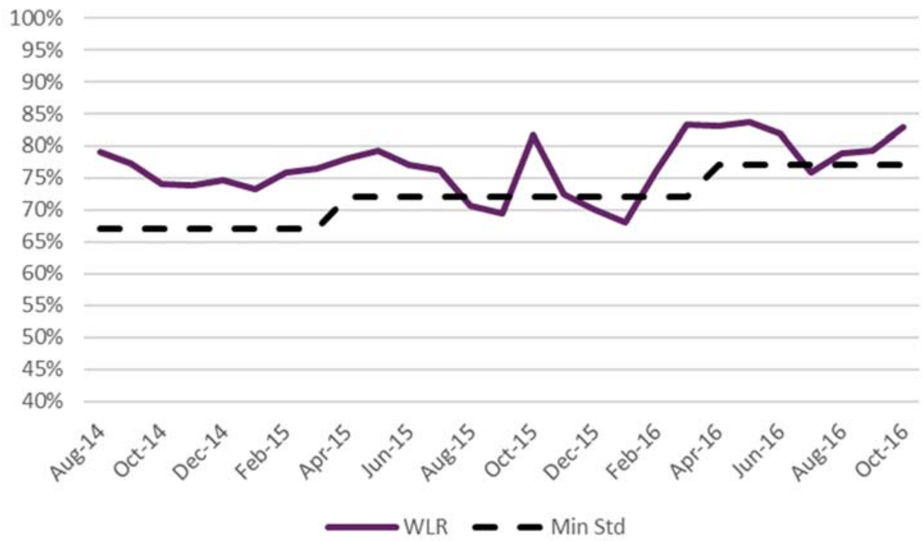
Figure 9.4: UK WLR repair performance at SML1, First Touch, Last Touch measure (%)



Source: Ofcom analysis of BT data submitted to the OTA and received by Ofcom on 14 June 2013. Data considered supplementary to BT's updated response dated 23 May 2013 to question 1.12 of the First QoS BT Information Request

[425] The FAMR 2014 used the 'First Touch, Last Touch' repair measures that Openreach reported to the Office of the Telecoms Adjudicator (OTA) as a proxy for the SLA measures of repairs against contractual timescales over a four-year time period. 'First Touch, Last Touch' is a measures of faults completed within contractual timescales. It is comparable to the 'on time repair performance' reported in Figure 9.4, but includes additional faults that lead to repeat faults within eight days.

Figure 9.5: UK faults restored on time for WLR services subject to SML1 (%)



Source: Openreach mandatory non-discrimination KPIs

ISDN30 and ISDN2 performance

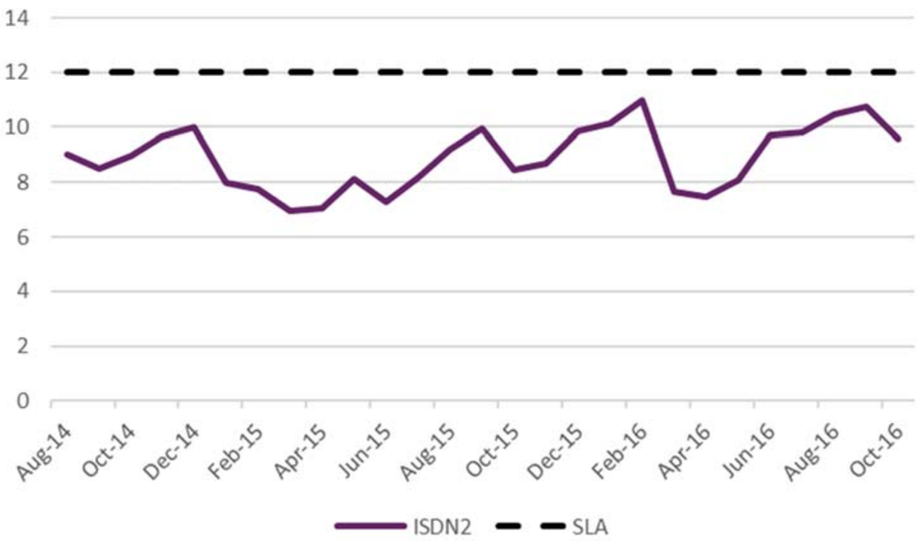
9.36 Based on the KPI information reported to Ofcom, Openreach's QoS in providing ISDN30 and ISDN2 over the market review period appears to be largely stable with no pronounced, continuous deteriorations in provision or repair performance.

Provisions: Appointment availability

9.37 We do not currently hold data for the percentage of appointments available within the ISDN2 12-day SLA. This is a contractual commitment that requires BT to offer a CP an available appointment within 12 working days of application.[426] However, as Figure 9.6 shows, average UK first available appointment dates for ISDN2 provisions across the reporting period have not exceeded the SLA (of 12 working days) in any month.

426 https://www.openreach.co.uk/orpg/home/products/wlr3/contracts/contracts/downloads/WLR3Schedule4Issue17_011115.pdf

Figure 9.6: UK appointment availability for ISDN2 (working days)[427]

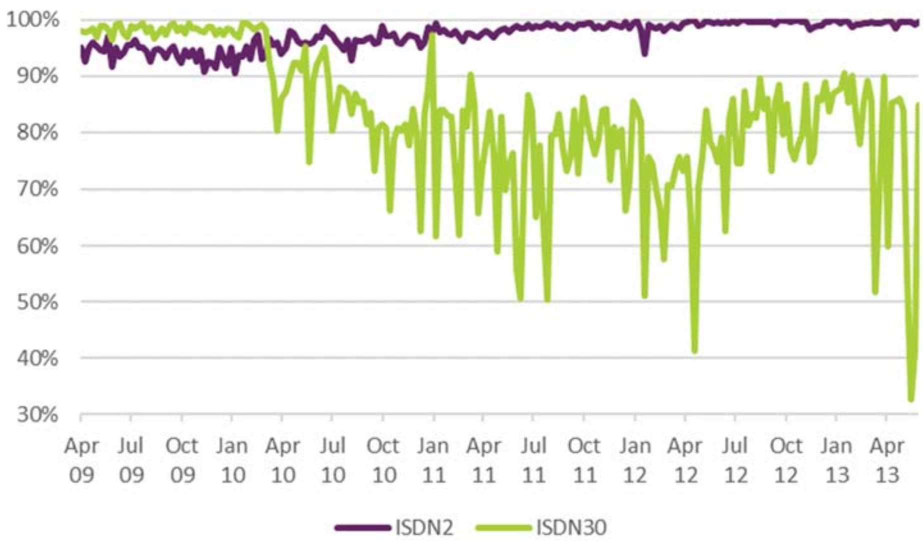


Source: Openreach mandatory non-discrimination KPIs

Provisions: On time completion

9.38 Figure 9.7 below shows performance for ISDN30 services declined significantly from close to 100% to around 80% between December 2009 and September 2010. Subsequently there was significant volatility. As shown in Figure 9.8, that volatility for ISDN30 has since reduced (despite a one-off decline in performance in May 2015), while ISDN2 on time provision performance is also fairly stable and remains high.

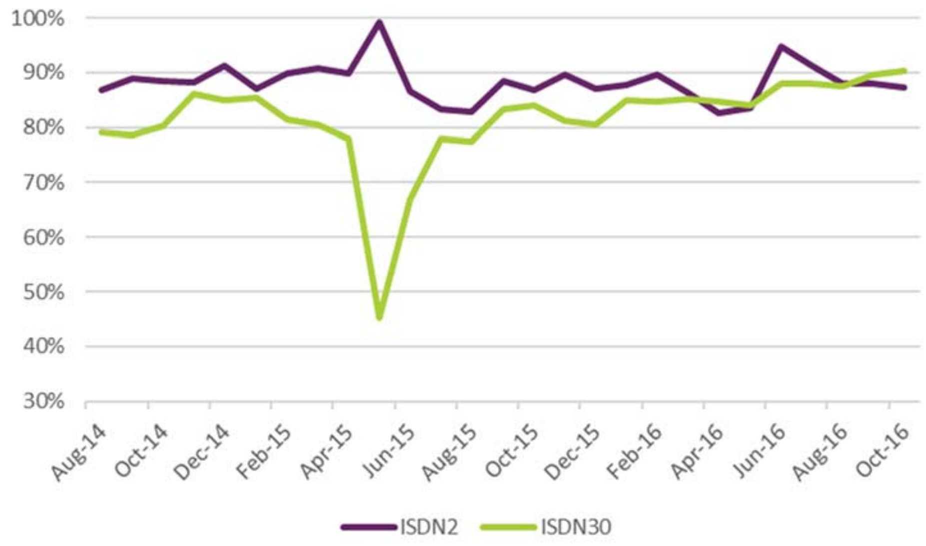
Figure 9.7: ISDN installation order completion by CDD, Right First Time measure (%)



Source: Ofcom analysis of BT data submitted to the OTA and received by Ofcom on 14 June 2013. Data considered supplementary to BT's updated response dated 23 May 2013 to question 1.12 of the First QoS BT Information Request

[427] This chart is derived from the monthly KPIs provided to Ofcom. The FAMR does not require that equivalent KPI data for ISDN30 is submitted.

Figure 9.8: UK ISDN orders provisioned on time (%)

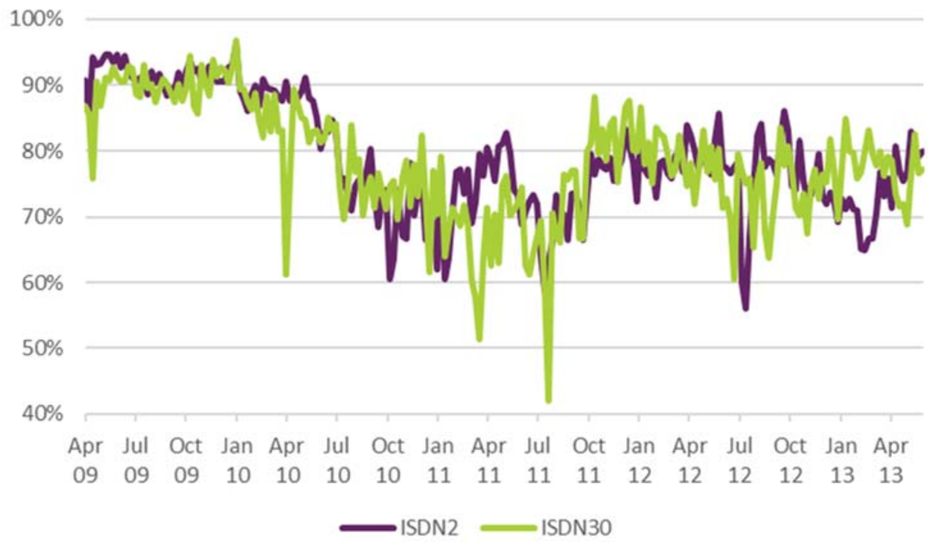


Source: Openreach mandatory non-discrimination KPIs

Repair performance against contractual timescales

9.39 Figure 9.9 shows that between April 2009 and April 2013, Openreach's on-time repair performance, for ISDN services at both service levels 1 and 2, exhibited significant volatility from month to month and declined from an average of around 90% to around 78% overall. SML2 performance since has been more stable although it has not yet returned to 2009/10 levels (Figure 9.10).

Figure 9.9: UK ISDN repair performance at SMLs 1 and 2, First Touch, Last Touch measure (%)



Source: Ofcom analysis of BT data submitted to the OTA and received by Ofcom on 14 June 2013. Data considered supplementary to BT's updated response dated 23 May 2013 to question 1.12 of the First QoS BT Information Request

Figure 9.10: UK faults restored on time for ISDN services subject to SML2 (%)

Source: Openreach mandatory non-discrimination KPIs

Proposed SMP conditions for regulating QoS for WLR, ISDN30 and ISDN2

Aim and effect of regulation

9.40 In Section 7, we explained our proposal to maintain the requirement on BT to provide network access to third party CPs on reasonable request and on fair and reasonable terms, conditions and charges. Our proposed regulation requires BT to provide network access in the WFAEL market in the UK excluding the Hull Area, including to WLR, on the terms, conditions and charges of the relevant Reference Offer, which must include SLAs and SLGs.

9.41 In the FAMR 2014 we identified a concern that absent regulation BT does not have the right incentives to continuously deliver an adequate level of service quality in relation to network access. In this review, we have considered whether this remains the case such that regulation of service quality levels is still required. Based on the evidence presented above our provisional view is that those concerns remain.

9.42 Inadequate QoS delivered by BT has the potential to undermine the effective functioning of the network access remedy to the detriment of both consumers and downstream competition. Negative effects on consumers include slow resolution to a loss of service and frustration resulting from long delays to the provisioning of fixed voice services. QoS issues also have the potential to adversely affect CPs and the intensity of competition in the retail market by, among other things, discouraging switching. We therefore propose SMP conditions for the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets which are explained below.

WFAEL

9.43 The introduction of QoS standards in the FAMR 2014 appears to have stabilised and improved QoS during this review period. This highlights the importance of our intervention imposing QoS standards to support an effective WLR access remedy. However, based on our review of performance from 2009, we remain concerned that

Openreach is not sufficiently incentivised (absent regulation) to maintain, or substantially exceed, current performance levels in the absence of regulatory standards.

9.44 Given these concerns, and the potential for adverse effects for competition and consumers (described above), which would result from allowing this regulation to fall away, we consider it appropriate to continue to impose QoS remedies for the WFAEL market over the coming review period and to provide for flexibility to adapt to changing market circumstances during this time.

9.45 We therefore propose to set an SMP condition requiring BT to comply with all such quality of service requirements as Ofcom may from time to time direct.[428] This condition includes a power for Ofcom to direct BT to comply with appropriate quality of service standards and publish necessary KPIs that will allow us to monitor BT's performance (subject to satisfaction of the relevant legal requirements in the Act).

ISDN30 and ISDN2

9.46 In the FAMR 2014, we did not introduce QoS standards for ISDN30 and ISDN2 as we did not identify a specific concern with QoS performance in these markets, but we did impose an SMP condition requiring BT to publish such information relating to quality of service of network access as Ofcom directs from time to time. This provision allows Ofcom to require BT to publish KPIs to Ofcom and industry relating to its QoS performance for these services. The aim of this provision is to ensure appropriate transparency in the quality of access services that BT is providing both now and, if necessary, in the future.

9.47 In our analysis of QoS performance in these markets since that review we have not identified specific QoS concerns, and so we do not propose to impose QoS standards, a direction making power for QoS standards, for ISDN2 and ISDN30 in this market review.

9.48 We consider that the publication of various performance metrics regarding service provision provides an information base that allows the early identification of variations in service quality that BT offers to itself and to its customers. This allows for the identification of potential discrimination, as well as more generally any deterioration in quality of service. We continue to believe that this approach is appropriate for the ISDN30 and ISDN2 markets.

9.49 We are therefore proposing an SMP condition in the ISDN30 and ISDN2 markets requiring BT to publish such information as to quality of services in relation to network access as Ofcom directs from time to time.

2008 SLG Statement

9.50 We continue to consider that the 2008 SLG Statement is appropriate and therefore, consistent with this position, the legal instrument sets out our proposed position for the 2008 SLG directions for WFAEL, ISDN30 and ISDN2 to apply (until otherwise modified or withdrawn).

[428] This is the approach that we have recently adopted in the BMCR markets: Business Connectivity Market Review (BCMR), 28 April 2016, Annex 35, Condition 7 – Quality of service: http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/statement/final-annex-35.pdf

QoS standards

WLR

9.51 We propose that the 2016 Directions setting QoS standards for provisions and repairs will continue to apply until the conclusion of our wider review of BT's quality of service in fixed access networks, which will be presented with the WLA market review. Presenting and consulting on proposals for these products together will ensure consistency, in line with the strategic direction set out in the DCR, given that MPF and WLR are both used to provide the same retail telephony and broadband services.

9.52 Continuing the existing minimum standards until the conclusion of a detailed review of BT's quality of service will ensure there is no gap in our regulation. In the FAMR 2014 we considered in detail the justifications for and proportionality of the minimum standards, including by reference to the resource and cost implications for Openreach and we are satisfied that continuing them in force, pending the outcome of the WLA market review, remains appropriate and proportionate.

KPI reporting requirements

9.53 We currently require BT to publish to industry and Ofcom KPIs relating to its QoS performance for the WFAEL, ISDN30 and ISDN2 markets. A subset of these KPIs for WFAEL must be published with unrestricted access on a BT Group website every three months, within 14 working days of the end of that three-month period.

WLR

9.54 As explained above, we intend to review the QoS standards covering both WLR and MPF which we propose to present as part of the WLA market review. This review will also include a comprehensive review of reporting requirements for WLR. In advance of any changes arising out of that review, our provisional view is that the current KPI reporting requirements remain appropriate. We are therefore proposing that the WLR KPIs set in the FAMR 2014 (as modified in 2016) will continue to apply (see Table 9.2 below).

Table 9.2: Proposed KPIs for WLR[429]

KPI	WLR
Percentage of orders rejected	Y
Percentage of appointed orders provisioned on time	Y
Percentage of orders provisioned on time	Y P
Percentage of orders reported as faulty	Y
Percentage of installed base reported as faulty	Y
Appointment availability	Y P GM
Average installation time (requiring an engineering visit)	Y P GM
Average installation time (not requiring an engineering visit)	Y P GM
Average installation time (all order types)	Y GM
Average time to restore service	Y P
Percentage of faults restored on time for services subject to SML1	Y P GM
Percentage of faults restored on time for services subject to SML2	Y P GM
Percentage of faults restored on time for services subject to SML3	Y GM
Percentage of repeat faults	Y
Gateway availability (excluding Scheduled Outages)	Y
Gateway availability (including Scheduled Outages)	Y
Volume of orders submitted	Y
Volume of orders completed	Y
Volume of installed base	Y
Volume of completed faults	Y
Volume of installations affected by MBORC declarations	Y
Volume of repairs impacted by MBORC declarations	Y
Timing of fault repairs	Y P
Total fault repairs	Y P
Timing of first available appointment dates	Y P
Total appointed orders	Y P
Timing of appointed orders not provisioned on time	Y P
Total appointed orders that did not become completed orders	Y

Source: Ofcom

429 'Y' means that BT is required to provide this information to Ofcom and industry. The precise information that must be provided to industry may differ against that provided to Ofcom although, for reasons of clarity, we have not sought to represent these differences within this table. 'P' means that BT is required to publish this information on its website every three months, commencing 20 October 2014 (in addition to providing this information to industry and Ofcom). 'GM' means that the data BT provided must be disaggregated between each GM region and Northern Ireland. Where the 'GM' marking is not used, BT is only required to publish KPIs in relation to the United Kingdom as a whole.

ISDN30 and ISDN2

9.55 As noted above, we are proposing an SMP condition in the ISDN30 and ISDN2 markets requiring BT to publish such information as to quality of service in relation to network access as Ofcom directs from time to time.

9.56 Pursuant to that proposed condition, we are proposing to retain the requirement on BT to provide to Ofcom and industry KPIs on repairs for ISDN30 and ISDN2 (see Table 9.3 below). This will allow us, and industry, to monitor the QoS provided to existing wholesale customers of ISDN. These transparency obligations will also allow monitoring of whether minimum standards applying to other services are having a negative impact upon BT's performance on ISDN repairs, or leading to discrimination between services.

9.57 However, given that, as explained in Section 7, we are proposing to focus our regulation on existing ISDN services, rather than new ISDN connections, on the basis that BT's market power is likely to be weaker in relation to new ISDN lines, we propose to remove the KPIs that relate to BT's performance in relation to provisioning (i.e. to new connections). We propose to remove this requirement from the start of the market review period. We consider that it is not necessary to retain this requirement for the 12-month transition period during which we are retaining other remedies on new ISDN connections, given the low and declining volumes of new ISDN connections and our proposal to remove most regulation relating to new ISDN lines from the second year of the market review period.

9.58 By way of implementation, we are proposing to set a new direction capturing the relevant repair KPIs (which are the same as those currently in place). These KPIs are set out in the following table:

Table 9.3: Proposed KPIs for ISDN30 and ISDN2

KPI	ISDN30	ISDN2
Percentage of installed base reported as faulty	Y	Y
Average time to restore service	Y	Y
Percentage of faults restored on time for services subject to SML2	Y GM	Y GM
Percentage of faults restored on time for services subject to SML3	Y GM	Y GM
Timing of fault repairs	Y	Y
Percentage of repeat faults	Y	Y
Gateway availability (excluding Scheduled Outages)	Y	Y
Gateway availability (including Scheduled Outages)	Y	Y
Volume of installed base	Y	Y
Volume of completed faults	Y	Y
Volume of repairs impacted by MBORC declarations	Y	Y

Source: Ofcom

Removal of WCO QoS remedy

9.59 Separately, we do not propose to retain the current remedy on the WCO market that gives us the power to direct BT to publish QoS information. We have not identified a specific need to make use of this obligation and we are not aware of any stakeholder concerns regarding the quality of BT's WCO services. We propose to maintain our focus on improving the QoS of narrowband access lines and to remove a regulation in the WCO market that we consider now to be unnecessary.

Legal tests

9.60 For the reasons set out below, we are satisfied that the conditions proposed for BT in respect of each of the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area meet the various tests set out in the Act.

Proposed SMP Condition and maintaining existing QoS directions for WLR

9.61 Section 87(3) of the Act authorises the setting of SMP services conditions in relation to the provision of network access. Section 87(5) of the Act provides that such conditions may include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to and for securing that the obligations contained in the conditions are complied with within the periods and at the times required by or under the conditions. In this regard we note Article 12(1) of the Access Directive, which provides that national regulatory authorities may attach to conditions relating to network access obligations covering fairness, reasonableness and timeliness. We consider that the regulation that we are proposing in relation to quality of service will enable Ofcom to secure that network access is provided within a reasonable period of time and on a fair and reasonable basis.

9.62 In making these proposals, we have taken into account the factors set out in section 87(4) of the Act. In particular, we consider that the imposition of the condition enabling Ofcom to set standards as to quality of service is necessary to ensure an appropriate level of quality of service so as to secure effective competition, including economically efficient infrastructure based competition, in the long term.

9.63 It will also ensure that there can be an appropriate level of transparency in relation to quality of service (in conjunction with the KPI directions we are proposing are re-imposed). Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a dominant provider to publish, in such a manner as Ofcom may direct, all such information for the purposes of securing transparency.

9.64 We have considered our duties under section 3 of the Act. We consider that, by ensuring that BT adheres to prescribed quality of service standards in relation to the provisioning and the repair of faults, these regulations will further the interests of citizens in relation to communications matters and further the interests of consumers in relevant markets by promoting competition.

9.65 We have considered the Community requirements set out in section 4 of the Act. We consider that these proposals will promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purposes of securing efficient and sustainable competition in the markets for electronic communications networks and services.

9.66 We also consider that the proposed SMP condition and the directions setting QoS standards and KPIs that we are proposing to re-impose for WLR meet the criteria in sections 47(2) of the Act. In particular, our proposals are:

- objectively justifiable, in that the purpose of the regulation is to ensure mandatory quality of service standards in relation to one of the key services supporting network access. The evidence available to us indicates that, in the absence of other effective incentive mechanisms, continued regulation is necessary to secure an appropriate level of service by BT and our proposed regulation addresses this issue. In advance of undertaking a full review of quality of service matters across BT's access network, we consider that maintaining the existing standards is the most appropriate means of securing the level of QoS necessary to ensure effective network access;

- not unduly discriminatory, in that it will only apply to BT, which we have identified as the only CP having SMP in the relevant market in the UK excluding the Hull Area;

- proportionate, in that we have identified the need for continued regulation of BT's quality of service and the condition and direction are targeted specifically to those areas for which regulation is required. We consider that our proposals are the least onerous means of achieving the objective we have identified of securing an appropriate level of quality of service in the delivery of key aspects of network access. We have explained that, without intervention, the level of service by Openreach has previously fallen below what we consider acceptable levels and that it may do so in future if regulation is not maintained given BT's market power. Further, the standards that we are proposing to be carried forward are structured to take account of the impact of events outside BT's control on its ability to meet the standards we are imposing; and

- transparent, in that, in relation to what it is intended to achieve, it is the clear intention of the proposed regulation is to ensure that BT maintains a level of quality of service in relation to a number of key factors of importance to CPs that buy these wholesale inputs and it is clear what those standards are.

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

Proposed transparency as to quality of service conditions for ISDN30 and ISDN2 services

9.68 Section 87(6)(b) of the Act authorises the setting of SMP conditions which require a dominant provider to publish, in such manner as Ofcom may direct, all such information, for the purpose of securing transparency.

9.69 We have considered our duties under the Act, including our general duties under section 3, and all the Community requirements set out in section 4, of the Act. We note, in particular, that the SMP condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefit of consumers by ensuring that providers have visibility of the quality of service that BT provides to itself and to other providers.

9.70 We also consider that the proposed SMP condition in each market meets the criteria in sections 47(2) of the Act. In particular, we consider that each proposed SMP condition is:

- objectively justifiable, in that it aims to prevent undue discrimination in the provision of service by requiring BT to publish quality of service information about the service it provides to itself and to other providers;

- not unduly discriminatory, in that it is imposed only on BT and no other operator has provisionally been found to hold a position of SMP in these markets in the UK excluding the Hull Area;

- proportionate, in that it only requires BT to publish information as directed by Ofcom in the event we consider such information is required to monitor BT's compliance with its other obligations, which is the minimum condition to ensure the desired objective; and

- transparent, in that it is clear in its intention that BT is required to publish quality of service information.

<u>KPI directions for ISDN30 and ISDN2 services</u>

9.71 We further consider that the KPI Directions that we are proposing to impose in each of the wholesale ISDN30 and wholesale ISDN2 markets in the UK excluding the Hull Area meet our duties under the Act, including our general duties under section 3, and all the Community requirements set out in section 4, of the Act and also meet the requirements in section 49 of the Act.

9.72 We consider that our proposals are:

- objectively justifiable, in that we have identified a need to publish specific KPIs to ensure that we can monitor quality of service issues, including any undue discrimination in the market;

- not unduly discriminatory, in that they only apply to BT and it is only BT that is subject to the SMP transparency condition;

- proportionate, in that BT is only required to publish specific KPI data related to key business processes and, as BT is already supplying such data, already has systems and procedures in place. In relation to ISDN2 and ISDN30 services we are proposing no longer to require the publication of the KPIs relating to provisions; and

- transparent, in that it is clear from the directions as to what information would be required to be published and supplied by BT.

Consultation question

Question 9.1: Do you agree with our quality of service proposals for BT in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets? Please provide reasons and evidence in support of your views.

Section 10

Remedies on KCOM: WFAEL, WCO, ISDN30 and ISDN2

Introduction

10.1 In Section 6, we propose that KCOM has SMP in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area. In this section, we set out our proposals to impose certain remedies on KCOM in the corresponding markets in the Hull Area.

10.2 We set out our proposals for remedies to address KCOM's SMP in the WCT market in Section 13. We set out our proposals for remedies on KCOM's provision of interconnect circuits in Section 17.

10.3 The remedies that we propose are designed to address our competition concerns associated with our proposed finding that KCOM has SMP in each of the relevant markets in the Hull Area.

10.4 We propose to maintain a number of the current remedies in relation to the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets, as imposed on KCOM in the NMR 2013 and the FAMR 2014. Our proposals include the requirement to provide general network access on fair and reasonable terms and price regulation in the form of a fair and reasonable charges obligation. We also propose to reintroduce the cost accounting remedy to support the current accounting separation requirement and to help ensure that the attribution rules are fair, and do not unduly discriminate between different services or groups of customers.

10.5 We propose to reduce regulation on KCOM in recognition of market developments and the increased competitive constraints from mobile and IP services. We propose:

- removal of most remedies on newly connected lines in the wholesale ISDN30 and ISDN2 markets (after a 12-month transitional period);
- removal of the requirement not to unduly discriminate in the WCO market;
- removal of the new forms of access requests remedy in the WFAEL market; and
- removal of the requirement to notify technical information in all four markets.

10.6 Table 10.1 summarises the current and proposed remedies on KCOM in the WFAEL and WCO markets. Table 10.2 summaries the current and proposed remedies on KCOM in the wholesale ISDN30 and ISDN2 markets.

Table 10.1: Summary of current and proposed remedies on KCOM (in the Hull Area) by wholesale market

	NMR 2013 / FAMR 2014 remedies	Proposed remedies
WFAEL	- Provide network access on reasonable request - Requests for new forms of network access - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Notify technical information - Accounting separation	- Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting
WCO	- Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Notify technical information - Accounting separation	- Provide network access on reasonable request - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting

Table 10.2: Summary of current and proposed remedies on KCOM (in the Hull Area) by wholesale ISDN market

	FAMR 2014 remedies	Proposed remedies in transitional period	Proposed remedies after transitional period
ISDN30	<u>All lines</u> - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Notify technical information - Accounting separation	<u>All lines</u> - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting	<u>All lines</u> - Accounting separation - Cost accounting <u>Existing lines</u> - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges
ISDN2	<u>All lines</u> - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Notify technical information - Accounting separation	<u>All lines</u> - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting	<u>All lines</u> - Accounting separation - Cost accounting <u>Existing lines</u> - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges

10.7 We consider that these proposed remedies address the competition concerns we have identified, are consistent with our statutory duties and satisfy the relevant legal tests. In reaching these proposals we have taken account of recent developments in the relevant markets, the maturity of the technology and expected developments over the course of the review period.

Competition concerns

10.8 In the markets in which we propose KCOM has SMP, there are a variety of behaviours in which it could engage that might distort downstream competition, including:

- refusing to supply access at the wholesale level and thus restricting competition in the provision of products and services in the relevant downstream markets;
- setting charges that, in combination with prices in downstream markets, amount to a price squeeze; and
- in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets,[430] providing access on less favourable terms compared to those obtained by KCOM's own downstream business, e.g. for provision and repair.

10.9 In relation to existing wholesale ISDN30 and ISDN2 services we have an additional concern about KCOM setting excessive charges. Excessive wholesale charges would not necessarily lead to a distortion in downstream competition (for example, if the wholesale charge allowed sufficient margin to competitors given KCOM's downstream pricing), but nevertheless would be damaging to consumers as they would be expected to lead to higher retail prices than is efficient and result in a loss of welfare by consumers.

10.10 Overall, we consider that national and EU competition law remedies would be insufficient to address these competition problems we have identified. We therefore believe that it is appropriate to impose certain *ex ante* regulatory obligations on KCOM in each of the markets in which it holds SMP in order to address the competition concerns identified above.

Proposed remedies on KCOM

10.11 In this subsection, we set out our proposed remedies on KCOM in relation to the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets.

10.12 We assess each proposed remedy in turn by setting out:

- a summary of the existing and proposed requirements;
- the aim and effect of the proposed regulation;
- our proposals; and
- our consideration of the relevant legal tests for the proposed regulation.

10.13 First, we explain below our approach to imposing remedies in the wholesale ISDN30 and ISDN2 markets, given our proposal to remove most regulation for new lines.

[430] In respect of WCO, as discussed below, we no longer consider discrimination to be a significant risk to downstream competition and consumer outcomes.

Approach to imposing remedies in the wholesale ISDN30 and ISDN2 markets

10.14 In designing our proposed approach to remedies, we make a distinction between existing ISDN lines which will have been installed before the end of the transitional period (see below), and new ISDN lines which will be installed after the transitional period.

10.15 In Section 5 we set out our view that ISDN users can face barriers to switching to IP-based services and that IP services therefore fall outside the relevant markets for ISDN. However, as discussed in Section 6, we recognise that there is a growing competitive constraint from IP-based alternatives. Although we do not propose to include IP-based services in the market at this time, we do acknowledge that there is an increasing degree of substitutability. For customers who do not already have ISDN, we consider that the availability of IP-based alternatives is likely to limit the extent of BT's market power in the ISDN markets more broadly. While taking the constraint exerted by these 'out-of-market' products into account may mean that BT's market power diminishes over time, we anticipate that BT is likely to continue to enjoy a strong market position over existing customers of ISDN for the period of this review. We therefore propose to tailor the remedies accordingly, by removing most regulation for new ISDN lines over the period of this review and focusing our *ex ante* regulation on existing ISDN lines only.

10.16 The remedies we propose for existing lines are aimed at protecting against the risks of excessive wholesale pricing and price squeeze, and ensuring continued access to ISDN services, for those consumers for whom IP-based services are not a viable alternative.

10.17 With regard to new lines, we propose to impose only regulatory financial reporting remedies as we propose accounting separation and cost accounting obligations in respect of all ISDN lines for the whole period of the review. This is because, while the competitive constraints may be greater for new customers, we do not propose that they form a separate market and, in order to understand the financial performance of both existing and new ISDN lines and the impact and effectiveness of our proposed remedies in the ISDN markets, we need to understand how costs and revenues are attributed to services in the whole market.

Definition of new lines

10.18 In defining new ISDN lines, we deem a new line connection to be a new line installation, rather than the connection of additional channels to an existing installed line. KCOM sells ISDN30 rentals by channels (with a minimum of six channels) with each line providing up to 30 channels, so new channels can be added to existing lines. The case is simpler for ISDN2; each line provides exactly two channels, so any additional channel capacity requires a new ISDN2 line to be installed.

10.19 We propose to continue to regulate new channels connected on existing lines during the market review period. The number of channels provided over an ISDN30 line can be increased via a configuration change, i.e. without the need to alter the physical connection between the exchange and the customer's premises, including the associated equipment at each end. We consider that the current way in which KCOM charges per channel on an existing ISDN30 line is the result of its current charging structure, rather than a reflection of cost-causation. Therefore, given that the per channel connection cost could have been instead recovered through the installation charge and/or annual line rental, which would be covered by our proposed regulation of existing lines, we propose that it is appropriate to continue to regulate channel connections.

<u>Transitional period</u>

10.20 We have considered whether it is necessary to continue to regulate new ISDN lines for a transitional period in order to provide CPs with the opportunity to complete any existing contract negotiations after publication of our statement. Such a period would limit the potentially negative impact on providers that currently use wholesale ISDN services. Specifically, it would prevent KCOM stopping CPs from accessing wholesale ISDN services or having their access suddenly restricted or provided on less favourable terms.

10.21 No transitional period would be consistent with our view that IP-based services are likely to be a viable substitute for ISDN for most new line connections. However, we think this would not provide sufficient time for CPs to complete any existing contract negotiations given the lack of certainty around access and pricing of new line connections after the transitional period.

10.22 We therefore propose a transitional period during which new line connections will continue to be regulated and be treated as existing lines for the rest of the market review period.

Length of transitional period

10.23 We have considered how long the proposed transitional period needs to be. We consider that a period of up to 12 months from the start of the next market review period (which we currently expect to be 1 October 2017) is likely to be sufficient for CPs to complete contract negotiations. We have allowed a 12-month period in other markets in which we have removed SMP obligations, e.g. for transit markets in 2009. We welcome input from stakeholders as to whether they consider a 12-month transitional period to be appropriate or if a shorter transitional period would be sufficient to achieve our aims.

Remedies during the transitional period

10.24 For the transitional period, we propose to maintain the general access remedy, including a fair and reasonable charges obligation, for all ISDN lines. However, from the end of the transitional period (currently, as proposed, the start of the second year of the review period), most of the remedies proposed below would only apply to existing ISDN lines. The remedies we propose for existing lines are aimed at protecting against a risk of excessive wholesale pricing and ensuring continued access to ISDN services, in addition to addressing our other competition concerns outlined above, for those consumers for whom IP-based services are not a viable alternative.

Requirement to provide network access on reasonable request

<u>Current remedies</u>

10.25 In the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets KCOM is currently required to provide network access on reasonable request. It is required to provide such access as soon as it is reasonably practicable and on fair and reasonable terms and conditions or such other terms and conditions we may from time to time direct. The requirement also includes the obligation to provide network access on fair and reasonable charges.

Aim and effect of regulation

10.26 An obligation requiring KCOM to provide network access to third parties on reasonable request is necessary to protect effective competition in downstream markets. We consider that, in the absence of such a requirement, KCOM could have an incentive and the ability to refuse access at the wholesale level. This would benefit its own downstream operations by hindering sustainable competition on the corresponding downstream markets and ultimately go against consumers' interests.

Our proposals

10.27 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide such network access as Ofcom 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 for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions. Section 87(9) of the Act also authorises SMP services conditions imposing on the dominant provider: such price controls as Ofcom may direct in relation to matters connected with the provision of network access to the relevant network or with the availability of relevant facilities; and such rules as they may make in relation to matters connected with the provision of network access. In each case, in setting such conditions Ofcom must be satisfied that the conditions about network access pricing set out in section 88 of the Act are also satisfied

10.28 We are proposing an SMP obligation requiring KCOM to provide network access where a third party reasonably requests it in the WFAEL and WCO markets, and in the wholesale ISDN30 and wholesale ISDN2 markets (for all ISDN lines in the first year and subsequently for existing lines only as discussed above), in the Hull Area. The proposed condition will require KCOM to provide network access on fair and reasonable terms and conditions.[431]

10.29 In the ISDN markets, we consider the obligation is necessary for all lines in the first year only (and not to new lines thereafter) so as to enable CPs which currently use wholesale ISDN services to complete existing contract negotiations. This would prevent KCOM stopping CPs from accessing wholesale ISDN services or having their access suddenly restricted or provided on less favourable terms. In this way, the remedy we propose during the transitional period is designed to address our competition concerns in the ISDN markets.

10.30 We do not propose to apply the general network access remedy to new ISDN connections (and subsequent rentals) after the 12-month transitional period as we consider that KCOM's market power over CPs is weaker for new lines because of the competitive constraint from IP-based services.

10.31 For all relevant markets, we propose that it is appropriate for this SMP condition to include the power for Ofcom to make directions in order that we can secure the supply of services and, where appropriate, fairness and reasonableness in the terms

[431] As in the FAMR 2014, we consider that imposing a requirement to provide specific access in the form of WLR would be disproportionate and inappropriate for the Hull Area. We consider that opportunities for competition are best met by a general network access obligation.

and conditions and, where applicable, charges for providing third parties with network access. The proposed condition includes a requirement for the dominant provider to comply with any such direction(s).

Fair and reasonable charges

10.32 In the WFAEL, WCO and wholesale ISDN30 and wholesale ISDN2 markets, we consider that a fair and reasonable charges obligation is necessary to protect against the risk of price squeeze. In light of our market analysis our primary *ex ante* concern is in relation to the risk of adverse effects arising from KCOM fixing and maintaining its wholesale charges at a level that imposes a price squeeze, thus undermining effective competition in downstream markets.

10.33 We consider that a fair and reasonable charges obligation remains an appropriate approach to regulating wholesale charges, rather than imposing a charge control in these markets. This is because our regulatory objective in relation to these markets is primarily around the protection, rather than the promotion, of competition. Taking into account this objective, we propose adopting an approach to the evaluation of costs and margins consistent with that which would be adopted under *ex post* competition law.

10.34 In addition, we consider that a fair and reasonable charges obligation remains necessary in the wholesale ISDN30 and ISDN2 markets to address our concern that KCOM might fix and maintain its charges at an excessively high level for existing services in the ISDN markets. We consider that a fair and reasonable charges requirement on KCOM is sufficient to deal with our concerns regarding excessive pricing for its wholesale services in these markets

Legal tests

10.35 For the reasons set out below, we are satisfied that the proposed network access condition for KCOM in the WFAEL and WCO markets, and in the wholesale ISDN30 and ISDN2 markets (for all ISDN lines in the first year and subsequently for existing lines only as discussed above) in the Hull Area meet the various tests set out in the Act.

10.36 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as Ofcom may from time to time direct. Section 87(9) of the Act also authorises SMP services conditions imposing on the dominant provider: such price controls as Ofcom may direct in relation to matters connected with the provision of network access and about the recovery of costs and cost orientation, subject to the conditions of section 88 of the Act being satisfied.

10.37 In proposing these conditions, we have taken into account the factors set out in Section 87(4) of the Act. When considering the imposition of such conditions in a particular case, we must take into account the following six factors:

- the technical and economic viability (including the viability of other network access products, whether provided by the dominant provider or another person), having regard to the state of market development, of installing and using facilities that would make the proposed network access unnecessary;

- the feasibility of the provision of the proposed network access;

- the investment made by the person initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed (taking account of any public investment made);

- the need to secure effective competition (including, where it appears to Ofcom to be appropriate, economically efficient infrastructure based competition) in the long term;

- any rights to intellectual property that are relevant to the proposal; and

- the desirability of securing that electronic communications services are provided that are available throughout the Member States.

10.38 In reaching our proposal that KCOM should be subject to a requirement to provide network access on reasonable request, we have taken all of the above six factors into account. In particular, having considered the economic viability of building access networks to achieve ubiquitous coverage that would make the provision of network access unnecessary, we consider that the SMP condition is required to secure effective long-term competition in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN markets. The requirements for KCOM to meet only reasonable network access requests also ensures that due account is taken of the feasibility of the proposed network access, and of the investment made by KCOM initially in providing the network.

10.39 In proposing to impose a fair and reasonable charges obligation, we are also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act.

10.40 Section 88(1)(a) of the Act requires that Ofcom must not impose pricing 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 discuss above that we consider that it appears to us from the market analysis carried out that there is a relevant risk of adverse effects arising from price distortion in that KCOM might:

- in all four markets impose a price squeeze; and

- in the wholesale ISDN30 and ISDN2 markets fix or maintain some or all of its prices at an excessively high level;

in each case so as to have adverse consequences for end-users of public electronic communications services.

10.41 Section 88(1)(b) of the Act requires that the pricing condition should be appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on consumers of public electronic communications services.

10.42 We consider that fair and reasonable charges will prevent KCOM from setting a price squeeze in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets charging, and from excessively high wholesale prices in the wholesale ISDN30 and ISDN2 markets. In this way, this condition supports the aim of improved efficiency and sustainable competition.

10.43 We consider that the provision of network access on fair and reasonable terms will protect sustainable competition by ensuring that other CPs can effectively compete at the downstream level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on consumers of the services.

10.44 We are also required, under Section 88(2) of the Act, to take account of the extent of KCOM's investment in the matters to which our proposed condition relates. We believe that a fair and reasonable charges obligation would not impact on KCOM's investment in any of the WCO or wholesale access markets in that it allows KCOM's costs to be taken into account and also provides for common cost recovery.

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

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

10.47 We also consider that each proposed condition meets the Community requirements as set out in section 4 of the Act. Each 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 networks services.

10.48 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent.

10.49 In the WFAEL and WCO markets, and in relation to existing ISDN30 and ISDN2 lines, each proposed condition is:

- objectively justifiable, in that in each of the markets it facilitates access to KCOM's network and therefore protects competition to the ultimate benefit of consumers;
- not unduly discriminatory, in that it is proposed on KCOM and it is proposed that no other CP has been found to hold a position of SMP in these markets in the Hull Area;
- proportionate, in that it is targeted at addressing the market power that we propose KCOM holds in these markets, and does not require it to provide access if it is not technically feasible or reasonable; and
- transparent, in that the condition is clear in its intention to ensure that KCOM provides access to its network in order to facilitate effective competition.

10.50 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that it enables a period of access to KCOM's network under the current regulatory framework in order to allow the completion of existing contract negotiations;
- not unduly discriminatory, in that it is imposed on KCOM and it is proposed that no other CP has been found to hold a position of SMP in these markets in the Hull Area;

- proportionate, in that it is imposed for a limited time only, is targeted at addressing the market power that we propose KCOM holds in these markets and does not require KCOM to provide access if it is not technically feasible or reasonable; and

- transparent, in that the condition is clear in its intention to ensure that CPs have the opportunity to complete any existing contract negotiations.

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

Requirement not to unduly discriminate

Current remedies

10.52 KCOM is currently prohibited from unduly discriminating in the WFAEL, wholesale ISDN30 and ISDN2 markets.

10.53 KCOM is currently also prohibited from unduly discriminating in relation to its provision of WCO, but as explained at the end of this section, we propose to remove this obligation.

Aim and effect of regulation

10.54 A non-discrimination obligation is intended to prevent the dominant provider from discriminating in favour of its own downstream divisions and, more generally, to ensure that competing providers are placed in an equivalent position.

Our proposals

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

10.56 We consider that imposing an EOI obligation on KCOM would be disproportionate in respect of the scale and competitive conditions in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area. We consider that imposing EOI requirements on KCOM now would impose costs on KCOM which might be passed onto its customers without our being clear that, in doing so, the Hull Area would derive competition benefits.

10.57 We therefore propose that KCOM should continue to be subject to a requirement not to unduly discriminate in the WFAEL market, and in the wholesale ISDN30 and ISDN2 markets (for all lines in the first year and subsequently for existing lines only as discussed above) in the Hull Area.

10.58 We do not propose to apply the no undue discrimination remedy to the provision of new ISDN lines after the transitional period as we do not propose a general network access obligation in relation to such connections.

10.59 We also do not propose to apply the no undue discrimination remedy (or any other form of non-discrimination remedy) in the WCO market. In Section 6 we set out our SMP analysis of the WCO market and our provisional conclusion that KCOM faces greater indirect competitive pressures from mobile than at the time of the last review. We also observe that the overall WCO market is in decline.

10.60 We therefore consider that it is no longer necessary to impose a no undue discrimination obligation on KCOM in the WCO market, given the greater competitive constraints acting in this market (most notably from the indirect constraint of mobile call origination). We consider that KCOM is unlikely to discriminate in the provision of WCO to an extent which will restrict or distort competition and require *ex ante* regulation.

Legal tests

10.61 For the reasons set out below, we are satisfied that the proposed condition for KCOM in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area meet the various tests set out in the Act. As explained above, sections 87(6)(a) authorises the SMP condition we propose to make.

10.62 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

10.63 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 downstream competition.

10.64 We also 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 or particular third parties and therefore distort competition.

10.65 Section 47(2) requires such conditions to be objectively justifiable, non-discriminatory, proportionate and transparent.

10.66 In the WFAEL market and in relation to existing ISDN30 and ISDN2 lines, each proposed condition is:

- objectively justifiable, in that it provides safeguards to ensure competitors, and hence consumers, are not disadvantaged by KCOM discriminating in favour of its own downstream activities or between competing providers;

- not unduly discriminatory, in that the no undue discrimination condition is proposed to apply to KCOM which is the only CP which we propose to find has SMP in the relevant markets in the Hull Area;

- proportionate, in that it seeks to prevent discrimination that would adversely affect competition and ultimately cause detriment to consumers, is only applied to KCOM's provision of WFAEL and existing ISDN lines; and

- transparent, in that the conditions are clear in what they are intended to achieve.

10.67 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that it provides a period of protection for the completion of contract negotiations to ensure competitors, and hence consumers, are not disadvantaged by KCOM discriminating in favour of its own downstream activities or between competing providers;

- not unduly discriminatory, in that the no undue discrimination condition is proposed to apply to KCOM which is the only CP which we propose has SMP in the relevant markets in the Hull Area;

- proportionate, in that it seeks to prevent discrimination that would adversely affect competition and ultimately cause detriment to consumers; and

- transparent, in that the conditions are clear in their intention to ensure that CPs have the opportunity to complete any existing contract negotiations.

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

Transparency

10.69 The requirements for the transparency of charges, terms and conditions in markets in which one operator is dominant are complementary remedies to ensure that third party CPs are able to make effective use of the dominant providers' network access.

10.70 KCOM is currently subject to three transparency obligations in respect of its SMP in each of the relevant markets. They are:

- a requirement to publish a Reference Offer;

- a requirement to notify changes to charges in advance; and

- a requirement to notify technical information.

10.71 In the following sub-sections, we discuss the requirements to publish a Reference Offer and to notify changes to charges. As we explain at the end of this section, we are not proposing a requirement on KCOM to notify technical information.

Publish a Reference Offer

<u>Current remedies</u>

10.72 KCOM is currently required to publish a Reference Offer in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets. The requirement includes publishing terms and conditions for provisioning, technical information Service Level Agreements (SLAs) and Service Level Guarantees (SLGs) linked to specific services, and availability of co-location.

<u>Aim and effect of regulation</u>

10.73 The main reason for requiring the publication of a Reference Offer is to give visibility to the terms and conditions on which other providers would be able to purchase WFAEL, WCO, wholesale ISDN30 and ISDN2 services, which complements the general network access remedy.

Our proposals

10.74 Section 87(6)(c) of the Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such a 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. 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.

10.75 We propose to retain the condition on KCOM to publish a Reference Offer for its services in the WFAEL and WCO markets and the wholesale ISDN30 and ISDN2 markets (for all lines in the first year and subsequently for existing lines only as discussed above). We have proposed retaining the obligation to give visibility to the terms and conditions on which other providers can purchase wholesale services, and to enable for faster negotiations and to help avoid possible disputes.

10.76 As we are proposing to give KCOM more flexibility on terms and conditions in the WCO market by removing the no undue discrimination remedy, we consider that the proposed requirement to publish a Reference Offer should apply to KCOM's standard contract in this market. While we acknowledge that some CPs may negotiate terms and conditions that differ from KCOM's standard contract for the same services, we expect that others may continue to use on the standard terms and conditions, and therefore consider it is important for transparency for changes to KCOM's standard contract to be published.

10.77 We consider it appropriate for the published Reference Offer in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets to include:

- a clear description of the services on offer including technical characteristics and operational processes for service establishment, ordering and repair;
- the locations of points of network access and the technical standards for network access;
- conditions for access to ancillary and supplementary services associated with the network access including operational support systems and databases etc.;
- contractual terms and conditions, including dispute resolution and contract negotiation/renegotiation arrangements;
- charges, terms and payment procedures; and
- SLAs and SLGs.

10.78 To the extent that KCOM uses the service in a different manner to other CPs or uses similar services, it is required to publish a Reference Offer in relation to those services.

10.79 We propose to retain the condition in relation to existing ISDN30 and ISDN2 lines after the transitional period so as to give visibility to any amendments to the terms and conditions of KCOM's network access. However, we recognise that the main purpose of a Reference Offer is to give visibility to the terms and conditions on which other providers can purchase new services, and therefore welcome views as to whether it is necessary to retain this requirement on KCOM for existing ISDN lines after the transitional period.

10.80 We do not propose a requirement to publish a Reference Offer with regard to the provision of new ISDN lines after the end of the transitional period as we propose a general network access obligation in relation to existing lines only.

10.81 We consider the obligation is necessary for all lines in the first year only, for existing lines as well as new lines (but not to new lines thereafter) so as to enable CPs which currently use wholesale ISDN services to transition to the new regulatory framework and provide sufficient time for them to complete existing contract negotiations.

Legal tests

10.82 For the reasons set out below, we are satisfied that the proposed conditions for KCOM in respect of the WFAEL and WCO markets, and in the wholesale ISDN30 and ISDN2 markets (in the first year) markets in the Hull Area meet the various tests set out in the Act. As explained above, sections 87(6)(c), (d) and (e) authorise the SMP condition we propose to make.

10.83 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

10.84 We have considered our duties under section 3 of the Act. The requirement to publish a Reference Offer would facilitate service interoperability and protect existing customers by ensuring that services, and any changes, are transparent. Further, the proposed obligation would enable purchasers to adjust their downstream offerings in competition with KCOM, in response to changes in KCOM's terms and conditions. Finally, the proposed obligation would make it easier for Ofcom and other CPs in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets to monitor any instances of discrimination. Therefore, we consider that each 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.

10.85 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, each proposed condition would protect competition and encourage 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 Reference Offer would mean that other CPs would have the necessary information readily available to allow them to make informed decisions about entry into and participation in the market.

10.86 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent.

10.87 In the WFAEL and WCO markets, and in relation to existing ISDN30 and ISDN2 lines, each proposed condition is:

- objectively justifiable, in that it requires that terms and condition are published in order to encourage competition and provide stability in markets;

- not unduly discriminatory, in that the condition is proposed to apply to KCOM which is the only CP which we propose has SMP in the relevant markets in the Hull Area;

- proportionate, in that only information that is considered necessary to allow CPs to make informed decisions about competing in downstream markets is required to be provided; and

- transparent, in that the condition, is clear in its intention that KCOM publish details of its wholesale service offerings.

10.88 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that it provides regulatory and market stability by supporting a period of access under the current regulatory framework;

- not unduly discriminatory, in that the condition is proposed to apply to KCOM which is the only CP which we propose has SMP in the relevant markets in the Hull Area;

- proportionate, in that only information that is considered necessary to allow CPs to make informed decisions about competing in downstream markets is required to be provided for the appropriate period of time; and

- transparent, in that the condition is clear in its intention to support CPs to complete any existing contract negotiations.

10.89 Article 9(4) of the Access Directive requires that, where network access obligations are imposed, NRAs shall ensure the publication of a Reference Offer containing at least the elements set out in Annex II to that Directive. We are satisfied that this requirement is met.

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

Notify changes to charges

<u>Current remedies</u>

10.91 KCOM is currently required to give advance notice before making changes to its charges for the provision of existing or new network access in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets.

10.92 Table 10.3 below details the specific notice periods imposed on KCOM in each market by the NMR 2013 and FAMR 2014.

Table 10.3: NMR 2013 and FAMR 2014 notice period requirements

	Relevant notice periods by market
WFAEL	**90-day** notice period for changes to the WLR rental charge; **28-day** notice period for price reductions and price changes relating to the end of a temporary[432] price reduction (both in relation to WLR rental charges); and **28-day** notice period for changes to charges for all other services
WCO	**56-day** notice period for changes to charges for all services
ISDN30	**28-day** notice period for changes to charges for all services
ISDN2	**28-day** notice period for changes to charges for all services

Aim and effect of regulation

10.93 Notification of changes to charges at the wholesale level has the joint purpose of assisting transparency for the monitoring of potential anti-competitive behaviour and giving 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 as they may want to restructure the prices of their downstream offerings in response to charge changes at the wholesale level.

10.94 There may be some disadvantages to notifications, particularly in markets where there is some competition. It can lead to a 'chilling' effect where other CPs follow KCOM's prices rather than act dynamically to set competitive prices. We do not consider, on balance, that this consideration undermines the rationale for imposing a notification of charges condition.

10.95 Each of the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area is characterised to varying extents by competitors' reliance on the provision of wholesale access products and services to enable them to compete in downstream markets. We therefore consider that the advantages of notifying charges are likely to outweigh any potential disadvantages.

Our proposals

10.96 Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a dominant provider to publish, in such manner as Ofcom may direct, all such information, for the purpose of securing transparency. 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.

10.97 We propose that it is appropriate for KCOM to be subject to an obligation to notify (by means of a written notice) changes to standard charges for wholesale network access in the WFAEL and WCO markets, and in the wholesale ISDN30 and ISDN2 markets (for all lines in the first year and subsequently for existing lines only). We consider that the current notice periods remain appropriate and propose to apply the same notice periods to KCOM in the next market review period.

[432] A 'temporary' price reduction means a price reduction for a particular product or service, applicable to all customers on a non-discriminatory basis, which is stated to apply for a limited and predefined period and where the price immediately on expiry of that period is no higher than the price immediately before the start of that period.

10.98 As we are proposing to give KCOM more pricing flexibility in the WCO market by imposing a fair and reasonable charges obligation and removing the no-undue discrimination remedy, the proposed requirement to notify changes to charges would only apply to KCOM's published standard wholesale charges in these markets. While we acknowledge that some CPs may negotiate WCO charges that differ from KCOM's standard wholesale charges for the same services, we expect that others may continue to rely on the standard wholesale charges and therefore consider it is important for transparency for changes to KCOM's standard wholesale charges to be notified in advance. With regard to changes to charges which differ from KCOM's standard wholesale charges, we would expect CPs to agree terms for changes to these charges on a commercial basis.

10.99 We have not imposed a charge control on KCOM in these markets (although it is subject to a fair and reasonable charges obligation). However, we consider that the proposed notice periods are required to allow charges to be reflected in downstream offers based on KCOM's wholesale services.

10.100 In relation to ISDN30 and ISDN2, we consider the obligation is necessary for existing lines throughout the market review period and for all lines in the first year only (and not to new lines thereafter). Retention of the notification requirement on all lines during the first year will enable CPs which currently use wholesale ISDN services to complete existing contract negotiations. If KCOM makes any changes to its ISDN charges (including connection charges) during this first year, the notification requirement will provide certainty to CPs about the wholesale charges during this time period.

10.101 We propose that a notice must include the following:

- a description of the network access in question;
- a reference as to where the terms and conditions associated with the network access in question can be found in the dominant provider's Reference Offer;
- the date on which the new charges take effect (or the period over which the new charges will apply);
- the current and proposed charge; and
- other charges for services that would be directly affected by the proposed charge.

Notice periods in WFAEL

10.102 In light of our review of the WFAEL market, we consider that the existing notification periods remain appropriate. A 90-day notification period for increases in KCOM's WLR rental charge provides CPs with the opportunity to plan for price increases in respect of the ongoing monthly charge, while a reduced notification of 28 days for all other services provides flexibility. Again, without a strong justification for reducing this period, we continue to consider that the current period remains appropriate.

Notice periods in WCO

10.103 We did not receive any information in response to the April 2015 CFI that suggests there is a strong justification to change the notification period from 56 days. We therefore continue to consider that a 56-day notification period is appropriate so that

KCOM's notified price changes can be reflected in downstream prices by CPs that rely on KCOM's standard list price.

Notice periods in wholesale ISDN30

10.104 In the wholesale ISDN30 market we have imposed a notice period of 28 days since 2003. We consider that the existing notification period remains appropriate, though we propose it should apply only to existing lines for the entire market review period.

10.105 As we do not propose to impose any form of price regulation on KCOM's provision of new ISDN lines, we do not consider it appropriate to propose an obligation to notify changes to charges for these lines after the transitional period.

Notice periods in wholesale ISDN2

10.106 In the wholesale ISDN2 market we have imposed a notice period of 28 days since 2003. We consider that the existing notice period remains appropriate, though we propose it should apply only to existing lines for the entire market review period.

10.107 As we do not propose to impose any form of price regulation on KCOM's provision of new ISDN lines, we do not consider it appropriate to propose an obligation to notify changes to charges for these lines after the transitional period.

10.108 Table 10.4 below details the specific notice periods which we propose on KCOM in each market.

Table 10.4: Proposed notice period requirements

	Relevant notice periods by market
WFAEL	**90 days** for changes to the WLR rental charge; **28 days** for price reductions and price changes relating to the end of a temporary price reduction (both in relation to WLR rental charges); and **28 days** for changes to charges for all other services
WCO	**56 days** for changes to charges for standard wholesale charges
ISDN30[433]	**28 days** for changes to charges for al services
ISDN2[434]	**28 days** for changes to charges for all services

Legal tests

10.109 For the reasons set out below, we are satisfied that the proposed SMP conditions for KCOM in the WFAEL and WCO markets, and in the wholesale ISDN30 and ISDN2 markets (for all lines in the first year and subsequently for existing lines only) in the Hull Area meet the various tests set out in the Act.

10.110 As explained above, Sections 87(6)(b) and (d) authorise the SMP condition we propose to make.

10.111 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

[433] All ISDN30 lines during the transitionary period and existing ISDN30 lines only after the period.
[434] All ISDN2 lines during the transitionary period and existing ISDN2 lines only after the period.

10.112 We have considered our duties under section 3 of the Act. In particular, the proposed obligations would facilitate service interoperability. The proposed obligations would promote the interests of purchasers of wholesale services by ensuring that they have the necessary information about changes to terms, conditions and charges sufficiently in advance to allow them to make informed decisions about competing in downstream markets. Finally, the proposed obligations would make it easier for Ofcom and competitors to BT to monitor any instances of discrimination.

10.113 We also consider that the proposed conditions meet the Community requirements set out in section 4 of the Act. In particular, each proposed condition would promote 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.

10.114 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent.

10.115 In the WFAEL and WCO markets, and in relation to existing ISDN30 and ISDN2 lines, each proposed condition is:

- objectively justifiable, in that there are clear benefits from the notification of changes in terms of ensuring that providers are able to make informed decisions within an appropriate time frame when competing in downstream markets;

- not unduly discriminatory, in that the condition is proposed to apply to KCOM which is the only CP which we propose has SMP in the relevant markets in the Hull Area;

- proportionate, in that only information that other CPs would need to know in order to adjust for changes would have to be notified, and the proposed notification periods are intended to be the minimum required to allow changes to be reflected in downstream offers; and

- transparent, in that the condition is clear in its intention and implementation.

10.116 In relation to new ISDN30 and ISDN2 lines installed in the transitional period, each proposed condition is:

- objectively justifiable, in that it enables a period of access to KCOM's network under the current regulatory framework in order to allow the completion of existing contract negotiations;

- not unduly discriminatory, in that it is proposed on KCOM and it is proposed that no other CP has been found to hold a position of SMP in these markets in the Hull Area;

- proportionate, in that it is imposed for the appropriate period of time only; and

- transparent, in that the condition is clear in its intention to ensure that CPs have the opportunity to complete any existing contract negotiations.

10.117 For the reasons set out above, we consider that each proposed condition is appropriate to address the competition concerns identified in the corresponding market, in line with Section 87(1) of the Act.

Approach to regulatory financial reporting

10.118 In the following sub-sections, we propose to impose accounting separation and cost accounting obligations in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area. We propose to implement these obligations by way of a single SMP Condition (draft SMP Condition 10).

10.119 Our proposed accounting separation and cost accounting obligations are underpinned by detailed requirements for regulatory financial reporting which specify what information we require KCOM to prepare and provide in each of these markets, as discussed in Section 19.

10.120 As discussed above, our proposed approach in the two ISDN markets is to discontinue most remedies in respect of new lines after the transitional period. However, we propose to retain accounting separation and cost accounting obligations in respect of all ISDN lines for the whole period of the review.

10.121 We consider that KCOM continues to have SMP in both ISDN markets; while the competitive constraints may be greater for new customers, we do not propose that they form a separate market. We consider that in order to understand the impact and effectiveness of our proposed remedies in the ISDN markets, we need to understand the financial performance of both existing and new ISDN lines and how costs and revenues are attributed to services in the market, including between new and existing lines.

10.122 The 2005 EC Recommendation states that "the imposition of accounting separation may cover markets where the operator does not have SMP, e.g. to ensure the coherence of data".[435] We consider that the principle of ensuring the coherence of data also applies here, where we propose that KCOM has SMP across all ISDN lines but that competitive constraints may be greater for new ISDN customers. We consider this applies equally to cost accounting obligations given that cost accounting supports the requirements to account separately for different markets and services and helps to ensure that the attribution rules are fair and to ensure that the attribution rules do not unduly discriminate between different services or groups of customers.

Accounting separation

Current remedies

10.123 KCOM is currently subject to accounting separation obligations in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area.

Aim and effect of regulation

10.124 Paragraph 3 of Point 1 of the 2005 Recommendation states that:

> "The purpose of imposing an obligation regarding accounting separation is to provide a higher level of detail of information than that derived from the statutory financial statements of the notified operator, to reflect as closely as possible the performance of parts of

[435] European Commission, *Commission Recommendation of 19 September 2005 on accounting separation and cost accounting systems under the regulatory framework for electronic communications,* recital 5. Available at: http://www.akos-rs.si/files/APEK_eng/Legislation/l-26620051011en00640069.pdf.

the notified operator's business as if they had operated as separate businesses, and in the case of vertically integrated undertakings, to prevent discrimination in favour of their own activities and to prevent unfair cross-subsidy"

10.125 In the 2014 Regulatory Reporting Statement we considered the purposes of regulatory reporting, which is supported by the imposition of an accounting separation obligation. In that statement we said that regulatory reporting "should provide us with the information necessary to make informed regulatory decisions, monitor compliance with SMP conditions, ensure that those SMP conditions continue to address the underlying competition issues and investigate potential breaches of SMP conditions and anti-competitive practices".[436] In addition, we said that it "should provide reasonable confidence to stakeholders that the SMP provider has complied with its SMP conditions and add credibility to the Regulatory Financial Reporting Regime".[437] Although the 2014 Regulatory Reporting Statement did not explicitly apply to KCOM[438], we consider that the purposes of regulatory reporting set out in that statement would also apply to KCOM. We consider that our proposal to impose an accounting separation obligation, together with a cost accounting obligation (see below), will help ensure that these regulatory reporting objectives are met.

10.126 In order to carry out our duties it is important that financial information is available on the services and markets that we regulate. The availability of this information helps us understand the volumes, revenues, costs and returns of services and markets, which allows us to monitor the impact and effectiveness of, and (for certain remedies) compliance with, the remedies imposed as part of a market review.

10.127 The accounting separation obligation also requires KCOM to account separately for internal and external sales which allows Ofcom and other stakeholders to monitor the activities of KCOM to ensure that, where relevant, in the WFAEL, wholesale ISDN30 and wholesale ISDN2 markets it does not discriminate unduly in favour of its own downstream business. In practice, these obligations require KCOM to produce financial statements that reflect the performance of the regulated wholesale markets as though they were separate businesses.

10.128 Requiring KCOM to produce financial statements on each regulated wholesale market, combined with an obligation to attribute costs in a fair, objective and transparent way (via the cost accounting obligation) can help monitor the possibility of unfair cross-subsidy by ensuring that costs are not inappropriately loaded onto one set of regulated products to the benefit of another set of regulated products or unregulated products.

Our proposals

10.129 Under sections 87(7) and 87(8) the dominant provider may be required to maintain a separation for accounting purposes between such different matters relating to network access or the availability of relevant facilities.

10.130 We propose an accounting separation obligation on KCOM in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area. We consider that

[436] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014, paragraph 2.28. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.
[437] Ibid., paragraph 2.41.
[438] See paragraphs 2.125 and 2.126 of the 2014 Regulatory Reporting Statement.

this obligation is necessary monitor the overall impact and effectiveness of the remedies proposed in Table 10.1 and to support transparency by providing a greater detail of information on the relevant markets than that derived from KCOM's statutory financial statements and give visibility, and thus reassurance, to stakeholders that KCOM has complied with its SMP conditions and allow them to contribute to the regulatory regime.

<u>Legal tests</u>

10.131 For the reasons set out below, we are satisfied that imposing accounting separation requirements for KCOM in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area meet the various tests set out in the Act. As explained above, sections 87(7) and (8) authorise the SMP condition we propose to make.

10.132 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

10.133 We have considered our duties under section 3 of the Act. We consider that the imposition of an accounting separation obligation protects competition in relation to the provision of electronic communications networks and services, ensuring the provision of network access and service interoperability for the purposes 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 would ensure that other obligations designed to curb potentially damaging leverage of market power, in particular the fair and reasonable charging obligation (where it applies) and the requirement not to unduly discriminate (in the markets where we propose to impose this), can be effectively monitored.

10.134 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, we believe section 4(8) is met, as the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services in that it helps to ensure that dominant providers comply with other obligations, including (with the exception of the WCO market) non-discrimination requirements.

10.135 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets, each proposed condition is:

- objectively justifiable, as it relates to the need to ensure competition develops fairly to the benefit of consumers;
- not unduly discriminatory, as it is only imposed on KCOM, which is the only CP which we propose to find has SMP in the relevant markets in the Hull Area;
- proportionate, in that it is the least onerous obligation necessary as a mechanism to allow us and third parties to monitor the impact and effectiveness of the remedies proposed and, specifically fair and reasonable charging and non-discrimination; and
- transparent, in that it is clear the intention is to monitor the impact and effectiveness of the remedies proposed.

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

Cost accounting

Current remedies

10.137 KCOM is not currently subject to cost accounting requirements in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area.

Aim and effect of regulation

10.138 Recital 2 of the 2005 Recommendation states that the purpose of imposing the accounting separation and cost accounting obligations is "to make transactions between operators more transparent and/or to determine the actual costs of services provided". Also, paragraph 2 of Point 1 of the 2005 Recommendation states that:

> "The purpose of imposing an obligation to implement a cost accounting system is to ensure that fair, objective and transparent criteria are followed by notified operators in allocating their costs to services in situations where they are subject to obligations for price controls or cost-oriented prices."

10.139 The imposition of cost accounting obligations ensures that KCOM has in place a system of rules that support the attribution of revenues and costs to individual markets and services. It therefore supports the accounting separation obligation, which requires KCOM to prepare and report financial information relating to individual markets and services, by ensuring that the rules attributing revenues and costs to individual markets and services are fair, objective and transparent. The cost accounting obligation is an important means of ensuring that:

- Ofcom and stakeholders can have confidence in the financial information prepared and provided by KCOM on individual markets and services since the attribution processes and rules supporting that financial information are fair, objective and transparent. Where we do not consider that the attribution process and rules are fair and objective, transparency (via publication of the processes and rules followed by KCOM) allows us to effectively challenge them.

- Revenues and costs are attributed to individual markets and services in a consistent manner. This mitigates the risk of double recovery of costs or that costs might be unfairly loaded onto particular products or markets.

- KCOM 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.

Our proposals

10.140 Section 87(9) to (11) (subject to section 88) of the Act authorises Ofcom to impose appropriate cost accounting obligations on KCOM.

10.141 We propose to re-impose cost accounting requirements on KCOM in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area. We consider that this proposed obligation is necessary to ensure that the processes and rules used by KCOM to attribute revenues and costs to individual markets and services are fair, objective and transparent.[439]

10.142 In respect of the specific form of the cost accounting requirements we are proposing for BT in these markets, we propose imposing the form of condition set out in the 2004 Regulatory Reporting Statement. This includes the re-imposition of paragraphs (a) to (c) and (f) of condition OB23 which ensure that KCOM maintains sufficient accounting records to enable it to operate an appropriate cost accounting system. We refer to the 2004 Regulatory Reporting Statement in which we set out our reasoning and decisions on the specific form of the cost accounting requirements we are proposing for KCOM in these markets.[440]

Legal tests

10.143 For the reasons set out below, we are satisfied that the proposed cost accounting requirements for KCOM in respect of the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets in the Hull Area meet the various tests set out in the Act. As explained below, sections 87(9), (10) and (11) authorise the SMP condition we propose to make.

10.144 Section 87(9)(c) authorises conditions imposing such rules as we may make for the purposes of matters connected with the provision of network access to the relevant network, or with the availability of relevant facilities about the use of cost accounting systems. Such conditions include conditions requiring the application of presumptions in the fixing and determination of costs and charges for the purposes of the price controls, rules and obligations imposed by virtue of that subsection (section 87(10)). Where such conditions are imposed, section 87(11) imposes a duty on us to set an SMP condition which imposes an obligation: to make arrangements for a description to be made available to the public of the cost accounting system used in pursuance of that condition; and to include in that description details of:

- the main categories under which costs are accounted for; and
- the rules applied for the purposes of that system with respect to the allocation of costs.

10.145 In setting such conditions, we must be satisfied that the conditions about network access pricing set out in section 88 are also satisfied.

10.146 We consider our proposals meet the conditions in section 88, in that they would address the risks of a price squeeze and/or excessive pricing, and promote efficiency and sustainable competition, to the benefit of consumers, and would not undermine investment by KCOM. We propose to impose on KCOM a fair and reasonable charges obligation in the relevant markets.

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[439] We do not expect this to have an effect on the financial information currently prepared by KCOM. We set out in Section 19 (Regulatory Financial Reporting) the information that we propose that KCOM needs to publish.

[440] Ofcom, *The Regulatory Financial Reporting Obligations on BT and Kingston Communications Final Statement and Notification*, 22 July 2004. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0034/55969/finance_report.pdf.

10.147 We consider that imposing a cost accounting obligation is necessary for our price regulation obligations to work, and that imposing a cost accounting obligation is consistent with section 88.

10.148 We consider that the proposed condition fulfils our duty under section 87(11) in that the cost accounting obligation require the publication of a description of the cost accounting system used and the main categories of cost and the cost allocation rules applied.

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

10.150 We have considered our duties under section 3 of the Act. In particular, we consider that the imposition of the proposed cost accounting obligation is justifiable and proportionate to protect competition in relation to the provision of electronic communications networks and services and to ensure the provision of network access (including supporting ancillary services) 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 or price squeeze – can be effectively monitored and enforced.

10.151 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, we believe that the proposed cost accounting obligations protect competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficiency and protecting competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

10.152 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets, each proposed condition is:

- objectively justifiable, in that it is necessary to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent;

- non-discriminatory, in that KCOM is the only CP in the Hull Area on which we propose to impose a cost accounting remedy;

- proportionate, in that the obligation is the minimum required in order to ensure that the processes and rules used by KCOM to attribute revenues and costs to individual markets and services are fair, objective and transparent; and

- transparent, in that it is clear in its intention to ensure the appropriate maintenance and provision of accounts for the purposes set out above and the particular cost accounting requirements on KCOM are clearly documented.

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

Remedies that we propose to remove

Requests for new forms of network access

10.154 In previous market reviews we imposed a process for requests for new forms of network access in the WFAEL market. We are now proposing to remove this remedy in recognition of the maturity of KCOM's TDM network and the provision of calls over it, and its rollout of FTTP: KCOM has currently made FTTP available to 100,000 premises in the Hull Area and plans to have made it available to 150,000 premises by the end of 2017.[441]

10.155 The remedy in relation to requests for new forms of network access is intended to support access seekers and ensure that there is a reasonable and transparent process for assessing requests from them. However, as KCOM's TDM network is mature and well established, the case for requiring KCOM to set out a process for new requests is weaker than at the time of previous market reviews because innovations in narrowband network access are unlikely to be a necessary aspect of competing in the WCO market. Therefore, we no longer consider it necessary to prescribe the process that KCOM should follow in responding to such requests in order to protect downstream competition. In the event that an access seeker does require a new form of access, the access seeker will still be able to request this under the general access remedy and KCOM will be required to assess if the request is reasonable.

No undue discrimination

10.156 As set out above, we consider it is no longer necessary to impose a no undue discrimination obligation on KCOM in the WCO market as, given the greater competitive constraints acting in this market (most notably from the indirect constraint of mobile call origination), we consider that KCOM is unlikely to discriminate in the provision of WCO to an extent which will restrict or distort competition and require *ex ante* regulation.

Notify technical information

10.157 In previous market reviews we also imposed an obligation on KCOM to notify technical information in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets. The notification of technical information remedy was designed to ensure that competing providers had sufficient time to respond to technical changes that may affect them. We are now proposing to remove this remedy as we do not think it is necessary in recognition of the maturity of KCOM's network and the provision of calls over it.

Consultation question

Question 10.1: Do you agree with the remedies that we propose for KCOM in the WFAEL, WCO, wholesale ISDN30 and wholesale ISDN2 markets? Please provide reasons and evidence in support of your views.

[441] *KCOM reveals next phase of ultrafast rollout*, 12 October 2016 https://www.kcomhome.com/news/articles/kcom-reveals-next-phase-of-ultrafast-rollout/ [accessed 23 November 2016].

Section 11

Market definition and SMP analysis: WCT

Summary of our proposals

11.1 In this section we consider the issues of market definition and market power in relation to wholesale fixed geographic call termination services, referred to in this document as wholesale call termination (WCT).

11.2 We propose the following market definition:

> "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 in the area served by that CP."

11.3 Where termination services are considered to be:

> "the conveyance of all signals (including relevant control signals) required to terminate calls to a customer[442] 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."

11.4 With regard to market power, we propose that each CP has SMP in WCT within the relevant market applicable to that CP.

11.5 We first briefly discuss the regulatory background. We then discuss our reasoning in relation to:

- market definition;
- market power assessment; and
- our competition concerns.

11.6 In doing so we have taken account of the responses received to the April 2015 CFI on this subject and discuss these inputs where necessary below. We explain our proposed remedies for WCT in Section 12 and our charge control proposals in Sections 13-15.

Regulatory background

11.7 The 2014 EC Recommendation identifies WCT on individual public telephone networks provided at a fixed location as a product and service market in which regulation may be warranted in accordance with Article 15(1) of the Framework Directive.

11.8 In reviewing this market, we must define relevant markets appropriate to UK national circumstances in accordance with competition law principles and taking due account of the 2014 EC Recommendation and SMP Guidelines. In the market definition and

[442] For the avoidance of doubt, calls to fixed geographic numbers delivered over IP are included within the wholesale call termination market.

market analysis below, we follow the general analytical framework set out in Annex 11.

11.9 In the 2013 NMR Statement, the market definition was effectively the same as proposed in this consultation (see above) and we found that there were 171 such markets. We found that each CP had SMP within the relevant market for which it provided WCT.

Market definition

Analytical approach

11.10 Although we are ultimately seeking to define wholesale markets, we begin with consideration of retail services that might provide an indirect constraint on wholesale prices and thus affect the wholesale market definition. This is because demand for the upstream wholesale service is a derived demand (meaning that demand for wholesale services depends on demand for retail services).

Starting point

11.11 We have taken as our starting point voice calls to the called party's fixed geographic number (that is, to numbers beginning 01 or 02).[443]

Indirect demand constraints from competition at the retail level

11.12 We analyse the potential for demand-side substitution by considering whether a hypothetical monopolist supplier could impose a small but significant non-transitory increase in price (SSNIP) above the competitive level without losing sales to such a degree as to make this price rise unprofitable.

11.13 We consider that a SSNIP on wholesale charges for WCT (fixed termination rates, FTRs) would be likely to have a limited effect on retail prices and consumer behaviour. Even if a 5-10% FTR increase by all terminating CPs were fully passed through to retail prices, any resulting percentage increase in retail prices would be much smaller. This is because FTRs make up a fraction of the underlying costs of calls, and an even smaller fraction of the cost of retail bundles that can include calls, lines and often other products, such as broadband, pay TV and mobile. A 5-10% increase in the FTR set by a single terminating CP is even less likely to feed into retail call prices, given that the retail prices of calls to geographic numbers are typically the same regardless of the terminating CP that controls the number range.

11.14 From a calling party's perspective each number is different, as it has a different receiving party. As a result, a call to one receiving party is not substitutable to calling any other receiving party. The opportunities for demand-side substitution are therefore limited to other methods of contacting a given receiving party, for example, calls to mobiles, VoIP calls and text-based forms of communication.

11.15 In the past, we have not found these alternatives to provide sufficient constraints to calling fixed geographic numbers to be included in the same market.444 Given the limited extent to which FTRs feed through to retail prices, it seems most unlikely that

[443] Ofcom's National Telephone Numbering Plan sets out geographic area codes and applicable geographic areas, see https://www.ofcom.org.uk/__data/assets/pdf_file/0016/36070/numbering_plan_july2015.pdf.
[444] See paragraphs 6.34 to 6.47 of the 2013 NMR Statement.

calling parties would be motivated to switch to these alternatives in response to a SSNIP. However, for completeness we briefly describe the anticipated behaviour following a SSNIP at the retail level.

Calls to mobile

11.16 One potential reaction to an increase in the price of a call to a fixed geographic number is to switch to calling the called party's mobile number.

11.17 There remains a significant (albeit declining) volume of calls to fixed geographic numbers of more than 82 billion minutes of calls in 2015.[445] While volumes of calls to mobiles continue to increase relative to fixed geographic calls (over 103 billion minutes in 2015)[446], these figures suggest that, for many consumers, a preference for calling fixed numbers remains. While it may be the case that a call to a mobile number would be an alternative to calling a fixed geographic number for some callers some of the time, we think it is unlikely that a significant number of callers would switch to calling the recipient's mobile in response to a small but significant increase in the retail price of a call to a fixed line because of the limited impact on retail prices explained above.

OTT VoIP

11.18 Another potential reaction to an increase in the price of a call to a fixed geographic number is to switch to calling recipients via OTT VoIP services.[447] In order to substitute for WCT by bypassing the use of a fixed geographic number the receiving party must be using an OTT VoIP service (e.g. Skype or WhatsApp). Typically, this means that the calling party will also be using the same OTT VoIP service, and that there will not be any direct retail charge for making the call.

11.19 However, our research shows that certain consumers find that VoIP calls are unsuitable for certain conversations, inconvenient or difficult to use, and can be unreliable or of low quality.[448] VoIP to VoIP calls can require both users to be signed up to a service and to be connected at the same time in order for the service to be used.

11.20 While use of OTT VoIP services has grown in recent years, and is likely to continue to grow,[449] we do not think that high levels of switching (in response to a SSNIP in WCT) are plausible within the time relevant to the current review.

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[445] This corresponds to 49.5 billion minutes from fixed geographic numbers and 33 billion minutes from mobile numbers. See Figure 4.10, page 146, and Figure 4.22, page 155, of Communications Market Report, 2016.
[446] This corresponds to 7.2 billion minutes from fixed geographic numbers and 96 billion minutes from mobile numbers. See Figure 4.10, page 146, and Figure 4.22, page 155, of Communications Market Report, 2016.
[447] See Section 2 for an explanation of VoIP services.
[448] Of consumers surveyed who had used a VoIP service in the previous year, 36% didn't use VoIP more often at home versus landline calls as VoIP was "not suitable for certain conversations" and 21% because it was "inconvenient/difficult to use". See 2015 Jigsaw market research report, Figure 10, page 18.
[449] See Section 3.

Text-based forms of communication

11.21 It is possible that text-based forms of communication, such as SMS, email and the use of social media, could act as substitutes for voice calls to fixed geographic numbers.

11.22 However, we consider there to be fundamental differences between the nature of voice communication and these alternative communication methods. Text-based communications may lack the immediacy and two-way responsiveness of a voice conversation (as well as requiring knowledge of a mobile number or email address). Furthermore, the type of conversations held over fixed lines may not be suitable for conversion into text-based communications. Evidence from our market research (see Section 4, paragraph 4.172) suggests that end users do not consider text-based communications to be a close substitute to fixed line calls.

Provisional conclusion on indirect constraints at the retail level

11.23 In light of the analysis set out above, our provisional conclusion is that there are no sufficiently close substitutes at the retail level to broaden the retail market beyond the focal product of calls to a fixed geographic number.

Wholesale market

11.24 Having considered indirect constraints at the retail level, we now move to wholesale market definition. In doing so we consider the direct constraints that limit the terminating CP's ability to increase the price of WCT.

Focal product for wholesale market

11.25 The preceding analysis indicated that from a calling party perspective, a call to a given geographic number is unlikely to be a substitute for another. Given the absence of supply-side substitution, this then forms the focal product for our analysis of the wholesale market.

Demand-side substitution

11.26 As wholesale demand for call termination is derived from retail demand, once the originating CP's retail subscriber has chosen to call a particular geographic number, the originating CP has no alternative to purchasing WCT from the CP controlling that geographic number. This is because the CP that controls the geographic number that is 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.

11.27 As a result, we propose that there are no effective possibilities for wholesale demand-side substitution.

Supply-side substitution

11.28 Supply-side substitution could occur if competitors were able to offer call termination to the particular number called. However, such competition could occur only if the CP that controls the geographic number were to grant entry to another CP to terminate calls on their number range.

11.29 Vodafone noted that it "is starting to see some minor changes" in call termination markets.[450] Specifically, "wholesale call exchanges" are able to direct PSTN calls to terminate on mobile and internet apps rather than over the underlying CP's voice network.[451] However, it added that "at this stage, we do not believe that any material level of traffic is being diverted by such mechanisms, but Ofcom should monitor the situation over coming years".

11.30 We consider that a CP is unlikely to have an incentive to give up its monopoly on WCT to allow other CPs to terminate calls to numbers that it holds, and bypass mechanisms such as that described by Vodafone are unlikely to be material during the WCT review period. Hence, we propose that supply-side substitution should not lead us to widen the wholesale product market definition.

Initial product market definition

11.31 As a result, we propose that WCT to each fixed geographic number constitutes an individual product market.

Widening the product market

11.32 The analysis of demand- and supply-side substitution presented above results in a separate product market for WCT being defined for each individual fixed geographic number. However, it may be reasonable to widen the product market by aggregating individual product markets, if at least one of two conditions is satisfied:

- the individual markets face homogeneous competitive conditions, meaning that suppliers' conduct would be the same in each; and/or
- there is a common pricing constraint, which means that suppliers' pricing and behaviour is likely to be the same in each market being considered.

<u>Widening to include call termination to multiple fixed geographic numbers</u>

11.33 Recipients of geographic calls lack the incentive to influence FTRs because the calling party pays (CPP) principle[452] means they do not bear the cost of the call. Furthermore, recipients of geographic calls lack the ability to influence FTRs. These features are common across fixed geographic numbers controlled by a given terminating CP – indicating homogeneity of competitive conditions.

11.34 In addition, there is a common pricing constraint at the wholesale level, as it is likely to be costly and complex for terminating CPs to charge different termination rates for individual geographic numbers allocated to them. Even when terminating CPs have not been regulated, we are not aware of them setting different FTRs for calls to different fixed geographic numbers.

[450] Vodafone, April 2015 CFI response, page 20.
[451] Vodafone noted that some mobile and internet applications that stream voice calls over a broadband OTT service allow customers to enter their phone number to be used for such calls. It believes that while this in itself is not a new phenomenon, some wholesale call exchanges now use this information to direct other PSTN calls to terminate on the apps rather than over the underlying CP's voice network (i.e. an originating CP may route their calls to a Least Cost Routeing provider, that then uses a list of numbers served by OTT apps to direct the call to the app rather than the baseband voice termination – the caller and recipient are unaware of this). This would mean that no single entity has knowledge of all calls terminating to a given number, or the ability to lawfully intercept such calls.
[452] Under CPP the calling party (and not the recipient) pays the total price of the retail call.

11.35 Therefore, we believe the competitive conditions in the wholesale markets for call termination to different geographic numbers held by a particular terminating CP are likely to be homogeneous, and a common pricing constraint will exist. Hence we propose aggregating the WCT markets for individual numbers into a wider product market encompassing termination to all geographic numbers controlled by a particular terminating CP.

Consideration of non-geographic numbers

11.36 We next consider whether the product market can be extended further to include termination to other number ranges, such as non-geographic numbers starting with 08 and 09. We consider 03 numbers separately below.

11.37 For both geographic and non-geographic calls, once the originating CP's subscriber has chosen to call a particular number, the originating CP has no alternative to purchasing WCT from the terminating CP. However, unlike geographic calls, calls to non-geographic numbers are made to a service provider (SP).[453] In general, SPs are sensitive to the termination charges levied by terminating CPs, either due to revenue sharing agreements, or to the extent that these termination charges are passed through to the originating CP's retail prices.[454] This differs from the markets for geographic call termination, where the FTRs set by terminating CPs are not influenced by the behaviour of their own subscribers (callers typically do not choose their provider based on its termination rate as the CPP principle means that the caller does not incur that charge).

11.38 In addition, the services provided in relation to non-geographic termination are different to those offered in relation to geographic termination. Terminating CPs terminating non-geographic calls offer services such as call management, conditional call routing and recorded announcements in addition to WCT, which are valued by SPs and influence their purchasing decisions.

11.39 As a result of the above, our provisional conclusion is that the conditions of competition are not sufficiently homogenous across termination to fixed geographic numbers and non-geographic numbers to widen the market definition to include the latter.

11.40 Geographic calls have a different routing mechanism to non-geographic calls. Geographic calls are routed via 'far-end handover', whereby the originating CP carries the call as far as possible on its own network before handing the call over to a terminating CP at the point of interconnection closest to the call recipient. On the other hand, non-geographic calls are routed via 'near-end handover' as the originating CP does not know the end destination of the call. Near-end handover requires the terminating CP to carry the call further along its own network and through more switching stages, so it will incur greater costs. As the different routing methods for geographic calls and non-geographic calls lead to different incremental

[453] An SP is an individual or organisation using a non-geographic number to provide a service to consumers and who is the recipient of the non-geographic call from the consumer wishing to access that service.
[454] Typically, in the case of higher-priced calls or calls to premium rate services, the terminating CP will pass some of the termination revenue to the SP and this pays for the service being provided. In the case of low-priced calls to non-geographic numbers, the terminating CP may not share the termination revenues with the SP but instead may reduce or waive the charges for hosting services that the SP would otherwise pay. Both direct and indirect revenue-sharing with the caller and the call recipient is prohibited on the 03 number range.

costs to the terminating CP, we might expect different termination rates for these number ranges.

11.41 Hence termination to geographic and non-geographic numbers are different services involving different costs, and terminating CPs have both the ability (through their billing systems) and incentive (given the different costs and opportunities for revenue sharing in certain non-geographic number ranges) to set different rates for termination to geographic and non-geographic numbers.

11.42 As a result, we do not believe that there is a common pricing constraint between geographic and non-geographic call termination and hence consider that we should not extend the product market definition to include WCT to non-geographic numbers. This matches our conclusion in the NMR 2013.

Call termination to 03 numbers

11.43 In this sub-section, we consider whether we should extend the defined product market to include call termination to 03 numbers. In its response to the April 2015 CFI, EE argued that termination of calls to 03 numbers is unlike call termination to other non-geographic numbers.[455] EE raised concerns that the potential for SPs to influence the 03 termination rates charged by terminating CPs is limited by the unique regulatory restrictions applicable to the range, which differentiate it from other non-geographic number ranges for two reasons:

- revenue sharing between terminating CPs and SPs is prohibited;[456] and
- originating CPs have less retail pricing flexibility in relation to the 03 number range compared with other non-geographic number ranges, as they are required to charge 03 calls at the same rate as they charge calls to 01 and 02 numbers and cannot exclude individual 03 number ranges from their inclusive retail offers of bundles of minutes. EE argued that this breaks the direct pass-through of termination rates to originating CP retail prices and, since it is the originating CP retail price which affects demand for an SP's service, this removes the incentive for SPs to seek to influence the termination rates offered by their terminating CP.[457]

11.44 Furthermore, EE noted that as far as it is aware all terminating CPs charge the same 03 termination rate, and thus any switching by SPs between CPs hosting 03 termination has not been on the basis of termination rates offered. It suggests that this is symptomatic of a lack of competition between terminating CPs for 03 termination.[458]

11.45 As EE noted, revenue sharing in any form (including indirect revenue sharing) is not permitted on the 03 number range.[459] This may limit the sensitivity of the SP to the 03 termination rate.

[455] EE, April 2015 CFI response, pages 1-6.
[456] EE noted that in our February 2007 *Statement on the 03 number range* we clarified our position that "Ofcom would expect that the costs of providing value-added services to SPs would be met by those SPs." It also noted BIS guidance that 03 numbers do "not provide the trader with a contribution to their costs." EE, April 2015 CFI response, pages 2-3.
[457] EE, April 2015 CFI response, page 3-4.
[458] EE, April 2015 CFI response, page 4.
[459] See our clarification in Ofcom, *The 03 Number Range – statement,* 11 December 2014, paragraph 4.48.

11.46 It may also be true that the direct pass-through[460] of termination rates to retail prices is diminished in respect of the 03 number range, which may dilute SPs' incentive to apply downward pressure to the termination rate.

11.47 However, we do not agree with EE that there is a lack of competition between terminating CPs for 03 termination. While we also acknowledge that 03 termination rates appear to be the same for the majority of terminating CPs it does not necessarily follow that there is a lack of competition in the market for 03 call termination.

11.48 As with other non-geographic numbers and, crucially, unlike geographic numbers, CPs terminating 03 calls offer hosting services such as call management, conditional call routing and recorded announcements in addition to call termination, which are valued by SPs and are likely to influence their purchasing decisions.

11.49 Turning to consideration of a common pricing constraint, we do not consider that one exists between 03 termination and termination to fixed geographic numbers. There are reasons to believe that 03 termination rates would differ from FTRs even in the absence of regulation of FTRs. As explained in paragraphs 11.40 and 11.41 above, non-geographic numbers are routed differently to geographic numbers, leading to a different set of costs to the terminating party. Hence, terminating CPs have both the ability (through billing systems) and incentive (given different costs) to set different rates for 03 termination and geographic termination.

11.50 Since the markets for WCT to 03 numbers and WCT to geographic numbers do not exhibit homogeneous competitive conditions or a common pricing constraint, we propose not to extend the defined product market for calls to fixed geographic numbers to include termination to 03 numbers.

Hosted and ported numbers

11.51 As a final step in defining the product market it is necessary to consider the complications raised by hosted and ported numbers.

Hosted numbers

11.52 A number range holder may not always control its own access network and may instead choose to purchase some or all of the network elements required to physically terminate the call from another CP (hereafter, a hosting CP).

11.53 The relationship between a number range holder and the hosting CP may extend to enabling the hosting CP to conclude termination agreements for all of the numbers held by the number range holder. Hence, we define our market in relation to the number range holder. We note that this is despite the fact that an originating CP would have no direct commercial relationship with the number range holder.

Ported numbers

11.54 Number portability enables subscribers to retain their telephone number, if they wish, when they switch between CPs. When a subscriber keeps their telephone number

[460] The issue of pass-through of 03 termination rates to retail prices was raised in the February 2015 03 disputes, where EE was arguing that there *was* an effect of higher 03 termination rates on the retail prices charged. While consistent with economic theory, we found only limited evidence of such pass-through. EE also comments on this in its submission in response to April 2015 CFI.

when changing CP, the number is described as ‘ported’ from one CP to another. Calls to ported numbers are usually first routed to the CP that originally held the number being called (the donor CP). The call is then identified as a call to a ported number and routed to the CP (a system known as onward routing) to which the number has been ported (the recipient CP or gaining provider).

11.55 As a result, ported numbers are part of a number range that was allocated to the donor CP, while WCT to these numbers is ultimately provided by the recipient CP. However, since the originating CP does not know that the number has been ported, and has no option but to purchase WCT from the donor CP, our view is that the donor CP as well as the recipient CP should be considered as providing a termination service.

11.56 In order to avoid ambiguity in relation to ported numbers, our proposed market definition refers to geographic numbers in the UK, as opposed to numbers “allocated by Ofcom”, to make clear that termination services provided by recipient CPs are also within the market. This is consistent with our position in the 2013 NMR Statement.

Geographic market definition

11.57 We consider 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, our provisional conclusion is that the relevant geographic market is determined by reference to the area in which the CP provides termination services.

Provisional conclusions on market definition

11.58 In light of the analysis set out in this section, we propose to identify the following markets for the purposes of making a market power determination: wholesale call 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 in the area served by that CP.

11.59 Where termination services, as mentioned above, are considered to be:

> “the conveyance of all signals (including relevant control signals) required to terminate calls to a customer 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.”

11.60 This proposed market definition is effectively the same as the market definition for WCT in the 2013 NMR Statement.

Market power assessment

Analytical approach

11.61 In Annex 11 we set out the process for assessing market power. We regard the following criteria as particularly relevant to the assessment of market power:

- market shares (current and future);

- barriers to entry;
- countervailing buyer power (CBP); and
- pricing behaviour.

11.62 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 position of market power. However, it is also appropriate to consider whether there is the potential for entry and expansion into the market, whether pricing behaviour corroborates these assessments, and whether any CPs have sufficient CBP to constrain any market power which may be identified.

Importance of the 'calling party pays' arrangement

11.63 The CPP principle (see footnote 452) implies that terminating CPs do not have sufficient incentives to set efficient termination rates to the ultimate benefit of final consumers. Since the charge for termination is not paid by their own customers, terminating CPs could raise the rate they charge for termination services to maximise the profitability of call termination, as this will not lead to behavioural changes from their own customers. Furthermore, a higher termination charge increases the costs borne by their rivals. This could ultimately force rival CPs to increase their retail prices, which would in turn be borne by customers of rival CPs. This would give the CP with higher call termination rates a competitive advantage at the retail level over its competitors.

11.64 The calling party, or the originating CP on their behalf, does not choose the terminating CP (this is determined by the subscriber that is being called). This means callers are unable to constrain the price of the termination services offered by that terminating CP. This results in terminating CPs being able to exert significant market power over originating CPs.

Market shares

11.65 Given our proposed market definition, it follows directly that each number range holder has 100% of the market for calls terminating to numbers that it controls. Although a high market share alone is not sufficient to establish SMP, very large market shares are usually taken as an indication that SMP is present in the relevant market.[461]

Barriers to entry and expansion

11.66 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 its number range. As explained in paragraph 11.30 above, we consider that terminating CPs are unlikely to have an incentive to allow other CPs to terminate calls to their number ranges. As a result, we consider it unlikely that the existing barriers to entry will materially reduce in the near future and, therefore, any threat of entry is too insubstantial to restrict the SMP of CPs.

[461] See paragraphs 75 to 77 of the SMP Guidelines.

Countervailing buyer power

11.67 CBP is the degree of constraint that purchasers of termination services are able to place on the terminating CP's ability to charge excessive termination rates. A degree of buyer power will exist where the purchaser is sufficiently important to the seller, in terms of purchasing a significant proportion of the total volume of call termination from that terminating CP, to be able to make a credible threat to switch supplier to a significant degree, self-supply or refuse to purchase the product. However, in order to rebut the presumption of SMP arising from the very high market shares and barriers to entry seen in WCT markets, it would be necessary for the buyer to exert sufficient CBP for a seller to be unable to act to an appreciable extent independently of its competitors, customers and ultimately consumers.

11.68 The precise CBP that each fixed CP has when negotiating with every other provider will vary to some extent. While a detailed analysis of every bilateral negotiation would be impractical, for the reasons explained below, we do not consider that there exists sufficient CBP to counter a finding of SMP with respect to the supply of WCT.

<u>CBP relative to WCT provided by BT</u>

11.69 As the largest holder of geographic numbers[462] and the CP whose network terminates the majority of retail calls,[463] it is appropriate to consider initially whether BT's market power in termination is offset by the CBP of the purchasers of its fixed geographic call termination services.

11.70 Given BT's scale, we consider that other CPs have very little CBP when negotiating to purchase WCT from BT. This is because they require BT's termination service in order to offer a credible service to their retail customers, who expect to be able to contact any other consumer irrespective of which CP they are connected with. This implies that, in the absence of regulation, we would not expect other CPs to have sufficient CBP to negate BT's SMP in WCT.

11.71 As with fixed CPs, mobile CPs require termination on the BT network to offer a credible service to their retail customers. Given that the largest mobile CPs are of a large scale they could potentially seek to exert CBP against BT by threatening not to interconnect or to raise wholesale mobile call termination rates to BT in response to BT setting excessive FTRs. However, we consider that the scope for mobile CPs to engage in such activity is likely to be very limited. First, the largest mobile CP is EE, which is now owned by BT. Second, mobile CPs are themselves subject to network access obligations and charge controls at LRIC.

11.72 Therefore, we provisionally conclude that other fixed and mobile CPs do not have sufficient CBP to negate BT's SMP in the market for WCT.

<u>BT's CBP relative to other terminating CPs</u>

11.73 Despite being of a smaller scale, we consider that there are commercial and regulatory reasons why other CPs have SMP when negotiating FTRs with BT.

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[462] In Q4 15/16 BT held a WFAEL share of 55% (see paragraph 6.6 above), a wholesale ISDN30 share of 65% (see paragraph 6.72) and nearly 100% of ISDN2 (paragraph 6.91).
[463] In the financial year 2014/15 BT accounted for approximately [✂]% of WCT volumes by minutes (based on BT's RFS and s135 data collected from a wide range of stakeholders).

11.74 We recognise that BT, as the largest holder of geographic numbers, is an essential trading partner for CPs wishing to offer retail calls to those numbers. However, any CBP that BT might hold is reduced by its end-to-end connectivity obligation.[464] This obligation means that BT cannot refuse to purchase WCT when requested by a Public Electronic Communications Network, as long as the terms offered are reasonable. BT is therefore limited in its ability to demand lower FTRs from smaller CPs (for example, by refusing to open the number range of that CP).

Other CPs' CBP relative to each other

11.75 We also consider that in the absence of SMP regulation it is unlikely that other CPs have strong CBP in relation to each other. This is because CPs have the option of either directly interconnecting with the terminating CP and so negotiating the FTR bilaterally, or transiting their traffic via BT for a fee, in effect allowing BT to negotiate the FTR on their behalf. As a result, the rate BT agrees for termination on another network acts as the floor and ceiling (plus a margin for transit) on the rate other purchasers are likely to agree with terminating CPs.

11.76 In the absence of regulation restricting FTRs, we consider that larger CPs are unlikely to refuse to purchase termination from smaller CPs, even if those CPs increase their FTRs. All CPs have an incentive to be able to buy termination to all UK number ranges in order to offer a credible service to their retail customers. Furthermore, larger CPs might not have a sufficient incentive to enter negotiations to secure lower FTRs with smaller CPs due to the small scale of these individual counter-parties.

11.77 We note in this regard that some small CPs claim that BT sets their FTRs and constrains them to the rate on BT's CPL suggesting they do not have SMP in WCT. This may reflect the fact that the market is currently subject to regulation that requires FTRs to be fair and reasonable, and that we have published guidance that rates that are symmetric to BT's are likely to be fair and reasonable.[465] As a major purchaser of termination, BT is likely to reflect this regulatory position in agreements with small CPs. However, we have collected evidence on this issue and note that some CPs do charge FTRs above this rate. Even if a small number of larger CPs might be able to exert CBP over smaller CPs in respect of FTRs, there is no mechanism to transmit lower FTRs to other originating CPs which do not possess CBP. This means that all CPs would be able to charge excessive FTRs in at least some of their contracts, i.e. each CP would have SMP over the geographic number ranges it terminates when negotiating with at least some originating CPs.

11.78 In light of the above, our provisional conclusion is that we do not consider that there exists sufficient CBP to counter a finding of SMP with respect to the supply of WCT by non-BT providers.

Pricing behaviour

11.79 We now briefly consider the pricing behaviour of BT, which was subject to a charge control (until 30 September 2016). We then look at the pricing behaviour of other

[464] See http://stakeholders.ofcom.org.uk/binaries/consultations/end_to_end/statement/statement.pdf.
[465] Ofcom, *Guidance in the setting of fair and reasonable fixed termination rates*, Annex 10 of the 2013 NMR Statement (2013 F&R Guidance), page 501 which replaced Ofcom, *Fair and reasonable charges for fixed geographic call termination: Statement and final guidance*, April 2011 (2011 F&R Statement).

terminating CPs which, currently, are not subject to a charge control, but are required to provide WCT at fair and reasonable charges.

11.80 The imposition of a charge control on BT means we cannot observe the FTRs which it would set in the absence of SMP regulation. However, we note that BT has set its FTRs at the maximum permitted level over the course of the current charge control, which suggests its pricing is likely to have been constrained by regulation (even when FTRs were not capped at LRIC). While this behaviour alone does not conclusively imply SMP, it does not contradict the presumption of SMP given market shares or considering other economic factors such as the absence of, or limits to, CBP by originating CPs.

11.81 Similarly, we cannot observe the FTRs that other CPs would set in the absence of SMP regulation, as while not subject to a charge control, other CPs' FTRs are required to be fair and reasonable, and we have published guidance that termination rates set above BT's FTR (which we call the benchmark rate), are unlikely to be fair and reasonable unless they meet the three stage test outlined in the guidance.[466] However, other CPs therefore have some degree of flexibility in the FTRs they charge. Our analysis suggests that a small number of fixed CPs are pricing above the benchmark rate, although the majority of CPs are pricing at the benchmark rate. Again, while not conclusively implying SMP, this behaviour does not contradict a presumption of SMP.

Hosted and ported numbers

11.82 In addition, some CPs choose to have their number ranges hosted on other networks.[467] In paragraphs 11.52 to 11.53 above, we defined the market in terms of the number range holder. Hosted numbers may be moved between different hosting CPs, or 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 WCT cannot occur without, directly or indirectly, the involvement of the number range holder. We therefore consider that it is the number range holder, rather than the hosting network, that holds a position of SMP.

11.83 In relation to ported numbers, under the onward routing approach used in the UK, the originating CP has no choice but to purchase WCT from the donor CP and the donor CP has no option but to purchase WCT from the recipient CP. As a result, in these cases our view is that both the donor and the recipient CP should be considered as providing a termination service and hold a position of SMP. The role of the donor in relation to providing number portability to the recipient CP is separately regulated under GC18.

Provisional conclusion on market power

11.84 Our provisional conclusion is that each CP has SMP in the defined market for fixed geographic call termination applicable to that CP. This includes those CPs whose numbers are hosted by another CP, and both the donor CP and the recipient CP in relation to numbers that have been ported.

[466] 2013 F&R Guidance.

[467] Our s135 responses indicated 124 CPs host their numbers on other providers' networks, corresponding to approximately 30-40% of CPs.

11.85 The providers that we are proposing to designate as having SMP in this market are listed at Annex 6.

Competition concerns

11.86 We have identified the main competition concerns in relation to CPs having SMP in the market for WCT in the absence of *ex ante* regulation:

- terminating CPs could have the ability and incentive 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 UK and, in turn, restrict competition in the provision of retail offers;

- terminating CPs would be able to set excessive prices for WCT. Even if the excess profits that CPs might earn from charging excessive FTRs are passed on to their consumers via the "waterbed effect",[468] CPs with a greater volume of inbound calls per customer and/or higher termination rate than other CPs would be able to compete more aggressively for retail subscribers; and

- terminating CPs might discriminate between CPs by setting higher charges for some CPs than others or otherwise affect the terms and conditions of access. We consider this to be more of a concern in relation to BT for the reasons explained in Section 12, paragraph 12.69, Section 16, paragraph 16.59 and Section 17, paragraph 17.9.

11.87 These competition concerns would be likely to lead to consumer choice being distorted. To address these concerns, we propose remedies on CPs that offer WCT in Section 12 and our charge control proposals are outlined in Sections 13-15.

Consultation questions

Question 11.1: Do you agree with our provisional conclusion regarding market definition for WCT? Please provide reasons and evidence in support of your views.

Question 11.2: Do you agree with our provisional conclusion that each CP has SMP in the defined market for fixed geographic call termination applicable to that CP? Please provide reasons and evidence in support of your views.

[468] The "waterbed effect" refers to a situation where a change in one set of prices leads to changes in prices in a different part of the market. In this context, the waterbed effect would arise if excessive FTRs caused retail prices paid by fixed-line consumers to fall.

Section 12

Remedies: WCT

Introduction

12.1 In Section 11, we propose that each CP has SMP in WCT within the relevant market applicable to that CP. In this section, we set out our proposals to impose certain remedies, excluding charge controls, on CPs with SMP in WCT. We propose to impose a number of general remedies that will apply to all CPs with SMP including BT and KCOM[469].

12.2 We propose to impose a number of additional remedies for WCT that will apply to BT only. We think these additional remedies on BT only are necessary to address our competition concerns, because of the volume of calls originated by other CPs and terminated by BT.

12.3 Our proposals for price control remedies on all CPs with SMP in WCT are set out in Sections 13-15.

Proposed remedies for WCT: all CPs with SMP

12.4 The remedies that we propose are designed to address our competition concerns. We propose a requirement to provide network access on reasonable request[470] and a price transparency requirement (which will mean a shorter notice period requirement on BT than currently applies[471]).

12.5 As set out in Section 13, we also propose a charge control on all CPs with SMP in WCT.

Additional proposed remedies for WCT: BT only

12.6 BT is currently subject to a number of remedies for WCT that do not apply to any other CP. We propose to maintain a number of these, specifically:

- requirement not to unduly discriminate;
- requirement to publish a Reference Offer;
- accounting separation; and
- cost accounting.

12.7 As discussed in Section 13 we propose a single maximum rate charge control on all CPs with SMP in WCT. This form of price control will not require BT or other CPs to calculate an average charge based on charges at different times of day since, as

[469] See Annex 6 for the full list of CPs.
[470] Including fair and reasonable charges in the absence of other pricing regulation.
[471] Other CPs with SMP in WCT are currently required to notify changes to charges on or before the day that the change takes effect. We propose to impose the same requirement on BT, which is currently subject to a 56-day notice requirement.

discussed in Section 15, we propose also to remove the requirement on BT to include its network tariff gradient when publishing charges.

12.8 In recognition of market developments and the maturity of the technology, we also propose to reduce regulation on BT by removing the requirement to notify technical information.

Summary of current and proposed remedies

12.9 Table 12.1 summarises current and proposed remedies on all CPs other than BT with SMP in the WCT markets and separately, on BT.

Table 12.1: Summary of current and proposed remedies on CPs with SMP in WCT

	NMR 2013 remedies	Proposed remedies
All CPs other than BT	- Provide network access on reasonable request - Requirement to notify changes to charges	- Charge control - Provide network access on reasonable request - Price transparency obligation[472]
BT	- Charge control - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Requirement to notify charges - Requirement to notify technical information - Accounting separation - Cost accounting	- Charge control - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Price transparency obligation[473] - Accounting separation - Cost accounting

12.10 We consider that these proposed remedies address the competition concerns we have identified, are consistent with our statutory duties and satisfy the relevant legal tests. In reaching these proposals we have taken account of recent developments in the relevant markets, the maturity of the technology, expected developments over the course of the review period and views expressed by stakeholders in response to our April 2015 CFI.

Competition concerns and approach to remedies

12.11 In the WCT markets, there are a variety of behaviours in which CPs could engage which might distort competition, including:

- refusing access to termination services which could reduce the ability of other CPs to offer their customers end-to-end calls to all geographic numbers in the UK; and
- providing access, but setting excessive prices for WCT.

[472] The obligation maintains the requirement on all CPs with SMP in WCT other than BT to publish changes to charges on or before the day that the changes take effect.
[473] The obligation reduces the time period for which BT has to publish changes to its charges from 56 days before the change takes effect to on or before the day that the changes takes effect.

12.12 For these reasons, we propose requirements on all CPs with SMP in WCT to provide network access on reasonable request and to publish prices. For all CPs with SMP other than BT, we consider that these remedies (in conjunction with the proposed charge control) are sufficient to address competition concerns in the WCT markets.

12.13 Overall, we consider that national and EU competition law remedies would be insufficient to address the competition problems we have identified. We therefore believe that it is appropriate to impose *ex ante* regulatory obligations on CPs with SMP in WCT and additional obligations on BT's provision of WCT to address the competition concerns identified above.

Proposed remedies for WCT: all CPs with SMP including BT

12.14 In this subsection, we set out our proposed remedies on all CPs with SMP in the market for WCT, including BT (below, we set out additional obligations on BT's provision of WCT).

12.15 We assess each proposed remedy in turn by setting out:

- a summary of the existing and proposed requirements;
- the aim and effect of the proposed regulation;
- stakeholder comments from the April 2015 CFI and our analysis (where applicable);
- our proposals; and
- our consideration of the relevant legal tests for the proposed regulation.

Requirement to provide network access on reasonable request

Current remedies

12.16 All CPs with SMP in the provision of WCT are currently required to provide network access on reasonable request.

12.17 CPs other than BT (which have not been subject to a WCT charge control) are required to provide network access on fair and reasonable charges. On the basis that BT has been subject to a charge control for WCT, the current network access obligation does not include the requirement to provide network access on the basis of fair and reasonable charges.

12.18 As set out in Section 13 we now propose to apply a charge control to all providers of WCT including BT.

Aim and effect of regulation

12.19 The remedy is designed to ensure CPs can offer their customers end-to-end calls to all geographic numbers in the UK and to promote competition in the provision of retail offers by requiring CPs with SMP to provide WCT. We consider that in the absence of such a requirement, SMP providers could have the ability and incentive not to provide network access.

12.20 A fair and reasonable charges obligation requires CPs to provide network access on fair and reasonable charges.

Stakeholder comments and our analysis

12.21 BT proposed that the obligation to provide access to WCT is unnecessary as it is difficult to see why it would want to prevent its customers from receiving calls from other CPs as doing so would adversely affect the adjacent WLR market.[474]

12.22 We consider that a requirement to provide access is needed so as to protect access to WCT on fair and reasonable terms and conditions. While it may not be in a CP's commercial interests to prevent its customers from receiving calls from other CPs, a CP may provide access on terms which are not fair and reasonable. The obligation also secures access to WCT for any new entrants who would otherwise lack leverage in commercial negotiations.

12.23 Vodafone was concerned about a potential lack of clarity, noting "it can be a very grey area between scenarios where the only way to the terminating network is via a given transit network, and scenarios where the number range is hosted on a third party network".[475] It expressed concern that it is unable to avoid transit costs where (switchless) CPs choose to host their numbers on BT's IPEx (see Section 16).[476]

12.24 We note the concerns raised about a potential lack of clarity. We consider that the requirement on all CPs to provide network access to WCT, as defined in Section 11, where another CP reasonably requests it, is sufficiently clear. We would expect this to be interpreted as including making available, on request, sufficient information to allow other CPs to connect at the POI where they will only have to pay the regulated FTR.

12.25 In Section 13 we noted that FTRs can be combined with charges for unregulated services, such as transit and conveyance.[477] We understand that some fixed CPs may reach a commercial agreement to combine these charges. However, the network access condition addresses any concerns that CPs may have that they are being charged for transit in addition to termination because we would expect this to be interpreted as requiring the terminating CP to make available a POI where only the FTR is charged.

12.26 The wording of the network access condition also addresses Vodafone's comments on hosting because we would expect the network access condition to be interpreted as requiring a hosted CP to ensure its numbers can be reached via at least one POI at the regulated rate.

12.27 In Section 11, we explain that it is the number range holder which exercises control over the provision of the termination service, and ultimately over the price of WCT. Where CPs have chosen to use a hosting CP, in accordance with the network access obligation, they must ensure that the regulated rate is charged for termination at a relevant POI to that hosting network.

12.28 BT's IPEx provides a number of services including:

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[474] BT, April 2015 CFI response, page 9.
[475] Vodafone, April 2015 CFI response, page 21.
[476] Vodafone, April 2015 CFI response, pages 3, 6, 21-22.
[477] Conveyance and transit services are unregulated and do not form part of our definition of WCT; as such, we exclude them from consideration of compliance with our F&R Guidance.

- transit to numbers on BT's DLEs;
- transit between networks; and
- termination to numbers hosted on IPEx which cannot be reached via any other POI.

12.29 Where traffic is routed via IPEx, if the regulated FTR is available at another POI (for example in the first two cases above, where a CP can connect directly to BT's DLEs and/or to other CPs' networks), then the service provided by IPEx constitutes a commercial transit service. However, where traffic must be handed to IPEx because no other POI is available, then the regulated FTR should be charged at the point of handover to IPEx and it is the responsibility of the number holder (i.e. the CP hosting its numbers on BT's IPEx service) to ensure that the originating CP is able to hand over traffic to IPEx at the regulated FTR. To the extent that additional conveyance is provided (i.e. transit on BT's IPEx), this should be subject to commercial agreement between the hosted CP and BT.

12.30 We therefore consider that both of the concerns raised by Vodafone are addressed by the current network access condition and therefore we do not propose any changes. This obligation applies to all numbers controlled by a CP, irrespective of the network hosting the numbers. This includes numbers allocated to CPs by Ofcom and numbers that CPs have ported from other CPs (we discuss number portability in relation to market definition in Section 11). Where a CP hosts its numbers on another CP's network it must ensure sufficient information is made available to allow CPs to interconnect to the hosting network in order to terminate traffic at the regulated FTR.

Our proposals

12.31 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as Ofcom 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 for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions. Section 89(9) of the Act also authorises SMP services conditions imposing on the dominant provider such rules as they may make in relation to matters connected with the provision of network access about the recovery of cost and cost orientation, subject to the conditions of section 88 being satisfied.

12.32 The proposed condition will require all CPs with SMP in WCT to meet reasonable requests for network access and to provide such access on fair and reasonable terms and conditions.

12.33 It will also require all CPs with SMP to provide access on fair and reasonable charges, except where the proposed charge control applies.

12.34 As explained in Section 15, we proposed the new WCT charge control should apply to all CPs with SMP from 1 December 2017. CPs with SMP in WCT (other than BT) would therefore be subject to a fair and reasonable charging obligation from 1 October-30 November 2017 (WCT transitional period). We propose to apply the 2013 F&R Guidance to these CPs during the WCT transitional period, as updated by supplementary guidance. As a result, the FTRs of other CPs will be assessed by reference to BT's FTR on which we are proposing to set a charge controlled cap during the WCT transitional period.

12.35 While BT is currently subject to the requirement to provide access on fair and reasonable terms and conditions, it is not currently required to provide network access on fair and reasonable charges. We are proposing to revise the obligation so that the requirement to provide access on fair and reasonable charges will apply to all CPs, including BT, whenever a charge control is not in effect.

12.36 We consider that such an obligation on CPs with SMP in the provision of WCT is necessary to address our concern of a relevant risk of adverse effects arising from a price distortion if CPs were to fix and maintain excessive prices for these services, thus undermining effective competition in downstream markets.

Legal tests

12.37 For the reasons set out below, we are satisfied that the proposed network access condition meets the various tests set out in the Act.

12.38 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as Ofcom may from time to time direct. Section 87(9) of the Act also authorises SMP services conditions imposing on the dominant provider such rules as Ofcom may make in relation to matters connected with the provision of network access and about the recovery of costs and cost orientation, subject to the conditions of section 88 of the Act being satisfied.

12.39 In proposing these conditions, we have taken into account the factors set out in section 87(4) of the Act. When considering the imposition of such conditions in a particular case, we must take into account the following six factors set out in section 87(4):

- the technical and economic viability (including the viability of other network access products, whether provided by the dominant provider or another person), having regard to the state of market development, of installing and using facilities that would make the proposed network access unnecessary;
- the feasibility of the provision of the proposed network access;
- the investment made by the person initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed (taking account of any public investment made);
- the need to secure effective competition (including, where it appears to Ofcom to be appropriate, economically efficient infrastructure based competition) in the long term;
- any rights to intellectual property that are relevant to the proposal; and
- the desirability of securing that electronic communications services are provided that are available throughout the Member States.

12.40 In reaching our proposal that CPs should be subject to a requirement to provide network access on reasonable request, we have taken all of the above six factors into account. In particular, having considered the economic viability of building access networks to achieve ubiquitous coverage that would make the provision of network access unnecessary, we consider that the SMP condition is required to secure effective long-term competition in the WCT markets.

12.41 In proposing to impose a fair and reasonable charges obligation, we are also required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act.

12.42 Section 88(1)(a) of the Act requires that Ofcom must not impose pricing 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 consider that, in the absence of regulation requiring charges to be fair and reasonable in the event that there is no charge control in effect, CPs may price excessively. Therefore, we consider that it appears to us from the market analysis carried out that there is a relevant risk of adverse effects arising from price distortion in that those CPs with SMP might fix or maintain some or all of their prices at an excessively high level in each market so as to have with adverse consequences for end-users of public electronic communication services.

12.43 Section 88(1)(b) of the Act requires that the pricing condition should be appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on the end users of public electronic communications services.

12.44 We consider that fair and reasonable charges will prevent CPs from charging excessively high wholesale prices where a charge control does not apply. In this way, this condition supports the aim of improved efficiency and sustainable competition.

12.45 We consider that the provision of network access on fair and reasonable terms will promote sustainable competition by ensuring that there is no distortion or restriction of competition and 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.

12.46 We are also required, under Section 88(2) of the Act, to take account of the extent of CPs' investment in the matters to which our proposed condition relates. We believe that fair and reasonable charges will allow CPs' 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 CP's prices in the event that the proposed charge control lapses before the completion of the next market review.

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

12.48 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.

12.49 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 networks services.

12.50 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it relates to the need to ensure that competition develops to the benefit of consumers;

- not unduly discriminatory as, in relation to WCT, it is imposed on all fixed CPs who have SMP.

- proportionate, in that it is the least restrictive means of ensuring that an SMP provider is unable to refuse to provide access to WCT to other CPs which would distort competition at the downstream level; and

- transparent as it is clear in its intention to ensure that CPs provide access to their networks in order to facilitate effective competition.

12.51 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.

Price transparency obligation

Current remedies

12.52 All CPs with SMP in the provision of WCT (including BT) are currently subject to a requirement to notify changes to charges. CPs are obliged to give advance notice before making changes to their charges for the provision of existing or new network access to WCT.

12.53 Under this obligation, BT is required to give notice 56 days before any change takes place. All other CPs are required to give notice on or before the day that the changes take effect.

Aim and effect of regulation

12.54 In the absence of clarity with respect to the level of FTRs, the purchasers of WCT would not have certainty concerning their costs. This could harm competition and consumers' interests at the retail level. In addition, if CPs did not publish their FTRs, there would be less industry-wide transparency with respect to FTRs. Such a development would impair the ability of both Ofcom and CPs to monitor compliance with the proposed WCT charge control.

12.55 Imposing a requirement to publish FTRs would have the reverse effect: increased transparency and easier monitoring of compliance, which we consider desirable for the purposes of encouraging competition and assisting enforcement, if such intervention by Ofcom were required.

Our proposals

12.56 Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a BT to publish, in such manner as Ofcom may direct, all such information, for the purpose of securing transparency. 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.

12.57 We propose that it is appropriate for BT and all other CPs with SMP in WCT to be subject to a price transparency obligation.

12.58 The current obligation requires BT to notify changes in advance, but under the proposed price transparency obligation, BT will no longer have to give 56 days' notice. We do not consider that 56 days' notice remains necessary given our proposal to impose a charge control on all CPs' with SMP in WCT.

12.59 If we implement the proposed charge control, we will publish the maximum permitted FTR. As we propose a charge control on all CPs with SMP in WCT, and we expect CPs to price their services up to the level of the charge control, we do not believe that there is a need for advance notice of changes to charges.

12.60 Instead, it will be required publish any changes to its charges on or before the day that the charges take effect. For other CPs which are presently subject to a requirement to notify changes to charges, under our proposals they will continue to be required to publish any changes to charges on or before the day such charges come into force.

12.61 We consider that such an obligation will help to support clarity and certainty with respect to FTRs. The proposed obligation will facilitate the easier monitoring of compliance with the proposed WCT charge control, which will lead to greater certainty in the market. We consider this goal is desirable, particularly as the charge control is being applied to CPs who have not previously been subject to a charge control. If intervention were to be required by Ofcom, increased transparency will also assist with enforcement.

12.62 With regard to the obligation on BT, we further propose that, in light of BT's removal of time of day pricing for unregulated wholesale services and our consideration that a single maximum rate is appropriate (see Section 15), we propose to remove the requirement that BT publish a network tariff gradient.

Legal tests

12.63 For the reasons set out below, we are satisfied that the proposed SMP conditions for CPs with SMP in WCT meets the various tests set out in the Act. As explained above, sections 87(6)(b) and (d) authorise the SMP condition we propose to make.

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

12.65 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 because it provides price certainty to CPs and facilitates compliance monitoring. It thus complements the other proposed SMP conditions, such as the obligation to provide network access on fair and reasonable terms and the charge control. Therefore, we consider that the transparency obligation ultimately promotes competition and benefits consumers.

12.66 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, the proposed condition would promote competition in the provision of electronic communications services and electronic communications services and encourage network access for the purpose of securing efficient and sustainable competition and the maximum benefit for customers of CPs.

12.67 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, in that it ensures that FTRs are published, and this will increase transparency to stakeholders and thus facilitate the monitoring of compliance with relevant SMP conditions;

- not unduly discriminatory, in that it applies equally to all CPs with SMP in WCT;

- proportionate, in that it is the least onerous obligation to address the concerns described above and to facilitate compliance with regulatory obligations without raising issues of commercial confidentiality, and the cost of compliance is relatively low given CPs with SMP are already required to notify changes; and

- transparent, in that the condition is clear in its intention and implementation.

12.68 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.

Additional proposed remedies for BT only

12.69 In this subsection we propose a number of remedies on BT for its provision of WCT, in addition to those we propose above. Unlike other CPs with SMP in WCT, for which we consider the proposed remedies and charge control are sufficient to address our competition concerns, we believe that additional remedies are necessitated by the volume of calls terminated by BT.[478] For example, BT could have the incentive and ability to discriminate between CPs by setting lower charges for some CPs than others (or otherwise discriminating on terms and conditions), leading to a situation where downstream markets are distorted. This could lead to otherwise efficient CPs being forced to set higher downstream prices or facing a lower margin per customer.

12.70 We propose to remove a number of remedies on BT's provision of WCT that we no longer consider appropriate.

Stakeholder comments

12.71 In its response to the April 2015 CFI, BT suggested that we should only impose on it those obligations which we impose on other CPs with SMP in the markets for WCT (provide network access and notify changes to charges).[479]

12.72 As discussed above, we consider it necessary to impose additional remedies on BT because the possible distortions to competition resulting from BT's SMP would be greater than the distortions that might result from actions taken by other CPs. This is a consequence of the volume of calls terminated by BT.

Requirement not to unduly discriminate

<u>Current remedies</u>

12.73 BT is currently prohibited from unduly discriminating in relation to the provision of WCT.

[478] In the financial year 2014/15 BT accounted for approximately 50% of WCT volumes by minutes (see Section 11).
[479] BT, April 2015 CFI response, pages 8-9.

Aim and effect of regulation

12.74 A non-discrimination obligation is intended to prevent the dominant provider from discriminating in favour of its own downstream divisions and, more generally, to ensure that competing providers are placed in an equivalent position.

Our proposals

12.75 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.

12.76 We propose a condition on BT not to unduly discriminate in relation to the provision of WCT in order to meet our objective to promote efficient and sustainable competition at the wholesale level,

12.77 Where dominant providers are vertically integrated, like BT, they may have an incentive to provide WCT on terms and conditions that favour their own retail activities. Such providers might also discriminate selectively between competing providers by setting different terms and conditions for different CPs. Depending on the availability of appropriate substitutes, this could have the effect of restricting or distorting competition in downstream markets.

Legal tests

12.78 For the reasons set out below, we are satisfied that the proposed conditions for BT in respect of its provision of WCT meet the various tests set out in the Act. As explained above, sections 87(6)(a) authorises the SMP condition we propose to make.

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

12.80 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.

12.81 We also 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 or particular third parties and therefore distort competition.

12.82 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition 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 competing providers

- not unduly discriminatory in that it reflects the circumstances of BT (the volume of WCT calls and its level of vertical integration), and its potential for using market power in WCT 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 network access in a manner which would distort competition at the downstream level; and

- transparent, in that the condition is clear in what it is intended to achieve.

12.83 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

12.84 The requirements for the transparency of charges, terms and conditions in markets in which one operator is dominant are complementary remedies to ensure that third party CPs are able to make effective use of the dominant providers' network access.

12.85 BT is currently subject to three transparency obligations in respect of its SMP in the WCT market. They are:

- a requirement to publish a Reference Offer;

- a requirement to notify changes to charges in advance; and

- a requirement to notify technical information.

12.86 In the following sub-section, we discuss the requirement to publish a Reference Offer. As set out above, we propose to impose a price transparency requirement instead of a notify changes to charges obligation and, as we explain at the end of this section, we are not proposing to impose a requirement on BT to notify technical information.

Publish a Reference Offer

Current remedies

12.87 BT is currently required to publish a Reference Offer in relation to its provision of WCT.

Aim and effect of regulation

12.88 The main reason for requiring the publication of a Reference Offer is to give visibility to the terms and conditions on which other providers can purchase WCT, which complements the general network access remedy.

Our proposals

12.89 Section 87(6)(c) of the Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such a 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. 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.

12.90 We propose to retain the condition on BT to publish a Reference Offer for its provision of WCT. We have proposed retaining the obligation to give visibility to the terms and conditions on which other providers can purchase WCT, and to enable for faster negotiations and to help avoid possible disputes.

12.91 We consider it appropriate for the published Reference Offer to include:

- A clear description of the services on offer.

- Terms and conditions including charges and ordering, provisioning, billing and dispute resolution procedures. The Reference Offer should provide sufficient information to enable providers to make technical and commercial judgements such that there is no material adverse effect on competition.

- Conditions relating to maintenance and quality (service level agreements and guarantees). The inclusion of service levels, as part of the contractual terms of the Reference Offer, 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

12.92 For the reasons set out below, we are satisfied that the proposed condition for meets the various tests set out in the Act. As explained above, sections 87(6)(c), (d) and (e) authorise the SMP condition we propose to make.

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

12.94 We have considered our duties under section 3 of the Act. The requirement to publish a Reference Offer would facilitate service interoperability and protect existing entrants to a market by ensuring that services, and any changes, are transparent. 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 markets 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.

12.95 We also consider that the proposed condition meets the Community requirements as 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. The publication of a Reference Offer would mean that other CPs would have the necessary information readily available to allow them to make informed decisions about entry into and participation in the market.

12.96 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, in that it requires that terms and conditions are published in order to encourage competition and provide stability in the market;

- not unduly discriminatory as it reflects BT's volume of WCT minutes;

- proportionate, in that only information that is considered necessary to allow CPs to make informed decisions about competing in downstream markets is required to be provided; and

- transparent, in that the condition, is clear in its intention that BT publish details of its WCT offering.

12.97 Article 9(4) of the Access Directive requires that, where network access obligations are imposed, NRAs should ensure the publication of a Reference Offer containing at least the elements set out in Annex II to that Directive. We are satisfied that this requirement is met.

12.98 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.

Approach to regulatory financial reporting

12.99 In the following sub-sections, we explain why we propose accounting separation and cost accounting obligations on BT for the provision of WCT. We propose to implement these obligations by way of a single SMP Condition (draft SMP Condition 10).

12.100 Our proposed accounting separation and cost accounting obligations are underpinned by detailed requirements for regulatory financial reporting which specify what information we require BT to prepare and provide in the WCT market.

12.101 In the 2014 Regulatory Financial Reporting Statement[480] we set out our conclusions on the regulatory financial reporting policy that should be applied to BT across all regulated markets and the changes to the framework for BT's regulatory financial reporting. In Annex 2 to the 2014 Regulatory Reporting Statement we set out pro-forma SMP conditions which would implement the policy decisions made in that statement. We explained that in order to preserve the integrity and consistency of BT's Regulatory Financial Reporting, we considered that our starting point should be that the changes we proposed should be implemented across all regulated markets, subject to this being appropriate in light of the market analysis in each review. We noted that there were significant advantages to BT and other stakeholders of BT applying one set of accounting rules across all markets and we also noted that BT was broadly supportive of the principle of applying a consistent approach across all markets.[481]

12.102 Consistent with this approach, we have therefore considered whether regulatory financial reporting obligations are appropriate for WCT and, to the extent that they are, whether the pro-forma SMP conditions are appropriate in light of our market analysis.

12.103 For the reasons explained below, and noting the benefits of applying a consistent approach across all markets, our provisional view is that it is appropriate to impose regulatory financial reporting obligations on WCT and we propose, subject to a minor

[480] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.
[481] Ibid., paragraphs 7.15-7.19.

modification, that it would be appropriate to impose these conditions in each of the markets covered by this review.

12.104 We also note that in the 2015 Directions Statement, we set out the necessary directions to give effect to other decisions made in the 2014 Regulatory Reporting Statement about changes to BT's reporting requirements. We discuss these further, and our proposals in respect of these, in Section 19.

Accounting separation

Current remedies

12.105 BT is currently subject to accounting separation obligations for the provision of WCT.

Aim and effect of regulation

12.106 As set out in Section 7, the accounting separation obligation requires BT report financial information for individual markets and services, providing a higher level of detail than that derived from statutory accounts. The accounting separation obligation also requires BT to account separately for internal and external sales, which allows Ofcom and other stakeholders to monitor the activities of BT to ensure that it does not discriminate unduly in favour of its own downstream businesses. In practice these obligations require BT to produce financial statements that reflect the performance of the regulated wholesale markets as though they were separate businesses.

Our proposals

12.107 Under sections 87(7) and 87(8) the dominant provider may be required to maintain a separation for accounting purposes between such different matters relating to network access or the availability of relevant facilities.

12.108 We propose that it is appropriate to impose an accounting separation obligation on BT in the WCT market. We consider that this obligation is necessary to monitor the overall impact and effectiveness of the remedies proposed in Table 12.1 and, in particular, to monitor BT's activities with regard to our proposed non-discrimination obligations. The proposed obligation is also necessary to support transparency by providing a greater detail of information on the relevant markets than that derived from BT's statutory financial statements and give visibility, and thus reassurance, to stakeholders that BT has complied with its SMP conditions and allow them to contribute to the regulatory regime.

12.109 BT suggested the removal of this condition on the grounds of what it perceives to be low overall value of the WCT markets.[482] We do not consider that low value is itself a reason for removing the accounting separation requirement or that low value equates to effective regulation of the market being unimportant. Moreover, accounting separation enables Ofcom and other stakeholders to monitor the impact and effectiveness of the remedies imposes and provides a higher level of detail than that derived from BT's statutory financial statements. Also, it allows Ofcom and third parties to monitor the activities of BT so as to ensure it does not discriminate in favour of its own downstream business.

[482] BT, April 2015 CFI response, page 8

12.110 We therefore propose that accounting separation requirements should apply to BT for the provision of WCT.

12.111 In respect of the specific form of the accounting separation requirements we are proposing for BT in these markets we propose imposing the form of condition set out in the 2014 Regulatory Financial Reporting Statement but modified to remove the reference to the Regulatory Accounting Guidelines. This form of condition implements our policy decisions on regulatory financial reporting set out in that statement.[483] The purpose of the condition is to: give Ofcom a greater role in the way that BT prepares its regulatory financial statements;[484] improve the presentation of the published regulatory financial statements and supporting documentation;[485] and ensure that Ofcom and other stakeholders have the information they need.

Legal tests

12.112 For the reasons set out below, we are satisfied that our proposal to impose accounting separation requirements on BT in the WCT market meets the various tests set out in the Act. As explained above, sections 87(7) and (8) authorise the SMP condition we propose to make.

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

12.114 We have considered our duties under section 3 of the Act. We consider that the imposition of an accounting separation obligation promotes competition in relation to the provision of electronic communications networks and services, ensuring the provision of network access and service interoperability for the purposes of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the obligation would ensure that other obligations designed to curb potentially damaging leveraging of market power, in particular the requirement not to unduly discriminate, can be effectively monitored and enforced.

12.115 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, we believe section 4(8) is met, as the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services in that it helps to ensure that dominant providers comply with other obligations, including non-discrimination requirements.

12.116 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, as it supports the other remedies we are proposing to ensure competition develops fairly to the benefit of consumers;

[483] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014, page 1. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.
[484] This included establishing new Regulatory Accounting Principles (including a requirement for consistency with regulatory decisions) and a change control process whereby BT is required to notify us about proposed changes to its regulatory accounting methodology.
[485] This included a requirement on BT to publish annual reconciliation reports that show the impact of material changes and errors.

- not unduly discriminatory as we are proposing a number of remedies on BT as a consequence of its unique position where it has large market shares in the provision of both retail and wholesale voice services;

- proportionate, in that it is the least onerous obligation necessary as a mechanism to allow us and third parties to monitor the impact and effectiveness of the remedies proposed and monitor potentially discriminatory behaviour by BT; and

- transparent, in that it is clear that the intention is to monitor the impact and effectiveness of the remedies proposed, and the particular accounting separation requirements of BT are clearly documented within the SMP condition.

12.117 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.

Cost accounting

Current remedies

12.118 BT is currently subject to cost accounting obligations for the provision of WCT.

Aim and effect of regulation

12.119 Recital 2 of the 2005 Recommendation states that the purpose of imposing the accounting separation and cost accounting obligations is "to make transactions between operators more transparent and/or to determine the actual costs of services provided". Also, paragraph 2 of Point 1 of the 2005 Recommendation states that:

> "The purpose of imposing an obligation to implement a cost accounting system is to ensure that fair, objective and transparent criteria are followed by notified operators in allocating their costs to services in situations where they are subject to obligations for price controls or cost-oriented prices."[486]

12.120 The imposition of cost accounting obligations ensures that BT has in place a system of rules that support the attribution of revenues and costs to individual markets and services. It therefore supports the accounting separation obligation, which requires BT to prepare and report financial information relating to individual markets and services, by ensuring that the rules attributing revenues and costs to individual markets and services are fair, objective and transparent. The cost accounting obligation is an important means of ensuring that:

- Ofcom and stakeholders can have confidence in the financial information prepared and provided by BT on individual markets and services since the attribution processes and rules supporting that financial information are fair, objective and transparent. Where we do not consider that the attribution process

[486] We also note that BT's 2014/15 RFS says that a "cost accounting system is a set of rules which supports the attribution of costs, revenues and capital employed to individual activities and services". BT, Revised Current Cost Financial Statements 2015 including Openreach Undertakings, page 137. Available at: http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2015/RevisedCurrentCostFinancialStatements2015.pdf.

and rules are fair and objective, transparency (via publication of the processes and rules followed by BT) allows us to effectively challenge them.

- Revenues and costs are attributed to individual markets and services in a consistent manner. This mitigates the risk of double recovery of costs or that costs might be unfairly loaded onto particular products or markets.

- 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.

Our proposals

12.121 Section 87(9) to (11) (subject to section 88) of the Act authorises Ofcom to impose appropriate cost accounting obligations on dominant providers, in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities. We propose cost accounting requirements on BT for its provision of WCT. We consider that this obligation is necessary to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent.

12.122 In its response to the April 2015 CFI, BT suggested that the cost accounting condition be removed on the basis that WCT prices "have been decoupled from their underlying costs".[487] While WCT prices may not have a direct association with BT's costs, the cost accounting obligation ensures that the processes and rules used by BT to attribute revenues and costs to the WCT market and services are fair, objective and transparent, In turn, this gives confidence that the financial information prepared and reported by BT in relation to the WCT market is reliable.

12.123 We therefore propose to impose a cost accounting requirement obligation on BT in respect of the provision of WCT. Although this market is relatively low in value, we consider that the obligation is important to support the accounting separation obligations in this market and to ultimately ensure that we can monitor the impact and effectiveness of the remedies we propose in this market.

12.124 In respect of the specific form of the cost accounting requirements we are proposing for BT in these markets, we propose imposing the form of condition set out in the 2014 Regulatory Financial Reporting Statement but modified to remove the reference to the Regulatory Accounting Guidelines. [488] This form of condition implements our policy decisions on regulatory financial reporting set out in that statement. The purpose of the condition is to: give Ofcom a greater role in the way that BT prepares its regulatory financial statements; improve the presentation of the published

[487] BT, April 2015 CFI response, page 8

[488] As explained in the 2016 BCMR Statement (paragraph 8.175 and Annex 28), we no longer consider that it would be useful to establish high level guidelines and accounting rules in the Regulatory Accounting Guidelines by way of direction. Where we find concerns about BT's detailed application of cost attribution rules, in line with what we have done in the 2016 BCMR we will direct BT as to the specific reporting requirements consistent with the Regulatory Accounting Principles arising from each regulatory decision. The wording of our proposed condition reflect our decision not to issue the Regulatory Accounting Guidelines. Each proposed condition therefore require BT to prepare the RFS in accordance with the SMP conditions, the Regulatory Accounting Principles and the Accounting Methodology Documents.

regulatory financial statements and supporting documentation; and ensure that Ofcom and other stakeholders have the information they need.

Legal tests

12.125 For the reasons set out below, we are satisfied that our proposal to impose a cost accounting requirement on BT meets the various tests set out in the Act. As explained above, sections 87(9), (10) and (11) authorise the SMP condition we propose to make.

12.126 Section 87(9)(c) authorises conditions imposing such rules as we may make for the purposes of matters connected with the provision of network access to the relevant network, or with the availability of relevant facilities about the use of cost accounting systems. Such conditions include conditions requiring the application of presumptions in the fixing and determination of costs and charges for the purposes of the price controls, rules and obligations imposed by virtue of that subsection (section 87(10)). Where such conditions are imposed, section 87(11) imposes a duty on us to set an SMP condition which imposes an obligation: to make arrangements for a description to be made available to the public of the cost accounting system used in pursuance of that condition; and to include in that description details of:

- the main categories under which costs are accounted for; and
- the rules applied for the purposes of that system with respect to the allocation of costs.

In setting such conditions, we must be satisfied that the conditions about network access pricing set out in section 88 are also satisfied.

12.127 We consider our proposal meets the conditions in section 88, in that it would address the risks of excessive pricing, and promote efficiency and sustainable competition, to the benefit of consumers, and would not undermine investment by BT. We propose to impose a charge control on BT’s provision of WCT.

12.128 We consider that imposing a cost accounting obligation is necessary for our charge control obligation to work, and that imposing a cost accounting obligation is consistent with section 88.

12.129 We consider that the proposed condition fulfils our duty under section 87(11) in that the cost accounting obligation require the publication of a description of the cost accounting system used and the main categories of cost and the cost allocation rules applied.

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

12.131 We have considered our duties under section 3 of the Act .In particular, we consider that the imposition of the proposed cost accounting obligations 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 (including supporting ancillary services) 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 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.

12.132 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, 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 efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

12.133 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- Objectively justifiable, in that it is necessary to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent. This helps ensure the appropriate maintenance and provision of accounts in order to monitor BT's activities with regard to the pricing remedies we propose. It also relates to the need to ensure competition develops fairly, to the benefit of consumers, by providing transparency of BT's compliance with rules set to address the risk of excessive pricing.

- Not unduly discriminatory as BT holds a unique position where it has large market shares in the provision of both retail and wholesale fixed narrowband services.

- Proportionate, in that the obligation is required in order to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent.

- Transparent, in that it is clear in its intention to ensure the appropriate maintenance and provision of accounts for the purposes set out above and the particular cost accounting requirements of BT are clearly documented.

12.134 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.

Remedies on BT that we propose to remove

Notify changes to charges – publish a network tariff gradient

12.135 In previous market reviews we imposed on BT an obligation to publish a network tariff gradient under the requirement to notify changes to charges. As set out above, on the basis that we propose to apply a charge control to all CPs with SMP, we propose to replace the notify changes to charges obligation with a price transparency obligation. We do not propose to include a requirement that BT publish a network tariff gradient under this price transparency obligation in light of BT's removal of time of day pricing for unregulated wholesale services and our consideration that a single maximum rate is appropriate (see Section 15).

Notify technical information

12.136 In previous market reviews we also imposed an obligation on BT to notify technical information in relation to its provision of WCT. The notification of technical information remedy was designed to ensure that competing providers had sufficient time to respond to technical changes that may affect them. We are now proposing to remove this remedy as we do not think it is necessary in recognition of the maturity of BT's network and the provision of calls over it.

Consultation questions

Question 12.1: Do you agree with the remedies that we propose for CPs with SMP (other than BT) in the WCT markets? Please provide reasons and evidence in support of your views.

Question 12.2: Do you agree with the remedies that we propose for BT in the WCT market? Please provide reasons and evidence in support of your views.

Section 13

Approach to the price regulation of WCT

Introduction

13.1 In Section 11 we considered market definition and market power in relation to WCT and set out our competition concerns. In this section we set out our proposals to impose price regulation to address our competition concerns.

Summary of our key proposals

13.2 We have set out in Section 11 the competition concerns that we expect would result if FTRs were unregulated. Without regulation, CPs with SMP in WCT would have an ability and incentive to set excessive prices for WCT and, therefore, there is a relevant risk of adverse effects arising from price distortions.[489]

13.3 In this section, we first consider the optimal level for FTRs to encourage competition and minimise competitive distortions both within the markets for WCT and between WCT and other markets. We propose that rates set on a Long Run Incremental Cost (LRIC) standard will be optimal for WCT. This is consistent with promoting competition in fixed markets and is also consistent with the 2009 EC Recommendation.[490]

13.4 We then consider the best way to achieve rates in line with LRIC, and propose that this will be a charge control on all CPs with SMP in WCT. Finally, we consider whether it is appropriate to exclude from the proposed charge control, termination for calls originated in non-EEA countries. We propose to apply the same charge controlled rate to all fixed calls terminated in the UK regardless of origin.

Choice of cost standard for fixed termination rates

13.5 In order to address our concerns relating to CPs setting excessive prices identified in Section 11, we must first identify the optimal level for FTRs. To inform our proposals, we consider within this section:

- our cost standard decision in the NMR 2013;
- the position of other European NRAs;
- stakeholder responses to the April 2015 CFI; and
- industry developments since the NMR 2013.

[489] Section 88(1) of the Act.

[490] The 2009 EC Recommendation stated that NRAs should adopt a LRIC standard for fixed call termination charge controls. This approach only allows for the recovery of those fixed and variable costs which are incremental to the provision of the wholesale call termination service provided to third parties (in contrast to the cost recovery approach of LRIC+, which allows for an allocation of common costs to also be recovered through FTRs).

2013 NMR

13.6 In the 2013 NMR we decided to set a charge control for FTRs on a LRIC basis.[491] In assessing the appropriate cost standard (in particular LRIC versus LRIC+) we believed that setting FTRs at LRIC would remove competitive distortions which would ultimately benefit consumers in the long run through lower prices. In the 2013 NMR we explained that FTRs affect the retail floor for off-net calls[492] as they are an incremental cost of these calls and that, therefore, higher FTRs potentially damage retail price competition.[493]

13.7 We also noted that FTRs above incremental costs create a margin between on-net calls (on which only the incremental cost of termination is incurred) and off-net calls (on which an FTR would be incurred and which, absent regulation, would likely be above LRIC). This affects competition, because if a call price reduction stimulates more off-net calls, this will not be offset by more inbound calls (from off-net). This effect is likely to be more pronounced for smaller CPs since they are likely to have a greater proportion of traffic going off-net.[494]

13.8 In the 2013 NMR we also noted the importance of maintaining a consistent regulatory treatment between mobile termination rates (MTRs) – which were then, and are now, at LRIC – and FTRs.[495]

Position of other European NRAs

13.9 In recent years, EU Member states have been moving towards a common approach to regulating FTRs. Since the 2009 EC Recommendation, LRIC has been adopted as the cost standard for FTRs by 21 EU NRAs.[496]

13.10 Seven EU countries have not fully implemented the 2009 EC Recommendation regarding FTRs. The Commission has initiated 13 Article 7 procedures since 2011 regarding fixed termination markets, particularly due to the adoption by member states of a cost standard different to the bottom-up LRIC (BU-LRIC)[497] approach and application of asymmetric rates to calls originating in different countries.

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[491] This charge control set the maximum average rate that BT could charge. Other CPs' rates were required to be fair and reasonable, which by default was assumed to be no higher than BT's rates in the absence of a strong justification for higher rates.
[492] In this context, 'off-net' calls are calls that terminate on a different network to the network on which they originated.
[493] 2013 NMR Statement, paragraphs 8.29 to 8.35.
[494] 2013 NMR Statement, paragraphs 8.29 to 8.35.
[495] 2013 NMR Statement, paragraph 8.25
[496] Estonia, Latvia and Portugal have adopted an approach consistent with the 2009 EC Recommendation by adopting the alternative benchmarking approach based on the pure BU-LRIC rates of other EU NRAs.
[497] A bottom-up model calculates costs by calculating the network equipment required to serve a projected level of volumes, based on a set of dimensioning parameter assumptions. In contrast, a top-down model calculates costs by taking the cost of an existing network and adjusting those costs to account for changes in forecast volumes and any other necessary differences between the existing and modelled networks (such as scale or services provided).

13.11 We note that the Commission has consulted on potential changes to the 2009 EC Recommendation.[498] We will take due account of any changes to the 2009 EC Recommendation in our statement.

Stakeholders' views

13.12 In the April 2015 CFI we asked stakeholders whether there was any reason for us to depart from using the LRIC standard when calculating the cap for FTRs.

13.13 A number of stakeholders supported the continued application of LRIC including Colt[499], Vodafone[500], [✄][501] and Verizon.[502]

13.14 The FCS said it would welcome a "*more horizontal approach to markets*", taking into consideration both fixed and mobile, with the same constraints imposed on (or removed from) both. In accordance with this argument and the mobile call termination (MCT) charge control, the FCS supported Ofcom's current approach.[503]

13.15 Verizon noted that the application of LRIC has not resulted in any market distortions or failures. However, it stated that the call origination and call termination markets should be separated entirely rather than allowing the common costs of WCT to be recovered from WCO, as this approach was in effect a cross-subsidy that favoured some CPs over others based on their traffic profiles.[504] Vodafone noted that migration to LRIC had not notably disturbed the market for geographic call termination.[505]

13.16 Virgin Media referred to the comments it made during the 2013 NMR, where it raised concerns about the application of LRIC, suggesting LRIC+ was more appropriate.[506] However, it suggested a pragmatic approach should be taken given that FTRs have been regulated at LRIC for three years, and MTRs for longer.[507]

13.17 [✄] noted that nothing had changed since 2013 that would warrant a change of approach. [✄] also pointed out the equivalence in treatment between mobile CPs and fixed CPs with regard to charge controls for termination rates.[508]

Ofcom's response to stakeholder comments

13.18 In their responses to the April 2015 CFI, most CPs supported the continued application of LRIC rather than a return to LRIC+, citing the impact on competition, as well as symmetry with the approach taken in MCT. This aligns with our view and we agree with most points raised.

13.19 We have summarised the arguments made in the 2013 NMR Statement regarding the impact of LRIC+ as compared to LRIC on competitive distortions in paragraphs

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[498] European Commission, *Public consultation on the termination rates recommendation*, https://ec.europa.eu/digital-single-market/en/news/public-consultation-termination-rates-recommendation.
[499] Colt, April 2015 CFI response, page 8.
[500] Vodafone, April 2015 CFI response, page 19.
[501] [✄].
[502] Verizon, April 2015 CFI response, page 2.
[503] FCS, April 2015 CFI response, page 2-3.
[504] Verizon, April 2015 CFI response, page 2.
[505] Vodafone, April 2015 CFI response, page 20.
[506] 2013 NMR Statement, paragraph 8.7.
[507] Virgin Media, April 2015 CFI response, page 3.
[508] [✄].

13.6 to 13.8 above. We believe that these arguments remain relevant to the current review.

13.20 In addition, we note that in the 2015 MCT Statement we maintained our position of setting MTRs at LRIC. In order to avoid a distortion between the regulation of mobile and fixed termination rates, we propose to continue setting FTRs at LRIC.

13.21 CPs have not identified any adverse impacts on the retail market in their submissions to us – and we present an overview of market outcomes under the next heading.

Evidence on market outcomes

13.22 In this section we consider how the regulation of FTRs at LRIC may have influenced market outcomes, with a particular focus on retail market outcomes.

13.23 In principle, with FTRs at LRIC we might expect more effective competition among fixed CPs (e.g. evidenced by new entry or smaller CPs growing their market share), and, potentially, lower retail call prices. However, it is difficult to make confident inferences based on retail market outcomes because:

- FTRs represent a small part of the cost of serving fixed subscribers; for example, line-related costs are more significant than call-related costs;
- FTRs were only reduced to LRIC in early 2014, so we only have around two years of data;
- in respect of retail pricing, while the waterbed effect would, other things equal, tend to put upward pressure on retail prices, the reduced cost of off-net calling coupled with the competitive effects noted in paragraphs 13.6 to 13.8 above would be expected to put downward pressure on retail prices; and
- other strategic or marketing factors may be driving fixed CP pricing and market outcomes, for example, discounting of broadband and/or content with bundled tariffs, off-set by increases in retail line rental prices.

13.24 Therefore, the purpose of the analysis below is to ascertain whether there have been market outcomes at odds with what we might have expected from FTRs reducing to LRIC, in particular, whether there could be any adverse effects offsetting the pro-competitive rationale for capping termination rates at LRIC.

Evolution of retail market competition

13.25 As shown in Figure 3.3 in Section 3, BT's share of retail fixed analogue lines has continued to fall (from 42% in 2013/14 to 40% in 2015/16), although the rate of decline appears to have levelled off from earlier, more significant, reductions. This is largely due to the growth of competition from full LLU providers – most notably Sky. The HHI[509] in retail lines has also fallen since 2013, albeit at a lower rate than in previous periods. Prima facie we would expect the effect of LLU, in particular full

[509] The Herfindahl-Hirschman index is a measure of the concentration within a market. It is the sum of the squares of the market shares of operators, with a lower value on the index indicating that market share is spread across more operators and a higher value indicating that few operators account for most of the market share. We have presented this on the basis of each market share being a number between 0 and 100, which results in a theoretical maximum HHI of 10,000.

LLU, to be a greater driver of retail competition than the level of FTRs (at least between LRIC+ and LRIC).

13.26 This pattern is slightly different from that in retail fixed calls – see Figure 3.4 in Section 3. Here BT's share has very slightly increased (from 39% to 40%) in the period 2013/14 to 2015/16. Some of BT's retail competitors have grown whilst others have reduced their share of calls, but overall the HHI has increased slightly since 2013.

13.27 Overall, the period since the move to LRIC appears to have been characterised by a small increase in competition in the retail market, even if BT remains the largest CP overall. That said, we note that BT has maintained a very significant share in certain retail customer segments, notably fixed voice only consumers, customers outside the LLU-footprint, SMEs and split purchasers.[510]

Evolution of retail prices and calls

13.28 We might expect three potential impacts on retail prices from the move to LRIC for FTRs:

a) With lower FTRs the net revenue to each fixed line subscription will fall as revenue is lost from incoming international or mobile-to-fixed calls. The lower net revenue might put upward pressure on retail prices, other things equal, as fixed CPs attempt to recover lost margin from the retail side of the market (an effect often referred to as the "waterbed effect").

b) A lower FTR means the marginal cost of retail calls reduces.

c) A lower marginal cost of off-net calls should also feed into more effective retail competition (effectively a level playing field argument).

13.29 Effects (b) and (c) work in the opposite direction to effect (a), in that they imply downward pressure on retail prices, whereas the waterbed effect puts upward pressure on prices when FTRs are reduced. The outcome for retail pricing depends on the relative strength of each of these effects and the strength of any other effects on costs and/or competition between CPs.

13.30 As shown in Section 3 (Figure 3.13), data from the CMR 2015[511] shows that the real price of a basket of residential fixed voice services increased between 2013 and 2015 by 4.2% (from £20.93 to £21.81), slightly higher than the increase over the preceding two years, of 3.7% (i.e. from £20.18 to £20.93). The source of this increase is a rising real price for fixed access which offsets a general trend towards falling prices for calls.

[510] For example, based on the Ofcom Technology Tracker Survey, estimated BT had a retail share among residential fixed voice only customers of 65% in H1 2016 compared to 69% in Q1 2012 (See footnote to paragraph 6.9). The *2015 Jigsaw SME survey (wave 2)* estimated BT had a 51% share of line rental among SME customers in 2015 and the *Narrowband Market Review - A report for Ofcom by Jigsaw Research* (page 37, https://www.ofcom.org.uk/consultations-and-statements/category-2/nmr-13) estimated BT had a 49% share among businesses in 2012 (note that although the estimates are similar, the 2012 research was designed to be representative of all UK businesses using fixed line services rather than just SMEs, so the 2015 and 2012 results are not strictly comparable).
[511] This figure has not been recreated in the 2016 CMR, so we have used data from operators held by Ofcom Market Intelligence to produce comparable data for 2015.

13.31 Figure 3.13 also shows that the price of a basket of fixed-to-fixed calls has reduced faster over the period 2013 to 2015 (at 6.3%, i.e. from £2.39 to £2.24 per month) than it had between 2011 and 2013 (i.e. at less than 1%, i.e. from £2.41 to £2.39 per month) and it is for these calls where FTRs would directly affect the marginal cost of calling. Conversely, we might expect the waterbed effect to work most on the fixed element of the package, i.e. the line rental, which is what the data for the last two years show.[512]

13.32 In the NMR 2013 we calculated the per line effect of the move to LRIC was an increase of around 0.8% relative to call and access revenues.[513] While it is difficult to control for all effects that might be driving retail pricing, as noted above the real increase in the price of a basket of lines and calls was larger between 2013 to 2015 compared to the preceding two years by around 0.5 percentage points. If the pre-2013 price increase is taken as a counterfactual trend, the post-2013 increase above this trend (at 0.5%) is only slightly less than the estimated per line impact of 0.8% from FTRs at LRIC+ compared to LRIC. In other words, the overall price effect seems slightly less than might have been expected – although we recognise that the above analysis does not control for volumes or other cost changes.

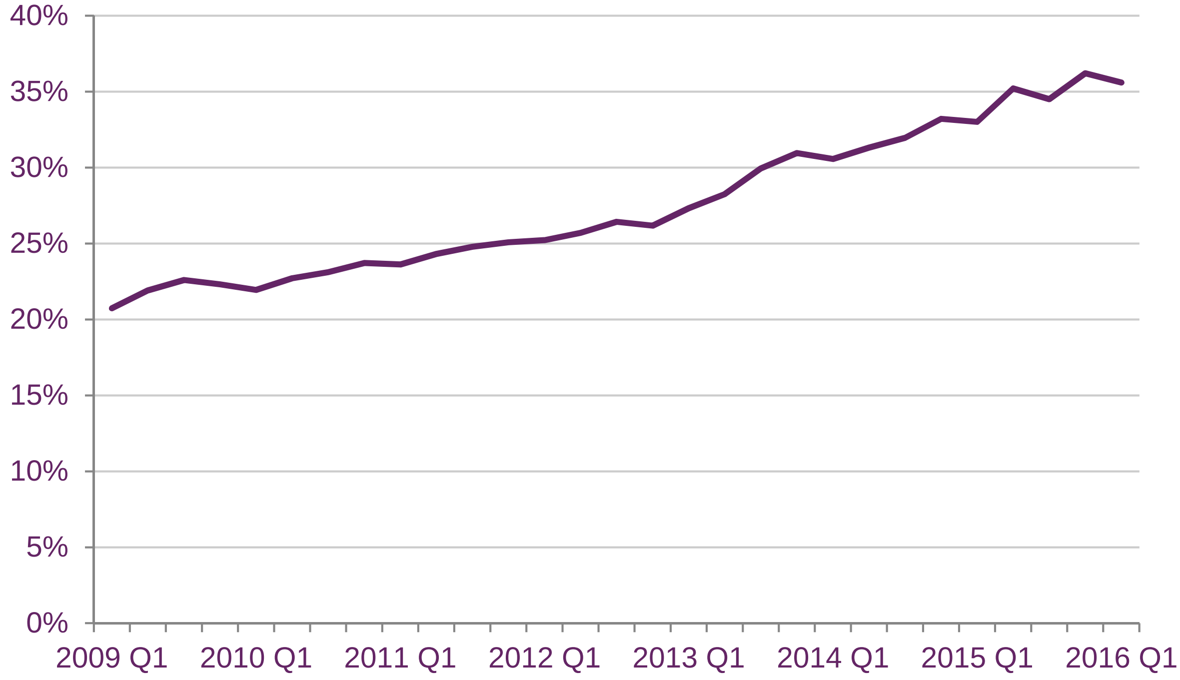
13.33 Turning now to call volumes, we note that there has been a decline in retail fixed voice call volumes (see Figure 3.2 in Section 3) – even if the price of fixed voice calls themselves have fallen in real terms. However, the decline in fixed voice call volumes predates the introduction of FTRs at LRIC – indeed, the peak in fixed voice call volumes was in 2005. Given the difficulty in isolating the impact of FTRs on retail prices and in turn on call volumes, we cannot confidently infer the consequences of FTRs at LRIC on fixed voice call volumes.

13.34 We have also examined data which includes the origin of WCT volumes in order to examine the potential importance of competitive effects between the mobile and fixed markets. The total volume of WCT has fallen in the period from 2009 to 2016 while the volume of WCT coming from mobile has remained broadly constant. This has resulted in a rising proportion of the total volume of WCT coming from mobiles as shown in Figure 13.1 below.

13.35 We believe that these call trends are consistent with the choice of LRIC (rather than LRIC+) as it illustrates the importance of pricing and competitive interactions between the mobile and fixed sectors – although we recognise that other factors may also play into this.

[512] That the waterbed effect might act most strongly on the "fixed" element of the tariff is supported both theoretically and empirically by the work of Genakos and Valletti (2011) "Seesaw in the air: Interconnection regulation and the structure of mobile tariffs". Information Economics and Policy, 23, 159–170. While their paper focuses on mobile telephony, the mobile "post-paid" contracts referred to are most akin to the contracts seen in the fixed sector (where pricing is of the form of a fixed fee (i.e. line rental) and a variable element (i.e. per call charges). That is, pre-paid tariffs are no longer a significant feature of the fixed telephony market (e.g. call card usage and use of payphones has much declined relative to residential and business subscriptions).
[513] 2013 NMR Statement, paragraph A9.109.

Figure 13.1: Estimated proportion of fixed-terminated calls coming from mobile, Q1 2009 to Q1 2016[514]



Source: Ofcom Market Intelligence.

Common cost recovery

13.36 Applying a LRIC cost standard means that no common costs of the network can be recovered through FTRs. If the lost FTR margin cannot be recovered on the retail side of the market (i.e. the waterbed effect is incomplete) then profitability will be reduced. As discussed in paragraphs 13.30 et seq., average retail bills increased in real terms between 2013 and 2015 by more than the FTR reduction alone would have required, suggesting that CP profitability was unlikely to be compromised.[515]

13.37 As a further check, we have investigated BT's returns in WCT coupled with WCO. This is because, in recognition of the need for the opportunity to recover efficiently incurred costs, we allowed an increase in the WCO rate commensurate with the common cost contribution lost from WCT when FTRs were reduced to LRIC.

13.38 Figure 13.2 below illustrates the path of BT's ROCE for WCO and WCT over the years from 2009/10 to 2014/15. We have not included data from the recently published 2015/16 RFS in this analysis, because these data include a significant reallocation of costs into the narrowband markets following the recommendations of

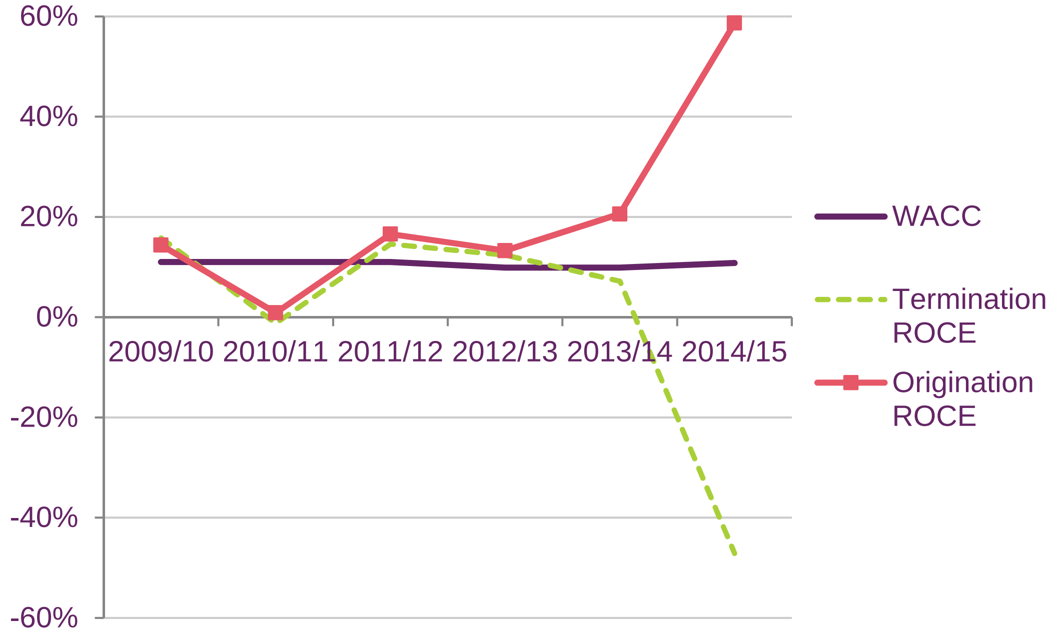
[514] The proportion of fixed-terminated calls that come from mobile is calculated as the volume of mobile-to-fixed calls divided by our estimate of all fixed-terminated calls, which also includes calls from UK fixed lines and international calls.
[515] When coupled with the previous underlying trend of rising retail prices, the real price increase between 2013 and 2015 is perhaps less than might otherwise have been expected. However, this does not suggest a reduction in the contribution to common costs or profitability, since this depends on the underlying cost trends. Based on network costs alone, it does not seem that these have been increasing (e.g. WLR charges have reduced in real terms over the period in question).

Ofcom's Cost Attribution Review (CAR).[516] This reallocation has the effect of reducing the ROCE in these markets.[517]

13.39 We do not consider that an analysis of returns in WCO and WCT reflecting this reallocation is relevant in the present context. The charge controls on WCO and WCT were set before the CAR adjustments were made, and therefore do not account for them. The same is true of the charge controls in other markets prior to 2016, and so the apparent shortfall in the ROCE for narrowband markets is made up for by a commensurate increase in the ROCE in these other markets where costs have been removed, and is not indicative of a genuine inability for BT to recover its efficiently incurred costs.

13.40 The returns for WCO and WCT moved together for the period 2009/10 to 2012/13 at which point the ROCE for WCT fell sharply while the ROCE for WCO rose sharply.[518] This was the result of the implementation of the move to LRIC in January 2014 and is what we expected in the NMR 2013. That is, with the move to LRIC, common costs for WCT can no longer be recovered from the FTR, which reduces the observed returns from WCT on a fully allocated cost (FAC) basis – which is the basis on which BT presents its returns in its Regulatory Financial Statements. As common costs were then recovered from WCO, the opposite effect is observed for the ROCE of WCO, as illustrated in Figure 13.2 below.

Figure 13.2: Comparison of BT's termination and origination ROCE and WACC



Source: BT's RFS data, WACC estimates from May 2009 OR financial framework (for 09/10 to 11/12) and March 2013 LLCC Statement (for 12/13 to 14/15).
Note: Returns presented in this Figure exclude the impact of the Cost Attribution Review.

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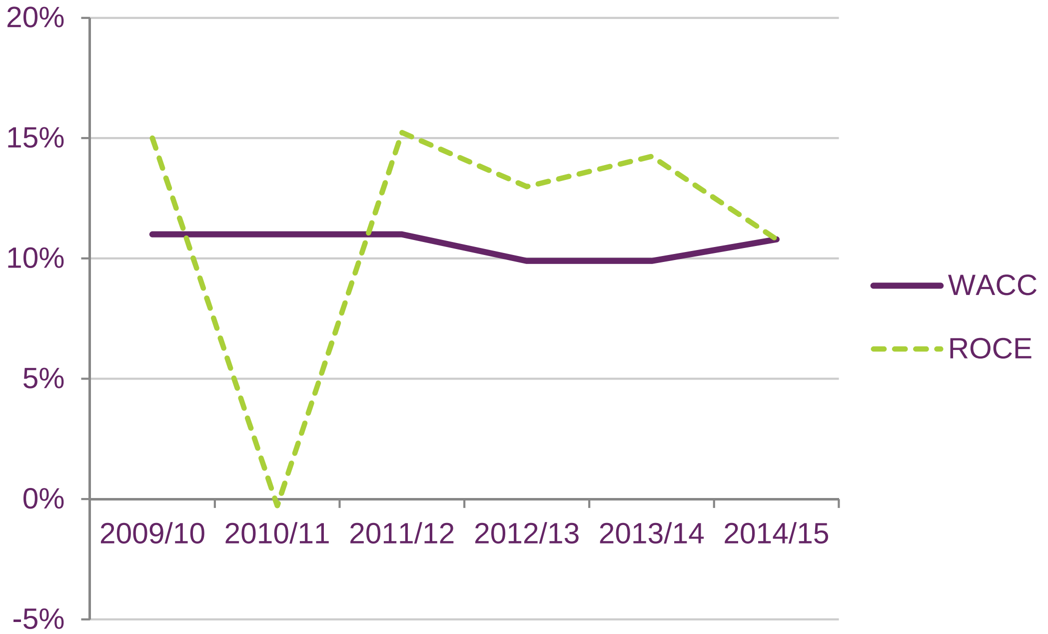
516 Ofcom, *BT Cost Attribution Review: Second* consultation, available online at: https://www.ofcom.org.uk/consultations-and-statements/category-3/bt-cost-attribution-review-second-consultation

517 The ROCEs for 2014/15 and 2015/16 across WCT and WCT based on data in the 2015/16 RFS are 6.0% and 2.0% respectively. BT's RFS are published on its website: http://btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/index.htm

518 The drop in the ROCE for 2010/2011 was caused mainly by a holding loss. In 2009/10 there was a holding gain of £55m for call termination, compared with a holding loss of £5m in 2010/11. There was also a drop in revenue from £202m to £189m between these two years.

13.41 Figure 13.3 shows that BT retained the ability to recover the common costs of WCT despite the move to LRIC over the period to 2014/15. Comparing the weighted average cost of capital (WACC) estimated for this line of business against the combined ROCE for termination and origination, BT earned above the benchmark WACC for these markets during the period between 2011/12 and 2013/14. Returns remained slightly above the WACC during the year in which LRIC was fully implemented (2014/15). This suggests that BT has been able to recover common costs previously allocated to WCT through the charge controlled WCO rates.

Figure 13.3: ROCE vs. WACC for termination and origination combined



Source: BT's RFS data and 2015 LLCC Consultation 'other UK telecoms' WACC.
Note: Returns presented in this figure exclude the impact of the Cost Attribution Review.

Conclusion on the cost standard for regulating termination rates

13.42 While overall retail prices have increased somewhat in real terms (which could be suggestive of a waterbed effect from the reduction in FTRs), we note that call prices have fallen while line rental has increased – broadly consistent with what we might expect in theory. We also note that FTRs at LRIC do not appear to have had an adverse effect on cost recovery for fixed CPs.

13.43 Given the pro-competitive arguments for LRIC and the absence of any compelling evidence of adverse retail market outcomes, we continue to believe that FTRs at LRIC will best address the competition concerns relating to SMP in WCT. The regulation of FTRs at LRIC is also consistent with the 2009 EC Recommendation and with our decision in the 2015 MCT Statement to continue to cap MTRs at LRIC until March 2018.

Proposed form of price regulation

13.44 In the previous sub-section, we proposed that setting FTRs at LRIC is optimal for addressing the potential competitive distortions arising from the pricing of WCT. We have considered two possible forms of price regulation: a charge control and a fair and reasonable charges obligation.[519]

13.45 In imposing any price regulation on WCT, we must take due account of the 2009 EC Recommendation which, among other things, recommends setting termination rates based on the costs incurred by an efficient operator and calculated using a bottom-up LRIC model. The 2009 EC Recommendation also states that termination rates should be symmetric, i.e. set at a uniform level across providers, with any deviation being based on objective cost differences outside the control of the individual CPs.[520]

13.46 In this section we set out our current approach to the price regulation of WCT and the EC's comments on that approach, as well as our approach to price regulation of MCT. We set out our analysis of FTRs under the current F&R regime and our proposed approach to pricing flexibility. We then propose a charge control on all CPs with SMP in the provision of WCT based on a single maximum rate.

Current price regulation of termination rates

2013 NMR Statement

13.47 In the 2013 NMR Statement, we imposed a charge control for WCT on BT but not on other fixed CPs with SMP in WCT markets.[521] We considered it necessary to treat BT differently to other CPs when imposing remedies because of its large access network and holding of number ranges. Thus, we imposed a charge control on BT in addition to network access, non-discrimination and transparency remedies.[522]

13.48 For the other 171 fixed CPs (including KCOM) with SMP,[523] we imposed a network access obligation with a fair and reasonable charges (F&R) requirement.[524] We also provided the 2013 F&R Guidance on how we would interpret the F&R requirement, which included a rebuttable presumption that charges would be considered reasonable if no higher than BT's charge controlled FTR (i.e. the Benchmark FTR).

13.49 The NMR 2013 removed the basis of charges obligation that had previously applied to KCOM, finding that KCOM's network in the Hull Area gave it no more (or less) market power than other non-BT CPs with SMP in WCT.[525] KCOM is therefore currently subject to the same network access obligation and F&R requirement as other non-BT fixed CPs.

2013 EC comments

13.50 In its comments on our draft 2013 NMR Statement,[526] the EC recognised that our regulation had brought about *de facto* symmetry of FTRs. However, it urged us to impose an *ex ante* price control on all fixed CPs based on a single hypothetical efficient operator cost model. It said that our dispute resolution procedures might not be sufficient to remedy market failures in a "*timely, efficient and transparent*" way,

[519] The CPs that we are proposing to designate as having SMP in WCT are listed in Annex 6.
[520] See points 1 and 9 of 2009 EC Recommendation.
[521] 2013 NMR Statement, paragraph 6.101.
[522] 2013 NMR Statement, paragraph 6.107-8.
[523] 2013 NMR Statement, page 322-334.
[524] 2013 NMR Statement, paragraph 6.129; Condition 1, Part 3, Schedule 3, page 321.
[525] 2013 NMR Statement, paragraph 6.115.
[526] European Commission, *Commission Decision concerning Case UK/2013/1496: Call termination on individual public telephone networks provided at a fixed location in the UK*, http://stakeholders.ofcom.org.uk/binaries/consultations/nmr-2013/statement/EC_letter.pdf, page 7-8.

and that by the time Ofcom had taken action, consumers would already have suffered losses from higher off-net retail call charges.

13.51 Having considered the EC's comments,[527] we noted that imposing a cost-based charge control would be administratively costly and could, for example, represent a significant resource cost for CPs, which would likely be disproportionate in relation to termination revenues.[528] We also noted that in order to comply with a charge control, CPs would need to bear the additional costs of financial reporting for monitoring and compliance, which would ultimately be borne by consumers. We therefore adopted a less onerous approach but one we considered would be as effective as a cost-based charge control.[529]

<u>2015 MCT Statement</u>

13.52 Prior to the 2015 MCT Statement, CPs with SMP in MCT (other than the four largest mobile CPs) were subject to a F&R obligation, similar to the current regime that applies to CPs other than BT for WCT.

13.53 In the 2015 MCT Statement, we applied a charge control to all mobile CPs because many mobile CPs were pricing considerably above the benchmark rate.[530]

13.54 We considered that imposing a charge control would provide greater clarity and regulatory certainty, and would be easier to enforce, than the F&R obligation.[531] We recognised that a charge control had the potential to be more intrusive than a F&R obligation, and we considered that a single maximum rate without any additional reporting obligations addressed this concern.[532]

Stakeholders' views

13.55 In its April 2015 CFI response, BT suggested that we consider "a light touch approach" such as a total revenue cap, a safeguard cap, EU benchmarking or a F&R obligation instead of a charge control. BT considered the charge control disproportionate given the reduced economic significance of WCT in recent years (now less than £1 p.a. revenue per line). BT suggested that WCT is an insignificant element in the cost of a retail price bundle and that the UK's low FTR already made it an outlier among comparable EU countries.[533] All other respondents assumed that a charge control would continue to apply to BT.[534]

13.56 Some respondents wanted a charge control to apply to all fixed CPs. EE suggested that this was necessary given the "increasing trend of smaller CPs not complying with fair and reasonable terms".[535] The FCS[536] and [✂][537] supported a LRIC-based

[527] 2013 NMR Statement, paragraphs A14.5-A14.10.
[528] 2013 NMR Statement, paragraph 6.121.
[529] 2013 NMR Statement, paragraph 6.122.
[530] The MTR benchmark being the cap that, prior to 2015, applied only to the 4 largest mobile CPs. See 2015 MCT Statement, paragraphs 4.49-4.54.
[531] 2015 MCT Statement, paragraph 5.132-3.
[532] 2015 MCT Statement, paragraph 5.134.
[533] BT, April 2015 CFI response, page 2, 5, 7-9.
[534] Colt, April 2015 CFI response, page 8; Verizon, April 2015 CFI response page 2; Vodafone, April 2015 CFI response, page 21; Virgin Media April 2015 CFI response, page 4; EE, April 2015 CFI response, page 1, 6; FCS, April 2015 CFI response, page 3; [✂].
[535] EE, April 2015 CFI response, page 6.
[536] FCS, April 2015 CFI response, page 3.
[537] [✂].

charge control on all terminating fixed CPs to ensure equivalence with the regulation of mobile termination rates.

13.57 Others argued that the existing regulation should remain. Colt suggested that the F&R obligation is "working satisfactorily and we see no reason to change it".[538] Similarly, Verizon stated that there has not been any "material changes to this market…that would warrant any change in regulatory approach".[539] Vodafone noted that, while some CPs did not charge the regulated rate, it would not make sense for Ofcom to determine rates for individual networks.[540] Virgin Media emphasised that the current regulation is clear and well understood and noted our duty to ensure proportionality and apply the least intrusive effective remedy.[541]

13.58 KCOM stressed that regulation should be proportionate and allow CPs to recover costs.[542]

13.59 We address stakeholders' comments where appropriate in the following discussion.

Analysis of FTRs

13.60 A number of stakeholders suggested that some fixed CPs were charging above the Benchmark FTR. We gathered evidence which showed that, while the majority of fixed CPs charged a rate that was no higher than the Benchmark FTR, some were charging higher rates.

13.61 We analysed information from CPs to assess whether a F&R obligation is effective in constraining FTRs to no higher than the Benchmark FTR. We compared 210 FTRs from 239 fixed CPs[543] from 1 April 2014 to 31 March 2015 with the Benchmark FTR.[544]

13.62 We found that most FTRs were no higher than the Benchmark FTR. We estimate that the revenue generated by fixed CPs above the Benchmark FTR in this period was £692,194.[545] This represents approximately 5% of WCT annual revenues.[546]

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[538] Colt, April 2015 CFI response, page 8.
[539] See for example, Verizon, April 2015 CFI response, page 2.
[540] Vodafone, April 2015 CFI response, page 20-21.
[541] Virgin Media, April 2015 CFI response, page 4.
[542] KCOM, April 2015 CFI response, page 3.
[543] Some CPs have multiple FTRs and some CPs are hosted on other CPs' networks. FTRs were collected from CPs' responses to statutory information requests, July 2015-October 2015. We sent notices to 325 fixed CPs that were identified as having been allocated geographic numbers as at April 2015. For various reasons, not all CPs provided us with FTRs; however, we consider that the sample of more than 200 FTRs set by different CPs is sufficient for the purpose of our analysis.
[544] 0.0449ppm day, 0.0206ppm evening, 0.0162ppm weekend from 1 October 2014 and 0.0137ppm day, 0.0062ppm evening, 0.0049ppm weekend from 1 February 2014 to 30 September 2014; BT, Carrier Price List, Part B1.01*, BT Telephony Calls To The BT System*, https://www.btwholesale.com/pages/static/help-and-support/pricing/carrier-price-lists.htm
[545] This is an estimate as we do not have volume information for all CPs in the sample and the current analysis uses revenues over the financial year instead of charge control year which may explain some perceived differences. This data contains an assumption that adjusts blended rates to remove transit where CPs have specified this was included. The current analysis uses revenues over the financial year instead of charge control year which may explain some perceived non-compliance. These figures do not include an adjustment for CPs that are not currently subject to SMP regulation. We anticipate updating the FTR analysis before we conclude this review.
[546] For the purpose of this assessment, we have assumed a 50% share of termination revenues for BT.

13.63 Although the estimated revenue above the Benchmark FTR is lower than that observed when the MCT 2015 review examined the same issue for MTRs, the percentage that this figure represents of relevant termination revenues is higher (see Table 13.4).

Table 13.4: Estimated excess revenue: fixed compared with mobile

	Fixed call termination (2014/15)	Mobile call termination (2013/14)
Revenue earned above the Benchmark FTR	£692,194	£9m
Percentage of total revenue	5%	2%

Source: Fixed CPs' responses to statutory information requests, July 2015-October 2015; 2015 MCT Statement, paragraph 5.110.

13.64 High termination rates could potentially lead to higher prices for retail calls and corresponding lower usage rates, and consequently to consumer harm. Even if the excess profits that CPs might earn from charging FTRs above incremental costs are passed onto consumers, CPs charging higher FTRs may gain an unfair advantage over other CPs, thus distorting competition.

We do not propose to allow pricing flexibility

13.65 We currently allow CPs other than BT some degree of pricing flexibility for FTRs. As noted above, the 2013 NMR Statement provided guidance on how we would normally interpret the F&R requirement, which included a rebuttable presumption that charges are reasonable if no higher than the Benchmark FTR.[547]

13.66 We said that FTRs above the Benchmark FTR are only likely to be fair and reasonable where a CP is able to demonstrate that:

- charging an FTR equal to the Benchmark FTR would deny it recovery of its actual costs of providing fixed geographic call termination;
- its actual costs of providing WCT are efficiently incurred; and
- charging a higher FTR than the Benchmark FTR would be offset by demonstrable consumer benefit.[548]

13.67 As noted above, in their responses to the April 2015 CFI Vodafone and EE suggested that some fixed CPs were charging above the Benchmark FTR. Our analysis suggests that while current regulation has produced broadly symmetric FTRs for the majority of fixed CPs, there remain some fixed CPs that appear to have been charging above the Benchmark FTR. This suggests that the current regime is

[547] Ofcom, *Guidance in the setting of fair and reasonable fixed termination rates*, Annex 10 of the 2013 NMR Statement (2013 F&R Guidance), page 501 which replaced Ofcom, *Fair and reasonable charges for fixed geographic call termination: Statement and final guidance*, April 2011 (2011 F&R Statement).

[548] 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. 2013 F&R Guidance, page 501.

not entirely effective in producing symmetric FTRs and addressing concerns about pricing distortions in termination markets.

13.68 Therefore, we have considered again whether there are likely to be circumstances in which FTRs above the Benchmark FTR would nevertheless be fair and reasonable. However, we have not identified a scenario where charges above the Benchmark FTR would be fair and reasonable. This is for the following reasons:

- first, we do not consider that differences in network topology between different CPs' networks should determine the costs that should be borne by rival CPs. In the 2011 F&R Statement, we argued that *"differences in network topology between BT and other fixed operators are not necessarily reliable indicators of efficiently incurred costs of termination in today's environment of differing fixed network technologies and the availability of wholesale inputs from BT to provide customers with access to networks".* We remain of this view;

- second, we do not consider calling patterns between originated and terminated traffic justifies asymmetry of WCT charges. In the 2013 NMR Statement, we concluded, "*it is reasonable for common costs no longer recovered from FTRs to be recovered from wholesale call origination. It is important to note that as discussed above in relation to BT, common cost recovery should be calculated across both external and internal sales of wholesale call origination, and not just recovered from external sales, otherwise it may cause a competitive distortion*";[549]

- third, to the extent that there could be concerns about price increases for retail call origination, whether this is because the CP operates in a higher cost area or because of call imbalances, we note that common costs can also be recovered from other retail charges and that the extent of any price increase will always be moderated (if not fully offset) by the fact that calls to other networks where a termination rate is paid to another CP (whether fixed or mobile) no longer include a mark-up for common costs; and

- fourth, we consider that any potential consumer benefit from the flexibility to set FTRs above the Benchmark FTR is likely to be small relative to the potential consumer harm and competitive distortion resulting from higher FTRs.

13.69 For the reasons outlined above, we do not think that charging flexibility that results in FTRs above the Benchmark rate is in the interests of competition and ultimately consumers.

We propose a charge control on CPs with SMP in WCT

13.70 We have considered two options for price regulation: fair and reasonable charging and a charge control.

13.71 We agree with BT that the fixed termination market is currently small in revenue terms, and in principle we agree with taking a "light touch" approach to regulation where this is justified by market circumstances. However, we do not agree with BT that this justifies avoiding a modelled charge control in the case of WCT.

13.72 In the 2013 NMR Statement we noted that the alternatives to a charge control (such as cost orientation, or a fair and reasonable charges condition) all require guidance,

[549] 2013 NMR Statement, paragraph 8.111.

which would have been difficult to provide in this case without reference to the relevant cost model.

13.73 In our previous review, we applied a charge control to BT only, which provided a Benchmark FTR that has acted as a reference point for the FTRs of CPs other than BT, who were instead subject to a fair and reasonable charging requirement. This approach meant that CPs other than BT did not need to demonstrate compliance with a charge control, which we considered would have been a disproportionate burden. However, as explained in Section 15, we no longer consider that there is a need for time of day flexibility in respect of FTRs. A single maximum rate charge control that applies for all time periods (i.e. is not based on different charges at different times of day) is a simple and transparent approach that much reduces the compliance burden.

13.74 In addition, as discussed in the previous sub-section, we no longer consider that the pricing flexibility afforded by a fair and reasonable charges requirement is necessary.

13.75 Taking into account these factors, in order to address our concern that CPs would, absent regulation, have the incentive and ability to charge excessive FTRs, we consider that the most appropriate form of pricing regulation for WCT is a charge control setting a single maximum rate that is applied to all CPs and that this approach is appropriate for the purpose of achieving symmetric rates.[550]

13.76 In our response to the EC's 2013 comments, we cited concerns about the potential costs of financial reporting for monitoring and compliance, which led to our decision to adopt the F&R requirement that currently applies to CPs with SMP other than BT. However, our concerns arose largely from the structure of the charge control that we previously imposed on BT in WCT, which gave BT the flexibility to vary FTRs by time of day. We think that a single maximum rate charge control is a simple and transparent approach that potentially reduces the compliance burden on CPs as compared both to a charge control that allows time of day flexibility or a fair and reasonable charges obligation.

Provisional conclusion

13.77 We propose that a charge control that imposes a single maximum rate on all fixed CPs with SMP is the most appropriate and proportionate remedy for addressing our competition concerns, particularly the potential harm caused by excessive FTRs.

13.78 For the avoidance of doubt, if we decide to impose a charge control on all fixed CPs designated with SMP, then the 2013 F&R Guidance will no longer apply as the pricing obligation to which it relates would no longer be effective.[551]

Legal tests

13.79 Section 87(9) of the Act authorises Ofcom to set a charge control on a dominant provider.

13.80 We are required to ensure that the proposed condition satisfies the tests set out in section 88 of the Act. Section 88(1) of the Act requires that Ofcom must not impose pricing conditions unless it appears from the market analysis carried out for the

[550] Section 47(2)(c) of the Act.
[551] In Section 12, we explain that we propose to impose a fair and reasonable charges obligation on all providers with SMP in WCT in the absence of other pricing regulation.

purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortions. We have explained above that we consider that, in the absence of price controls, CPs may price excessively and therefore there is a risk of adverse effects arising.[552]

13.81 Section 88(1)(b) of the Act requires that the pricing condition should be appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on the end-users of public electronic communications services.

13.82 A charge control would prevent fixed CPs from passing on inefficiently incurred costs to other CPs and ultimately callers, through FTRs above the competitive level, and would therefore promote efficiency. A charge control would promote sustainable competition by preventing CPs from setting WCT charges above LRIC and benefiting from this in downstream markets, to the disadvantage of other CPs competing in those downstream markets.

13.83 We outline above the potential competitive distortions and consumer harm that may arise from high FTRs. We consider that the benefits afforded by the flexibility in a fair and reasonable obligation are, at best, limited and that a charge control, with a single flat rate maximum cap applied to all CPs providing fixed WCT, will confer the greatest possible benefit for end-users in terms of preventing excessive pricing and competitive distortion.

13.84 We are also required to consider the extent of fixed CPs' investment in the matters to which the condition relates (in this case, the network assets associated with WCT). We believe that CPs would continue to have the ability and incentive to invest, following the imposition of a charge control. A charge control at LRIC ensures that the efficiently incurred operating and capital costs of the service continue to be recoverable (it is only a contribution to costs common with other services which is precluded). Moreover, termination is part of a two-sided market which provides the opportunity to recover costs from the non-terminating side.

13.85 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. We consider the proposed condition to be:

- objectively justified: for the reasons set out above, without a charge control, fixed CPs may price excessively. The benefits expected of a competitive market would not be available to consumers without the imposition of a charge control on all CPs.

- not unduly discriminatory: the proposed charge control would apply to all designated fixed CPs with SMP.

- proportionate: for the reasons set out above, we consider that a charge control based on a single maximum rate is the least restrictive means of addressing our competitive concern about excessive pricing and, when combined with our proposals to cap charges at LRIC, is the mechanism most likely to result in efficient FTRs; and

- transparent: the proposed SMP condition is designed to address the detriments arising from the risk that CPs could set an FTR above the LRIC rate if they were unregulated. We consider that setting a control on the FTRs charged by all CPs

[552] Section 88(3) of the Act.

with SMP in WCT, based on the modelled costs of an average efficient provider, will directly address this risk. As such, we consider that a charge control is transparent as to what it is intended to achieve.

13.86 We have considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the Act. In particular, we consider that the proposed charge control would secure efficient and sustainable competition and the maximum benefits for persons who are consumers of services provided by fixed CPs. This is because the imposition of the obligation, combined with our proposal to cap charges at LRIC, will ensure that the charges for WCT by all CPs are set at the level that will best promote effective competition.

13.87 We note that this approach is consistent with the 2015 MCT Statement.[553] A charge control on all fixed CPs with SMP is also consistent with the EC's preference for mandated symmetric reciprocal termination rates[554] and the EC's comments in response to the NMR 2013 decision.[555]

Exclusion of non-EEA originated calls from the charge control

13.88 The introduction of LRIC FTRs has led to rate reductions in most EEA (European Economic Area) countries.[556] In non-EEA countries, termination rates are often set using different cost standards and approaches, contributing to differences in the level of FTRs between EEA countries and non-EEA countries.

13.89 In this section, we consider whether it would be in the interests of competition and/or consumers in the UK for calls that originate outside the EEA to be subject to proposed LRIC-based FTRs and, if not, what alternative remedy might be appropriate for this type of call.

13.90 We are examining this issue because certain NRAs allow different rates to apply to termination of non-EEA originated calls.[557]

Why might we treat non-EEA originated calls differently?

13.91 Asymmetric levels of termination rates mean that, in some cases,[558] EEA CPs pay higher termination rates to non-EEA CPs than they receive in return, without the possibility of negotiating reciprocal rates. These higher rates may feed through to retail prices for EEA consumers, while non-EEA CPs and their consumers benefit from regulation of FTRs at LRIC.[559]

13.92 Some European fixed and mobile CPs have sought to address this issue by charging higher termination rates for calls that originate in non-EEA countries. Some NRAs

[553] 2015 MCT Statement, paragraphs 5.121 and 5.134.
[554] See paragraphs 1 and 9 of the 2009 EC Recommendation.
[555] European Commission, *Commission Decision concerning Case UK/2013/1496: Call termination on individual public telephone networks provided at a fixed location in the UK*, http://stakeholders.ofcom.org.uk/binaries/consultations/nmr-2013/statement/EC_letter.pdf, page 7-8.
[556] We note that not all EEA countries have applied a LRIC standard when calculating fixed termination rates, for more details see Section 8.
[557] Verizon has indicated in its response that as of October 2016 the following countries have an FTR surcharge in place for non-EEA originated traffic: Austria, Belgium, Croatia, Czech Republic, France, Greece, Latvia, Lithuania, and Slovenia.
[558] Some non-EEA countries, particularly those without the Calling Party Pays system, have low termination rates.
[559] EC, *Case CZ/2014/1609*, 20 June 2014, page 3.

have supported this approach, either by allowing CPs freedom to commercially negotiate these rates[560] or by allowing them to charge non-EEA CPs higher rates provided they are reciprocal (we refer to both these options when we refer to "differential regulation" throughout this section).[561] The objective of this differential regulation has been to give EEA CPs countervailing bargaining power in negotiations with non-EEA CPs.[562]

13.93 However, we note that in its decision addressed to the Czech NRA, the EC called for closer cooperation between NRAs, the EC and BEREC with a view to developing a consistent regulatory practice in the internal market with regard to calls originated from outside the EU and to ensure a consistent application of the Regulatory Framework within the EU.[563] BEREC has prepared two reports for internal use on the regulatory treatment of fixed and mobile termination rates for voice calls originated outside the EEA.[564] We do not have a clear timeframe for when (or if) the reports may be adopted by BEREC as a public position and we note they do not yet constitute a common position; however, we have considered these reports when forming our proposals.

Stakeholders' views

13.94 While this issue was not raised in any April 2015 CFI responses, we have received submissions from a number of stakeholders, none of which supported differential regulation of WCT.

13.95 Verizon disagreed with differential regulation. It considered that differential rates were damaging, not justified, and may violate the EU telecommunication rules, general competition rules and the WTO General Agreement on Trade in Services (GATs). It considered the reason often given for the application of differential rates – some form of retaliation for higher termination charges – did not apply to originating countries where rates do not exceed or indeed are lower than the EEA rates (e.g. the US). It further considered that higher rates did not reflect the incremental cost for terminating traffic. It noted that costs do not differ depending on the country where the traffic originated. Verizon also considered that the application of differential rates did not comply with the principles of non-discrimination and cost orientation.[565]

13.96 BT was [✂].[566]

13.97 Vodafone supported differential regulation in mobile termination but considered that it was more problematic in fixed termination due to the different contractual relationships between fixed CPs, technical differences and potential competition

[560] EC, *Case CZ/2014/1609*, 20 June 2014; *EC, Case HR/2015/1716*, 24 March 2015; *EC, Case HU/2015/1705*, 5 March 2015; EC, *Case IT/2015/1768*.
[561] EC, *Case FR/2014/1668*, 28 November 2014.
[562] EC, *Case CZ/2014/1609*, 20 June 2014, page 3; EC, *Case FR/2014/1668*, 28 November 2014, page 8-9 *EC, Case HR/2015/1716*, 24 March 2015, page 7; *EC, Case HU/2015/1705*, 5 March 2015, page 3-4.
[563] EC, CZ/2014/1581, 28 April 2014.
[564] BEREC, http://berec.europa.eu/eng/events/berec_event_2015/83-23rd-berec-plenary-meeting-in-bergen (accessed 26 November 2015) [✂] and BEREC, http://berec.europa.eu/eng/events/berec_events_2016/110-28th-berec-plenary-meeting-in-vilnius (accessed 20 October 2016) [✂].
[565] Verizon, *Why Charging Higher than Regulated Termination Rates to Traffic Originating Outside the European Economic Area (EEA) is Not Justified*, page 1-3.
[566] [✂].

concerns.[567] A CP stated that any differential regulation would be susceptible to arbitrage and would not be effective.[568]

Options for consideration

13.98 We have considered two options for the treatment of WCT charges from calls originating outside of the EEA:

Option 1: no differential regulation

13.99 This option would maintain the current approach and apply the WCT charge control to all calls terminated in the UK regardless of origin.

Option 2: exclude the termination of non-EEA originated calls from the WCT charge control

13.100 This option is based on differentiating WCT remedies in a way that would exclude non-EEA calls from the charge control but leave in place other SMP obligations (e.g. the requirement to provide network access and price transparency).[569]

13.101 One possibility would be to give fixed CPs flexibility to commercially negotiate FTRs with non-EEA CPs with the aim of bringing about greater symmetry of rates between UK and non-EEA destinations. Alternatively, we might require that any negotiated rate must be reciprocal, that is, cannot be higher than the FTR offered by a non-EEA CP that is charging above the UK regulated rate.[570] However, we consider that a reciprocity condition is more complex to implement and monitor than a simple exclusion.

Our analysis

Competition and economic efficiency considerations

13.102 We propose to cap FTRs at LRIC in large part to ensure effective competition. In the case of non-EEA calls terminated in the UK, it could be argued that the FTR does not need to be at LRIC because non-EEA CPs do not compete with UK fixed CPs.

13.103 Therefore, in theory, regulation that allows departure from the LRIC rate for FTRs charged to non-EEA CPs, gives UK fixed CPs the flexibility to negotiate on termination rates that could yield the following potential benefits for UK consumers:

- if separate regulation for the termination of calls originated in EEA and non-EEA countries prompted negotiation with non-EEA operators, it might result in lower charges for UK fixed CPs terminating calls in non-EEA countries, thereby raising the possibility of lower retail call prices for UK consumers;

[567] Vodafone meeting with Ofcom, 19 November 2015.
[568] [✂].
[569] We do not consider it appropriate to exclude non-EEA originated calls from the market definition. The service provided by the terminating network is the same irrespective of the location of the CP that seeks to buy the termination. This was raised as a possibility, but not supported, by Verizon, *Non-EEA submission*, page 3.
[570] If the reciprocal rate for non-EEA countries were below our regulated LRIC rate, we would not require the UK terminating CP to price FTRs below LRIC – although it would be free to do so if it wished.

- to the extent that any gain in revenue from termination for calls from non-EEA countries were passed through to consumers (via the waterbed effect), it could result in lower retail prices for UK consumers; or

- to the extent that any gain in revenue were not passed through to retail prices, it could potentially result in higher levels of investment and benefit UK consumers.

13.104 In practice, however, we consider that any potential benefit to UK consumers derived from differential regulation is likely to be limited. It is hard to predict whether the FTRs charged by some non-EEA CPs would decrease or increase in response to differential regulation. A possible outcome is that both UK CPs and non-EEA CPs agree rates above the current level of non-EEA countries with high rates, which could be detrimental to UK consumers if it fed through to higher retail prices.

13.105 In order to illustrate this, we note that in the NMR 2013 we calculated LRIC FTRs for 2015/16 (in 2012/13 prices) of 0.032ppm and a corresponding LRIC+ figure of 0.212ppm. On the basis of 4.0bn minutes of international originated calls terminating in the UK in 2015,[571] this difference amounts to £7.2m.[572]

13.106 Although this simple calculation may understate any effect of differential regulation to the extent that termination rates in non-EEA countries lie above the LRIC+ of WCT in the UK, it may also overstate any effect because calls from non-EEA countries represent a sub-set of total incoming calls from international destinations. On balance we consider that the potential for benefits to UK consumers of allowing FTRs in excess of LRIC for calls originated in non-EEA countries is likely to be limited.

<u>There may also be commercial and technical constraints that nullify the potential benefits</u>

13.107 Even if we were persuaded that differential regulation would benefit UK consumers, we consider that there are significant commercial and technical issues which could nullify these benefits.

Lack of commercial relationships between UK fixed CPs and non-EEA CPs

13.108 In practice, differential regulation may not have the desired effect of giving UK fixed CPs greater negotiating power with non-EEA CPs, because UK fixed CPs may not have direct contractual relationships with non-EEA CPs that originate calls and therefore may not be able to influence negotiation of FTRs.

13.109 The lack of direct commercial relationships also means that identifying the origin of international calls and assessing the termination rate in the non-EEA country (as opposed to the rates for international and national transit charged by major international transit providers) could be problematic.[573]

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[571] See the volumes of calls (in billions of minutes) in Figure 4.10, page 146 in the 2016 CMR at https://www.ofcom.org.uk/__data/assets/pdf_file/0024/26826/cmr_uk_2016.pdf. These volumes are for calls originating in the UK, so the calculation presented here is based on the simplifying assumption of symmetric traffic flows from the UK to overseas destinations and vice versa.
[572] On the basis of 33.2m lines in the UK (including ISDN) in the end of 2015; see http://media.ofcom.org.uk/facts.
[573] UK CPs may buy termination from CPs based on a price for handover in the UK. For calls into the UK, the routing may be extremely complex, with calls from a single CP in a non-EEA country arriving on a range of routes and potentially a number of transit providers.

Need for systems development

13.110 Differential regulation is likely to require systems development, because in order for it to be effective CPs must be able to identify the origin of calls to determine which rate to apply. Calling Line Identification (CLI), where available, could be used to achieve this, but this will not always be the case.[574] Differential regulation could also create an incentive for CPs to mask the origin of calls by removing or manipulating CLI, which would give rise to concerns, including in relation to nuisance calls.[575]

13.111 We understand there could be a significant cost to fixed CPs to change their billing systems to assess CLI (as opposed to the last CP that handed over the call, in the calling party pays arrangements typically applied), both for UK fixed CPs providing termination and international CPs (which would need to carry out such a development in order to validate any bills from UK terminating CPs).

13.112 In addition, UK fixed CPs may negotiate blended rates with CPs in non-EEA countries which include both termination to multiple networks and some transit costs in a single charge. This would make a like-for-like comparison with the UK regulated rate difficult and would add complexity to assessing whether a higher rate is justified. This may also require changes to billing systems.

Incentives for call routing

13.113 Third, differential regulation might create incentives for inefficient call routing. Verizon notes the potential effect on internal markets, if CPs were to route traffic that originates outside the EEA via other EEA countries, so that an EEA-based CP can deliver the traffic to the UK terminating CP.[576] In these circumstances, we consider that differential regulation could open up the potential for arbitrage and artificially inflated traffic (AIT), particularly by fixed CPs with extensive international networks, and might result in unintended policy consequences.

13.114 We do not consider it desirable to introduce regulation that incentivises inefficient routing and/or CLI manipulation as this could reduce the quality of service experienced by UK consumers in the form of lower quality connections and incorrect/missing caller information. There may also be higher resource costs in re-routing calls which, while they may not impair quality, add to the marginal cost of the call resulting in productive inefficiency.[577] Moreover, higher costs to non-EEA CPs (passed-through to non-EEA consumers) may result in a smaller volume of calls to the UK. We think that this could adversely affect UK consumers in direct proportion to the extent to which they value receiving calls from non-EEA countries.

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[574] Other NRAs have dealt with these issues in a number of ways: the Italian NRA considered that it was possible for CPs to identify the origin of calls because of ITU Recommendation (E-157) and that it would monitor agreements with international transit providers; the Croatian NRA requires CPs to demonstrate a system to identify calling number origin but once the system is in place, if the number is not complete/correct then the CP does not have to charge the regulated rate; and the Czech NRA provides that the regulated FTR should apply if it is too difficult to determine the origin of calls.

[575] Ofcom and ICO, *Tackling nuisance calls and messages: update on the Joint Action Plan*, December 2015, https://www.ofcom.org.uk/consultations-and-statements/category-2/silent-calls/joint-action-plan

[576] Verizon, *Non-EEA submission*, page 4, September 2015.

[577] We note, however, that there may be low inefficiency if there is spare capacity on particular transit routes and the non-EE originator has established relationships with international transit providers.

Complexity of compliance

13.115 Finally, differential regulation of FTRs would increase the complexity of regulation, including monitoring compliance, and as a result may be disproportionate. These complexities should not be underestimated given the number of non-EEA routes involved.[578]

Provisional conclusion

13.116 Although there may be theoretical arguments to support excluding the termination of non-EEA originated calls from the WCT charge control, we believe that the benefits to UK consumers would be limited in practice and there could be undesirable offsetting effects. We therefore propose to apply the same charge controlled rate to all fixed calls terminated in the UK regardless of origin.

Consultation questions

Question 13.1: Do you agree with our proposal to apply a charge control to all designated CPs with SMP in the WCT markets? Please provide reasons and evidence in support of your views.

Question 13.2: Do you agree with our proposal to apply the WCT charge control to all calls terminated in the UK irrespective of where the call was originated? Please provide reasons and evidence in support of your views.

[578] We estimate there to be over 160 non-EEA countries with potential routes.

Section 14

Cost modelling for WCT charge control

Summary

14.1 In Section 13 we proposed to impose a charge control on all CPs with SMP in WCT. In this section we summarise the key features and assumptions of the model we are using to calculate maximum charges for WCT (2016 WCT cost model), including the technology choice, traffic forecasts, market share and cost of capital.

14.2 The more detailed aspects of the model design, assumptions, and implementation are discussed in Annexes 8 and 9.

Key features of the 2016 WCT model

14.3 The charge control on WCT implemented in 2013 was set using the 2013 Narrowband Charge Controls model (2013 NCC model).[579] Having considered the requirements for the 2016 WCT model, we believe that the 2013 NCC serves as an appropriate starting point for the 2016 WCT model. In particular, we propose to take a similar approach to the technology that we model, the use of bottom-up modelling and the way we calculate LRIC. We have sought to only update those parts of the model that have an impact on the WCT LRIC calculation.[580]

Technology choice

14.4 We propose to continue modelling a hypothetical next-generation network (NGN). We continue to believe that a hypothetical NGN forms a reasonable basis on which to set regulated charges for WCT. Using an NGN for cost modelling aligns with our principles of efficiency and competition (set out in detail in paragraphs A8.8 in Annex 8 of this document), and is in line with the 2009 EC Recommendation.[581]

Bottom-up modelling

14.5 We propose to continue with a bottom-up modelling approach. The use of bottom-up models to set cost-based charge controls has been an established practice in the regulation of mobile termination rates (MTRs) since 2001 and fixed termination rates (FTRs) since 2013. It is also consistent with the 2009 EC Recommendation.

[579] See 2013 NCC model at: https://www.ofcom.org.uk/consultations-and-statements/category-2/nmr-13

[580] Since we have not updated any other parts of the model, we do not consider that it would be appropriate to use the 2016 WCT model to calculate the LRIC+ of WCT or WCO, despite its similarity to the 2013 NCC model which did calculate these outputs.

[581] As stated in Section 5.1.1 of the explanatory note: Commission staff working document accompanying the 2009 Commission Recommendation on the regulatory treatment of fixed and mobile termination rates in the EU, 7 May 2009, http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2009/sec_2009_0600_en.pdf

Calculating LRIC

14.6 We propose to continue with a decremental approach to calculating LRIC. Consistent with the 2009 EC Recommendation, this involves considering incoming voice traffic as the final increment with no common costs being allocated to WCT.

14.7 The incremental costs associated with incoming voice traffic are derived by first calculating the model outputs (i.e. service demand, asset volumes and cashflow for each network element) with incoming voice traffic included and, second, with incoming voice traffic excluded. This approach is illustrated in Figure 14.1 below. The incremental service demand, asset volumes and cashflows for each element are then used as inputs to the economic depreciation algorithm. The output of this algorithm is the LRIC of an incoming minute of voice traffic.

Figure 14.1: Illustration of decremental approach to calculating incremental costs

Changes and updates

14.8 The changes that we have made in developing the 2016 WCT model fall into the following categories:

- Updated traffic volumes;
- Trending assumed market share down from 33% to 25%;
- Changing the model's inflation index from RPI to CPI;
- Updated cost trends;
- Updated approach to handling incremental administrative costs; and
- Updated weighted average cost of capital (WACC) assumption.

Design and implementation

Overall structure

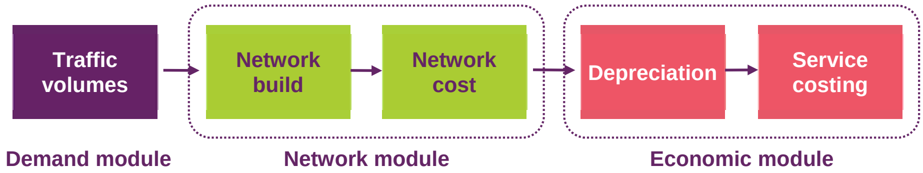
14.9 Our model design is very similar to that used in the 2013 NMR. The model calculates unit costs in five steps:

- 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.

- Step 5: Recover the cost of the network across services based on the routing factors used to dimension the network.

14.10 Figure 14.2 below shows how the Excel model is structured.

Figure 14.2: NCC model structure



14.11 The outputs of the 2016 WCT model are pence per minute (ppm) unit costs in each year for WCT. The model functions in real rather than nominal terms using CPI inflation indexed to 2012/13 prices. The outputs are then converted to real 2015/16 prices and are stated on this basis in this document.[582]

Traffic volumes

14.12 It is necessary to calculate traffic forecasts for the hypothetical NGN in order to calculate how much network infrastructure will be required. Our traffic forecasts have been updated to account for recent data and include forecasts for both voice and data services. It is necessary to produce forecasts for data services due to the economies of scope in NGN equipment.

14.13 The traffic module produces the total industry demand for:

- business and residential voice and broadband lines;
- outgoing voice (which is a part of the basis for incoming and on-net voice forecasts in the network build module as explained in Annex 8); and
- broadband data services.

14.14 Details of these forecasts and our selected base case can be found in Annex 8.

14.15 Having projected industry-wide traffic volumes, it is necessary to consider the quantity of traffic carried by the modelled network alone. We propose to maintain a historical market share of 33%, and for this to trend down to 25% over the period 2013/14 to 2024/25 due to a slight increase in Sky and TalkTalk's combined footprint, further national rollout by Virgin Media over the next three years and the inclusion of CPs providing business ISDN on their own infrastructure, which was not included in our analysis in the 2013 NMR. This is explained in further detail in paragraphs A8.39 to A8.47. We believe this to be the most suitable proxy for a fully national hypothetical operator's market share over the modelled period.

Network build

14.16 We propose to maintain the assumptions of the 2013 NCC model which relate to the deployment of the model, such as the dimensioning assumptions of assets, logical node design and rollout period. The model considers the period to 2045/46 and has

[582] We have stated outputs on the bases of real 2015/16 prices as this is the latest full year for which we have historical inflation figures. We would expect to present the final outputs in our Statement on the basis of 2016/17 prices.

the functionality for network build to start in 2005/06. We assume network build starts in 2007/08 and continues for four years.[583]

14.17 We propose to maintain the ‘scorched node’ approach that was used in the 2013 NCC model, which takes account of existing network topology when dimensioning the cost model. The model uses the location and serving area of BT’s network exchanges because we believe that BT’s existing local exchange topology provides an appropriate proxy for an efficient national network.

Network cost

Inflation index

14.18 We propose to switch from using RPI to using CPI as the inflation index used in the model. To do this we have used CPI data from the ONS for the financial years ending in March. This is discussed in further detail in Annex 8.

Cost trends

14.19 We have reviewed the cost trend inputs that are applied to asset prices over the review period, and propose to keep them as in the 2013 NCC model except for:

- “Active Equipment”, the prices of which in general appear to be falling faster than was forecast in the 2013 NMR; and
- “Labour”, the prices of which in general appear to be rising slower than was forecast in the 2013 NMR.

14.20 Data from CPs are consistent with the other cost trends used in the 2013 NCC model.

Administrative costs

14.21 In addition to network costs, other non-network (administrative) costs are included in the model. Prior to 2013, administrative costs had been charged as a separate service (product management, policy and planning, or PPP). In the 2013 NMR we decided to model these as a cost of the network to be included in the output charges for regulated services, rather than as a separate charge. Since then, we understand that BT has retired the Element-Based Charging (EBC) system and absorbed its functions into the A-Z Telephony Event Charging (AZTEC) system, resulting in efficiency savings in running these operations. We have reviewed this assumption and propose to reduce the amount of administrative costs considered incremental to WCT in the model, on the basis of these identified efficiency savings.

14.22 We believe a reasonable estimate of these costs for the review period is £0.85m per annum. This is based on data requested from BT under our statutory powers.[584] We have updated the model so that it uses the previous assumption of £3.5m in historical years, and trended down to the new assumption of £0.85m in 2015/16. Given the scale of these achieved efficiency savings, we have reduced the forecast cost trend

[583] This assumption is intended to reflect a plausible date for initial rollout of an NGN by a hypothetical entrant and is based on information gathered from CPs in the 2013 Narrowband Market Review.
[584] BT responses to the 7th and 12th s.135 notices.

from 2015/16 as we would not expect efficiencies of this scale to be replicated in the near future.[585]

WACC

14.23 As explained in greater detail in Annex 8, paragraphs A8.60 to A8.64, we propose to use the WACC calculated in the 2016 BCMR Statement in the 2016 WCT model. Specifically, we have used the WACC corresponding to 'other UK telecoms', which was estimated to be 9.8% on a pre-tax nominal basis in the 2016 BCMR statement for the period 2016/17 onwards. The real pre-tax WACC series used in the model, accounting for CPI inflation, is presented in Figure 14.3 below. From 2016/17 onwards, CPI is projected to be 2.0% p.a.

Figure 14.3: Real pre-tax WACC time-series[586]

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	Forecast
Pre-tax real WACC	9.2%	9.2%	9.2%	9.2%	7.0%	7.0%	7.0%	7.0%	8.0%	8.0%	8.0%	7.6%

Source: Pre-tax nominal WACC estimates from August 2005 Ofcom approach to risk, May 2009 OR financial framework, March 2013 LLCC Statement and April 2016 LLCC Statement. Nominal rates converted to real using rates using CPI inflation.

Depreciation and service costing

Cost recovery over time

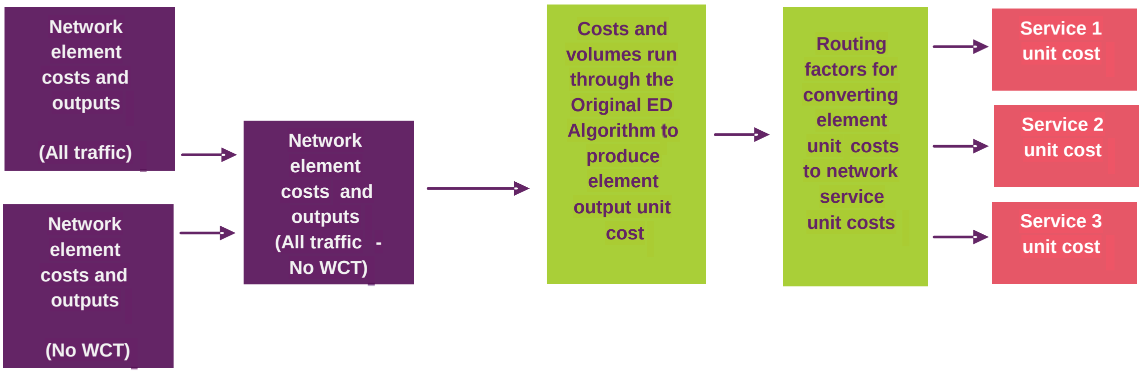
14.24 Once the total costs of the hypothetical NGN have been calculated, we must determine how these costs are recovered over time. Economic depreciation remains our chosen approach to cost recovery as we believe it better reflects the forward-looking economic value of an asset. In particular, we propose to use a form of economic depreciation known as Original ED, which attempts to match cost recovery of assets in each year to the utilisation of those assets in those years.

Cost recovery between services

14.25 We propose to recover costs from each service using the same approach as used in the 2013 NCC model. Under this approach, the costs recovered by a particular service are linked to the costs that are driven by that network service. Each network service has a routing factor relating to each piece of network equipment, which drives the amount of network equipment needed to carry a unit of the service. Each network element unit cost is multiplied by the corresponding routing factor for each network service. These are then aggregated for all network elements for each service to give the service unit cost. Figure 14.4 below shows the flow of calculations when costs are being allocated across time and between services. WCT is the weighted average of three services in the model, relating to three categories of how a call may be routed across the network (for calls coming from local, national and international callers).

[585] The cost trend for incremental administrative costs changes from -5.2% per annum in real terms prior to 2012/13 to -1.0% per annum in real terms after 2015/16.
[586] From 2015/16, the WACC is held constant at 7.6% in pre-tax real terms in perpetuity.

Figure 14.4: Cost recovery over time and across services



Outputs

14.26 The results for WCT are outlined in Figure 14.5 below. A fuller description of these results, in addition to a sensitivity analysis of the effect that key variables have on the unit costs of each service can be found in Annex 9. We set out our approach to setting charges on the basis of these outputs in Section 15.

Figure 14.5: Results from the 2016 NCC cost model and BT's current average price (ppm, in 2015/16 prices)

	2016/17 actual	2017/18 output	2018/19 output	2019/20 output
LRIC outputs	0.029	0.024	0.022	0.020

Source: 2016 WCT model

14.27 We set out how each of the main changes made to the 2013 NCC model has affected the final outputs in Annex 8 in Figure A8.15, for illustration.

Section 15

WCT charge control specification

Introduction

15.1 An indexed charge control would prevent BT from setting excessive wholesale prices for ISDN30 and ISDN2 services. It would not require detailed cost modelling or large amounts of information from telecoms providers (particularly BT). Furthermore, this approach would provide certainty and stability to the market as prices would be capped in advance. We believe that this certainty would help to encourage efficient migration from wholesale ISDN30 and ISDN2 services to IP-based services.

15.2 In Section 13 we explained why we are proposing a charge control for fixed call termination rates (FTRs) on all CPs with SMP in the provision of WCT set using a LRIC cost standard. In Section 14 we explained our approach to cost modelling.

15.3 This section explains how we will implement the charge control on WCT. In particular, we set out our proposals to:

- set a three-year charge control between 1 October 2017 and 30 September 2020, beginning with a two-month transitional period before new rates are set;
- align the FTR cap to the forecast LRIC for each year of the charge control (i.e. not implement a glide path);
- index the charge control using a CPI-X formulation;
- apply a single maximum rate for the FTR cap (i.e. not setting a weighted average cap that can be exceeded for some calls via time of day pricing);
- apply this maximum rate cap to all termination services (i.e. not by reference to a basket of different termination services); and
- take a similar approach to other elements of the charge control as were taken for the NCC 2013 as it applied to BT's FTRs.

Charge control design

Duration and effective date for new FTRs

15.4 Our starting point for the duration of the charge control would be a period of three years from 1 October 2017 to 30 September 2020. Three years reflects the length of the forward look for this market review. In this section we consider whether the charge control should begin immediately at the start of this period or whether there should be a transition period.

15.5 In the 2013 NMR Statement we allowed a period of three months from the start of the charge control before FTRs were to be set at LRIC, which happened on 1 January

2014. We allowed this period for a variety of reasons relating to contractual arrangements and practicability.[587]

15.6 In particular, we noted that our fair and reasonable guidance on FTRs presumed that CPs would meet their obligations by setting rates symmetrical to the rates notified by BT. This meant that we needed a transition period at least as long as the regulatory notice period which was at the time 56 days. We also noted that as billing cycles generally run from the start of each month, we should accommodate this by setting FTRs to LRIC on the first day of a month.

15.7 We recognise that until the new charge control period begins there will remain contractual limits that mean moving to the new rates we propose will require a transitional period. We set out in Section 12 our proposals to reduce the regulatory notice period for BT such that it must publish charges on or before the day that charges take effect, due to the simplifications proposed to the charge control. However, we note that the current notice period of 56 days is included in contractual agreements across the industry and so believe that it would be appropriate to maintain an interim period of at least 56 days between publication of our statement and commencement of the new charge control. This reflects the fact that it is likely to take time for any change in the underlying regulatory requirements to be reflected in contractual arrangements.

15.8 In keeping with this and the timing of billing cycles described above, we propose to allow a transitional period of two calendar months from the start of the charge control period. We therefore propose that rates are set to the newly-calculated estimates of LRIC from 1 December 2017. The first 'year' of these rates would run until 30 September 2018, with the second charge control year beginning on 1 October 2018.

15.9 The previous WCT charge control expired on 30 September 2016. To cover the period between the two charge controls, BT has made voluntary commitments to maintain the basket-level price cap on termination services at CPI minus CPI (i.e. keeping the cap the same in nominal terms) as in the final year of the previous charge control.[588] In current prices, this basket-level cap is 0.030ppm. All other CPs are subject to a condition for their rates to be fair and reasonable, with a presumption that rates no higher than those charged by BT will be considered fair and reasonable. Ofcom has clarified that this condition applies to the average charge control rate applied to BT in the third year of the previous charge control[589], which is equal to the cap to which BT has voluntarily committed.

15.10 During the WCT transitional period, we propose to set a charge controlled cap on BT's FTRs using the same basket of products as were used in the previous charge control. This transitional basket-level cap will be set at the level of the third year of the previous charge control on BT, held flat in nominal terms. This is consistent with BT's voluntary commitments and will provide stability over the transitional period to give the industry time to adjust to the new charge control rates that will take effect on 1 December 2017.

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[587] 2013 NMR Statement, paragraphs 11.4 to 11.18.

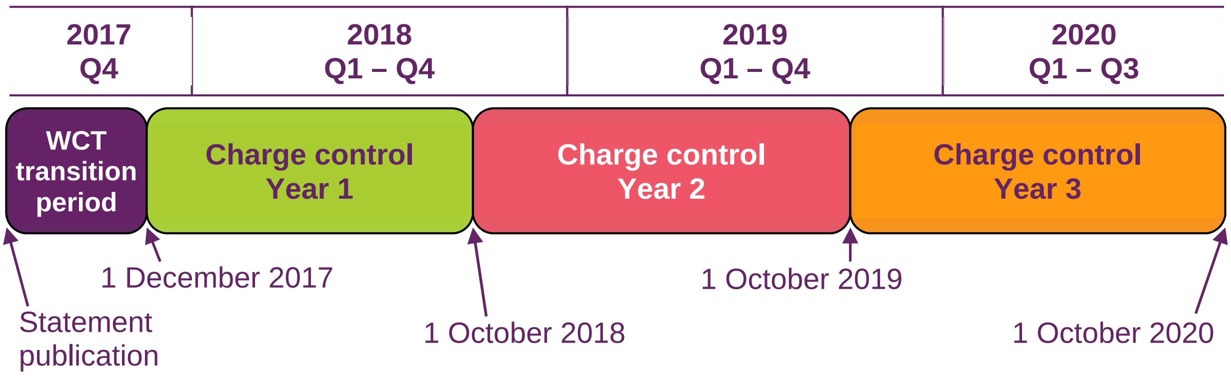
[588] This is set out in the correspondence between BT and Ofcom published on our website: https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/telecoms-competition-regulation/narrowband-broadband-fixed

[589] At Annex 10 to the 2013 NMR Statement we published guidance setting out a presumption that charges no higher than BT's charge controlled "benchmark" rate are fair and reasonable. We have also published Supplementary guidance on WCT over the lacuna period on our website at https://www.ofcom.org.uk/__data/assets/pdf_file/0022/90274/Supplementary-guidance.pdf

15.11 For all other CPs during the WCT transitional period we propose to impose a fair and reasonable charging obligation on FTRs. During that period, we also propose applying the 2013 F&R Guidance, as updated by the supplementary guidance[590], meaning that we would presume rates that no higher than the cap set on BT's rates during this period to be fair and reasonable. This maintains the approach in the last year of the previous charge control and over the lacuna period to provide stability over the WCT transitional period.

15.12 The timeline for our proposals on the WCT charge control is illustrated in Figure 15.1 below:

Figure 15.1: Illustration of the timeline for the proposed WCT charge control



Alignment of charges

15.13 For the reasons set out in Section 13, consistent with our views in the 2013 NMR Statement, we believe that FTRs should continue to be set at LRIC.[591] We have considered two possible price paths to achieve this:

- a one-off adjustment: i.e. FTRs would be reduced to the newly-calculated LRIC and track the LRIC estimate produced by the 2016 WCT model in each subsequent year of the charge control; or
- a glide path: i.e. FTRs would reduce by a fixed percentage at the start of each year of the charge control period and reach the 2016 WCT model's calculated LRIC on 1 October 2019.

15.14 Given the benefits for competition of FTRs set at LRIC discussed in Section 13, we would prefer to move charges to LRIC as soon as practically possible. We would only consider using a glide path in the case of a large change, if making this change immediately would have a material adverse impact on the industry. The effect that each of these options would have on FTRs is set out in Table 15.2. Both options produce the same FTR to the degree of precision we consider appropriate (it is only at the fourth decimal place that the glide path produces a higher FTR than the immediate adjustment).

[590] See footnote 3 above.
[591] This is also consistent with MTRs which are currently set at LRIC as set out in the 2015 MCT Statement.

Table 15.2: Comparison between glide path and immediate adjustment for FTRs (ppm, 2015/16 prices)

	2015/16	2016/17[592]	2017/18	2018/19	2019/20
Glide path	0.030	0.029	0.026	0.023	0.020
One-off adjustment	0.030	0.029	0.024	0.022	0.020
Difference	-	-	0.003	0.002	-

Source: Ofcom.

15.15 In this case the difference between the two options is very small. We therefore propose to align the FTR cap to the forecast LRIC in each year of the charge control, rather than use a glide path to align prices by the end of the WCT review period. We note more generally that this is consistent with both the approach taken in the 2013 NMR and with the EC's comments regarding delaying the move to newly-estimated LRIC charges in the 2015 MCT Statement.[593]

Inflation index

15.16 In the 2013 NMR Statement we decided to use RPI as the inflation index against which to base the charge controls (i.e. we used an RPI-X charge control formulation).

15.17 In considering whether we should adopt RPI or CPI for the purposes of this control, we have used the same framework as has been used by Ofcom in its charge controls for LLU and WLR as set out in the 2014 FAMR Statement[594], the 2014 WBA Statement[595], the 2015 MCT charge control and the 2016 LLCC Statement.[596] This framework considers the official status of the index, the principle of cost causation, the exogeneity of indices from regulated firms, the availability of independent forecasts of the indices, and the regulatory predictability of the indices.

15.18 In January 2013, the Office of National Statistics (ONS) announced the outcome of its October 2012 consultation on RPI. In it, the National Statistician concluded that the RPI "*does not meet international standards and recommended that a new index be published*".[597] The ONS established a new index, the RPIJ, which is designed to address the flaw identified in the averaging formula underpinning the RPI.[598] In 2013 the UK Statistics Authority commissioned Paul Johnson, the director of the Institute of Fiscal Studies, to review UK consumer price statistics. The Johnson report, published in January 2015, recommended that Government and regulators should

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[592] Assumes FTRs held flat in nominal terms in 2016/17, based on BT's voluntary commitments published on our website, at: https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/telecoms-competition-regulation/narrowband-broadband-fixed
[593] See paragraphs 8.96 and 8.97 of the 2015 MCT Statement.
[594] Ofcom, *Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30 – Volume 2: LLU and WLR Charge Controls*, Statement, 26 June 2014.
[595] Ofcom, *Review of the wholesale broadband access markets,* Statement, 2016 June 2014.
[596] Ofcom, *Business Connectivity Market Review – Volume 2: Review of competition in the provision of leased lines,* Statement, 28 April 2016.
[597] ONS, *Introducing the new RPIJ measure of Consumer Price Inflation*, 12 March 2013. http://www.ons.gov.uk/ons/guide-method/user-guidance/prices/cpi-and-rpi/introducing-the-new-rpij-measure-of-consumer-price-inflation.pdf
[598] RPIJ stands for Retail Price Index Jevons after the methodological change incorporated in it. The Jevons formula is based on a geometric mean rather than an arithmetic mean for averaging – the former having more desirable properties for computing an average of price changes.

move towards ending the use of RPI as soon as practicable. We therefore find that CPI is preferable to RPI against the criterion of 'official status' of the index.

15.19 We consider that RPIJ is not suitable for present purposes. While a historical time series for RPIJ has been produced by the ONS (with annual changes calculated back to February 1998), we are not aware of independent forecasts that we might credibly rely upon. RPIJ therefore fails compared to both CPI and RPI against the criterion of 'availability of independent forecasts' of the index. We have not found any significant differences between the indices against any of the other criteria of the framework.

15.20 We therefore consider that using CPI is preferable to using RPI or RPIJ. In addition, using CPI would be consistent with our approach in the LLU/WLR 2014 charge control, the WBA 2014 charge control, the MCT 2015 charge control and the LLCC 2016.[599] We therefore propose that the charge control will be in the form of CPI-X.

Time of day pricing

15.21 The NCC 2013 gave BT the flexibility to vary FTRs by time of day.[600] FTRs have been capped by reference to weighted average charges which allows for differences in charges at different times of the day or the week. So long as the average of different prices charged by a CP, weighted by volumes, is within the target cap then that CP's prices are considered compliant.

15.22 The potential benefit of time of day pricing flexibility is that it can incentivise efficient network use.[601] A potential disadvantage of allowing for time of day pricing is greater complexity and lack of transparency, as time of day variation requires BT to submit greater detail to Ofcom in order to assess compliance, and limits the ability of other CPs to independently assess compliance where this detail is not publicly available.

15.23 In the April 2015 CFI, we asked if time of day flexibility is still required for FTRs.

Stakeholders' views

15.24 BT considered that time of day rates allow for innovation and that it is economically efficient to have lower prices in the evenings and at weekends. It also suggested that removing this flexibility could leave some business models exposed if customers' time of day profile differs from the average.[602]

15.25 Verizon, Vodafone and EE considered that there is no longer any reason to vary FTRs by time of day and would prefer consistency with the MCT approach.[603] Vodafone also pointed to NGCS Access Charges where Ofcom does not permit

[599] We also note that in more recent decisions, other UK economic regulators have moved away from using CPI – for example, in May 2016 Ofwat decided to move from RPI to CPI indexation. See http://www.ofwat.gov.uk/wp-content/uploads/2015/12/pap_pos20150520w2020.pdf
[600] This flexibility also applied to the F&R charging requirement on all other CPs with SMP; 2013 NMR Statement, pp. 220 and 293.
[601] 2013 NMR Statement, page 289-291.
[602] BT, April 2015 CFI response, page 9.
[603] Verizon, April 2015 CFI response, page 2; Vodafone, April 2015 CFI response page 22; EE, April 2015 CFI response, pages 1-2 and 7.

variation by time of day.[604] Colt suggested that now that FTRs have become extremely low, time of day differentiation is probably of less relevance.[605]

15.26 Vodafone did not believe BT still needs to use a time of day gradient. It questioned the relevance and transparency of BT's time of day gradient, which has not changed in years, despite a different mix of traffic and changes in off-peak times, and suggests that it is not related to cost causation.[606]

We propose to adopt a charge control with a single maximum rate

15.27 In the 2013 NMR Statement, we considered that it was appropriate to continue using a weighted average cap. We believed that allowing BT pricing flexibility would enable BT to manage peak load traffic. We also noted that there was no evidence of 'flip-flopping' of FTRs, a practice that had been seen in the mobile termination market.[607] We did not consider that the simplification provided by a single maximum rate was a strong enough reason to remove pricing flexibility for BT.

15.28 There are a number of retail packages that continue to distinguish between day, weekend and evening calls, suggesting that pricing signals are being sent to retail customers.[608] However, given the current low level of FTRs (particularly when compared to other call costs and retail prices generally), a different rate for daytime WCT may do little to incentivise retail consumers to use the network at other times.[609]

15.29 As Vodafone noted in its further submissions, BT has recently removed time of day pricing for non-regulated components of wholesale calls[610] which suggests that CPs may no longer require time of day pricing flexibility, and will have the effect of further diminishing the effectiveness of using FTRs to manage network demand. Indeed, BT has removed time of day prices for some non-regulated services that include WCT (e.g. single- and double-tandem call termination) which implies that the non-regulated components of these services are effectively set with a negative time of day gradient such that the two gradients net to zero for the overall service.

15.30 As Vodafone also noted, the time of day gradient is based on BT's historical retail traffic and its relevance to current efficient consumption and network planning is now

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[604] Vodafone, April 2015 CFI response page 22. MCT removed time of day pricing in 2011. The NGCS decision prevents the Access Charge and the Service Charge from being varied based on time of day. Ofcom, *Simplifying non-geographic numbers: Final statement on the unbundled tariff and making the 080 and 116 ranges free to caller*, page 25.
[605] Colt, April 2015 CFI response, page 8.
[606] Vodafone, April 2015 CFI response, pages 19 and 22-23. Vodafone, *Input to Narrowband Markets Review: Technology choice and 24 hour rates*, page 6.
[607] This refers to the practice of CPs making frequent changes to their termination rates in order to increase revenues while maintaining compliance with a weighted average cap for a given year.
[608] Our analysis shows that some FCPs use time of day retail pricing (see for example, BT http://www.productsandservices.bt.com/products/phone-packages; TalkTalk http://sales.talktalk.co.uk/pricing/package/eveweekend; Post Office http://www.postoffice.co.uk/home-phone#Overview) while some charge the same rate for these calls (see for example, Sky http://www.sky.com/shop/terms-conditions/talk/code-of-practice/tariff-guide/; Vodafone https://www.vodafone.co.uk/broadband/homephone-features as at 20 November 2015).
[609] Vodafone, April 2015 CFI response, p.22; Colt, April 2015 CFI response, page 8.
[610] Vodafone, *Input to Narrowband Markets Review: Technology choice and 24 hour rates*, 23 October 2015, page 6; Vodafone, *Input to Narrowband Markets Review: BT changes to deregulated services,* 23 October 2015, pages 2-6.

less obvious[611], meaning that, as it is currently implemented, time of day pricing may not be effective in promoting efficient network use.

15.31 We therefore propose to introduce a single maximum rate for WCT. We consider that a single maximum rate will simplify compliance with any price control that we propose. We recognise that this will, in theory, deprive fixed CPs of the ability to manage network usage through a network tariff gradient. In practice BT's removal of time of day pricing for unregulated wholesale services suggests that the previous rationale for allowing variation in time of day rates in relation to regulated FTRs is far less compelling. We therefore believe that the transparency and ease of compliance associated with a single maximum rate justify its use over a target average cap.

15.32 We propose to introduce this single maximum rate for WCT with the new rates in the first year of the charge control, on 1 December 2017. During the WCT transitional period we propose that rates will still be able to be set using time of day pricing in order to maintain pricing stability across the industry. Preventing the use of time of day pricing in the WCT transitional period would mean CPs would need to change their prices at the start of that period, with runs counter to our reasoning in paragraphs 15.4 to 15.12 above.

Definition of termination services

15.33 In the 2013 NMR Statement we set the WCT charge control for a variety of termination services. These were differentiated by time of day (day, evening and weekend), network section (segment and stick)[612] and technology used (ISDN and other). These combined to produce twelve separate WCT services which were combined into the WCT basket for the charge control.[613]

15.34 We have also considered whether we need to break out the separate WCT services by technology used and network section. We do not believe that the distinction between segment and stick is necessary, as these are BT-specific designations and are not generally used by other CPs. The stick network section is not a service that an external CP seeking to purchase WCT can purchase as a separate service and is only provided in conjunction with other services (such as WCO). We also see no reason to have separate services defined for different technologies when the market definition proposed in Section 11 is technologically-neutral and applies to all fixed CPs.

15.35 We therefore propose to include only a single service in the basket for the WCT charge control starting from 1 December 2017, covering all external wholesale call termination traffic for a given CP. During the WCT transitional period, we propose to maintain the basket of services as used in the WCT 2013 charge control in order to support our proposals on transitional arrangements for BT.

[611] Vodafone, April 2015 CFI response, pages 22-23.
[612] 'Segment' refers to the service sold on a standalone basis. 'Stick' is a different version of the service excluding the costs of switching, such that it can be sold alongside other services without double-counting these switching costs.
[613] These services are listed in the Annex to Schedule 2 of the 2013 NCC, set out in Annex 2 of the 2013 NMR Statement.

Other issues

15.36 We propose to publish the regulated FTR for each year of the WCT charge control on the Ofcom website[614] (as we currently do for MCT[615]). We consider this will make it easy for fixed CPs to comply with the WCT charge control and for us to identify non-compliance. This is discussed in further detail in Section 12 in paragraphs 12.48 to 12.58.

15.37 We propose that regulated charges for FTRs are rounded to three decimal places for the purposes of measuring CPs' compliance with their charge control obligations.

15.38 We propose that the values of X in the charge control formula are specified to one decimal place. This is consistent with the definition of the percentage change in CPI as reported by the ONS and our approach in the NCC 2013.

15.39 The aim of the charge controls is to address the detriment from a CP exploiting its SMP and overcharging other CPs. Therefore, we are proposing to measure compliance with the charge control on FTRs by reference to external charges only.

Summary of charge controls

15.40 A summary of the charge controls is as follows:

Table 15.3 – Values of X and maximum charges in real (2015/16 ppm terms) [616]

	2016/17 Actual Real	2017/18 Forecast Real	2018/19 Forecast Real	2019/20 Forecast Real
Termination				
2015/16 real ppm cap (actual and forecast)	0.029	0.024	0.022	0.020
Charge control cap and value of X in the CPI-X formula		0.024ppm	CPI-8.5%	CPI-9.3%

Consultation questions

Question 15.1: Do you agree with our proposals regarding modelling and setting the WCT charge control? Please provide reasons and evidence in support of your views.

[614] Ofcom, *Regulated Prices*, http://media.ofcom.org.uk/analysts/regulated-prices/
[615] 2015 MCT Statement, page 91.
[616] ppm real values are in 2015/16 prices. The value for 2016/17 reflects the voluntary commitments made by BT. Charge control years run from 1 October-30 September.

Section 16

Interconnection: approach to regulation

Introduction

16.1 Interconnect circuits provide the required physical infrastructure for voice calls to be passed between different CPs' networks.

16.2 All CPs have obligations related to interconnection under General Condition 1 (GC1).[617] BT and KCOM are also currently subject to specific SMP Conditions related to interconnection.

16.3 In this section we discuss whether we should impose specific obligations in relation to interconnection, beyond the requirements of GC1.

16.4 In light of our proposed finding that BT has SMP in the market for WCO in the UK excluding the Hull Area and in the market for WCT, we propose to maintain the requirement for BT to provide interconnect circuits based on TDM technology at the Digital Local Exchange (DLE).

16.5 In the NMR 2013, we concluded that regulation of interconnect circuits provided by KCOM was necessary in light of KCOM's SMP in the market for WCO in the Hull Area. The current requirement on KCOM to provide interconnect circuits is not related to KCOM's SMP in WCT. We propose to maintain this position.

16.6 This section is organised as follows:

- We first provide an overview of interconnect circuits currently provided by BT and KCOM, and summarise the regulation imposed in the NMR 2013.
- We then present our proposals on technology choice for interconnection and the treatment of conversion costs, taking into consideration key points raised by stakeholders and data gathered using our statutory powers.
- Finally, we explain the reasons for requiring the provision of interconnect circuits by BT and KCOM.

16.7 We set out the general remedies that we propose for BT and KCOM's interconnect circuits in Section 17 and the proposed charge control remedy on BT in Section 18.

Overview of interconnect circuits currently provided by BT and KCOM

16.8 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 transmission between their locations although interconnect circuits differ from leased lines since they include switch ports and, where required, signalling termination.

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[617] General Conditions as at 28 May 2015 at: https://www.ofcom.org.uk/__data/assets/pdf_file/0026/86273/CONSOLIDATED_VERSION_OF_GENERAL_CONDITIONS_AS_AT_28_MAY_2015-1.pdf.

16.9 In the NMR 2013, we required BT to provide interconnect circuits based on TDM technology. BT currently supports four types of interconnect circuit, using TDM technology:

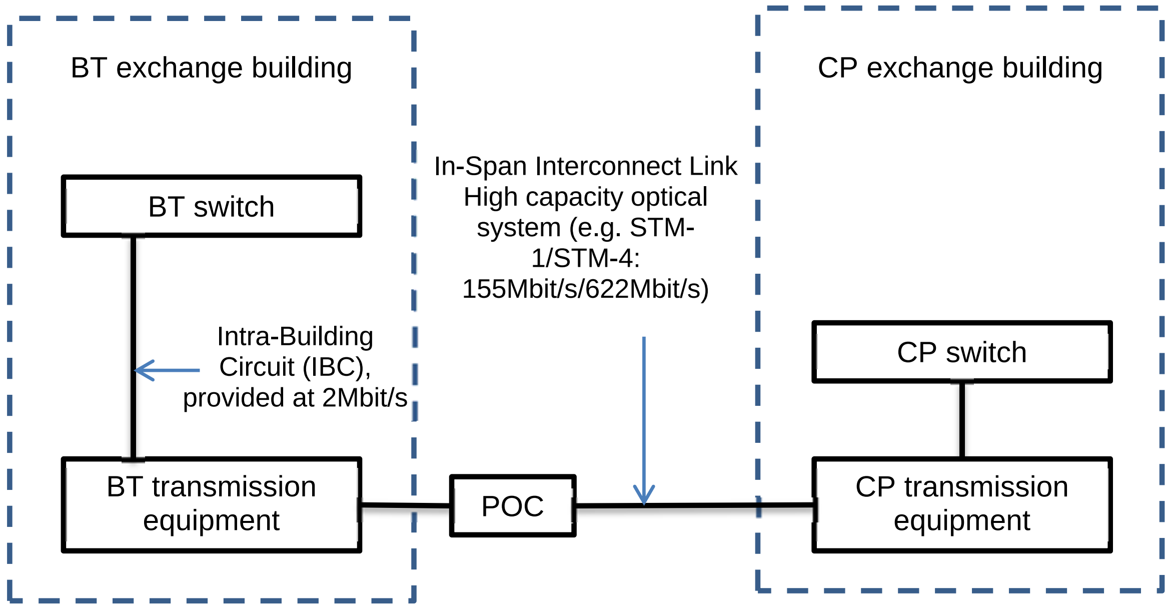
- **In-Span Interconnect (ISI)**: to provide ISI, a CP builds its own network up to a Point of Connection (POC), generally located just outside the BT exchange. BT then connects its network to the POC. Individual interconnect circuits, of 2Mbit/s capacity, are then provided via the ISI link. An Intra Building Circuit (IBC) is required at each end of this 2Mbit/s circuit to provide connection onto the interconnecting switches. The ISI configuration is shown below in Figure 16.1.

- **Interconnect Extension Circuit (IEC)**: IECs allow a CP to extend its interconnection with BT from a POC provided via ISI (as above) to another switch site. IECs are provided at 2Mbit/s capacity and again require IBCs.

- **Customer Sited Interconnect (CSI)**: CSI does not require any infrastructure build by the CP. Instead, BT builds to the CP's site. Individual 2Mbit/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.

- **Virtual Interconnect Circuits (VICs)**: VICs require customers to interconnect using ISI or CSI to a tandem exchange where BT then provides a 'virtual' circuit using the existing BT network to connect to another BT exchange (e.g. a DLE). This virtual circuit is charged for as if it were a physical interconnect circuit. 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 Local-Tandem Conveyance (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 interconnected.

Figure 16.1: ISI Link Architecture



Source: Ofcom.

16.10 CPs with larger networks and larger traffic volumes are likely to provide some or all of their interconnection via ISI. This minimises on going payments to BT, albeit at a higher initial cost to the CP. CPs can also buy Nominated ISI from BT, which 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.

16.11 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 distance-related rental charges as well as installation and fixed annual rental charges.

16.12 CPs that have not built ISIs use CSIs to connect to BT exchanges, where BT provides the interconnect infrastructure to the CP's location. This reduces the upfront cost of interconnection. CSIs incur fixed installation and annual rental charges as well as distance-related rental charges.

16.13 In the NMR 2013, we required BT to provide ISI, IEC and CSI. 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 21st Century Network (21CN) but have been used more widely. While BT has subsequently suspended its plans to migrate voice services onto 21CN, it has continued to provide new VICs.

16.14 KCOM provides ISI and IECs; it does not provide CSI or VICs.

Technology choice for interconnection

Introduction

16.15 In this section, we explain how network technology and the corresponding network architecture being used for the provision of narrowband services are relevant to the regulation of interconnect circuits.

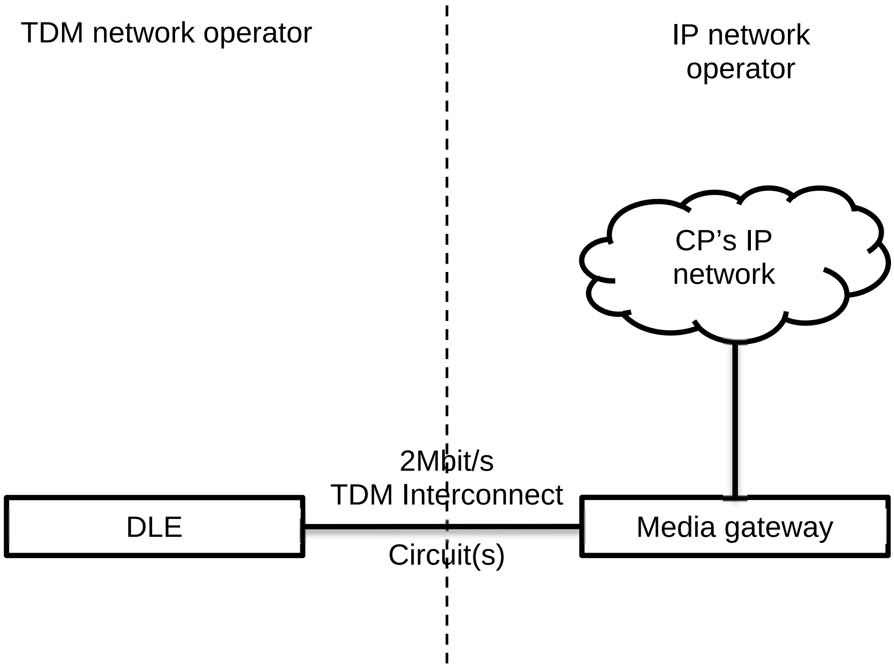
16.16 The question of technology choice for interconnection arises when two interconnecting networks rely on different technologies, in this case TDM and IP. In these cases, translation between the different communications protocols and data formats is required, adding to the cost of interconnection. This translation is carried out by equipment called a media gateway.

16.17 In defining markets, we have taken a technology-neutral approach. We have defined WCT services in Section 11 as "the conveyance of all signals (including relevant control signals) required to terminate calls to a customer 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." Therefore, the regulated FTR applies only at that point in the network (i.e. the terminating node) and the originating CP (or transit CP on the originator's behalf) incurs the costs of reaching that node.

16.18 Similarly, origination is defined in Section 4 as "The conveyance of all signals (including relevant control signals) originating 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." Therefore, the regulated rate applies only at the originating node and the CP purchasing call origination (or transit CP acting on the purchaser's behalf) incurs the costs of reaching that node.

16.19 In the case of BT for example, based on this approach, access to WCT and WCO is provided by BT on its TDM network at its DLEs as this is the closest point to the end user. BT's network currently comprises over 600 DLEs. Hence, where a CP with an IP network wants to interconnect with BT to access WCT or WCO, it needs to connect to each of the DLEs and needs to use additional equipment (media gateways) to translate between IP and TDM. This is shown in Figure 16.2.

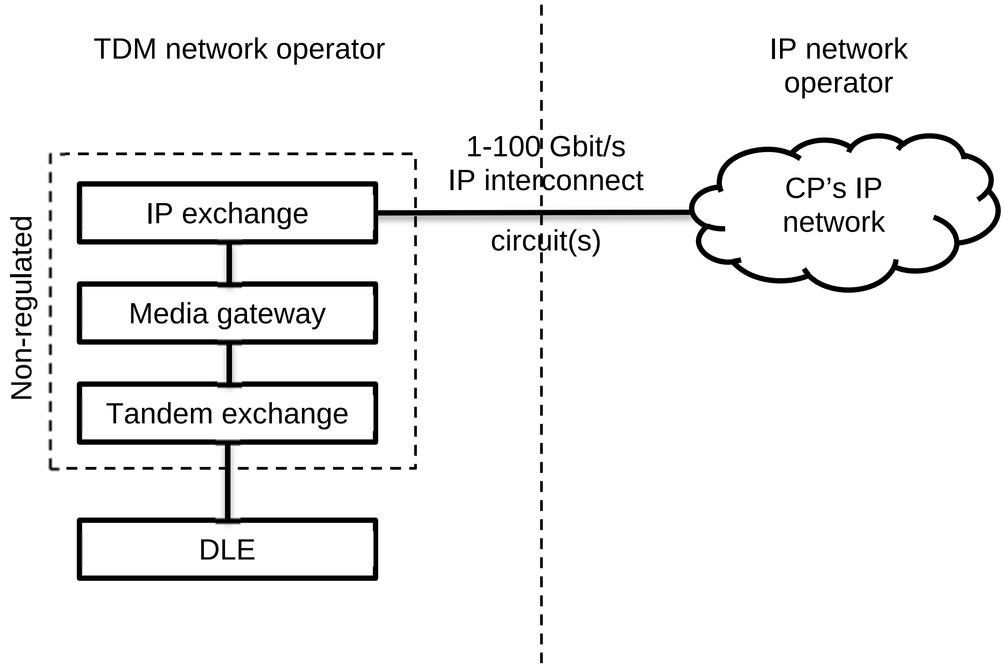
Figure 16.2: TDM interconnection between a TDM-based and an IP-based network.



Source: Ofcom.

16.20 Alternatively, as shown in Figure 16.3 below, the CP may connect via IP, even where the customer is ultimately connected to a TDM network. For example, a CP could connect to BT's IP service (IPEx). BT would then provide the media gateways and convey what would then be TDM traffic to the DLE. This approach minimises the network requirements on the CP that hands over IP traffic to BT. However, BT bears the additional costs of conveyance and conversion in this situation.

Figure 16.3: IP interconnection between a TDM-based and an IP-based network.



Source: Ofcom.

16.21 However, we might deviate from a technology-neutral approach if we considered that it was no longer efficient for TDM and IP networks to coexist. To assess this, we set out stakeholder views before considering the extent to which IP interconnect standards have developed, and examine the number of CPs still using TDM to connect end customers and whether TDM traffic has markedly diminished.

Stakeholders' views

16.22 Stakeholders expressed a range of views regarding interconnection technology choice in their responses to the April 2015 CFI. BT, Virgin Media and Colt stated a preference for regulation to be focused on TDM for the review period, FCS argued that any remedies imposed should apply to IP as well as traditional TDM[618], whereas Vodafone argued that regulation should be based on the assumption of IP technology[619] and [✂] argued that market definition and related regulation should prevent a situation where BT's dominance is transferred to IP interconnection.[620] KCOM also supported a review of technology choice "given the increasing use of IP interconnect"[621] and Verizon argued that we should set out a clear timetable as to when IP regulation will be appropriate.[622]

16.23 Although BT did not consider it necessary to regulate interconnection beyond what is covered by the General Conditions, it stated that if Ofcom considers some form of *ex ante* regulation is justified, it should continue to apply to TDM services and not IP.[623]

[618] FCS, April 2015 CFI response, question 4.1, p.3.
[619] Vodafone, April 2015 CFI response, page 3
[620] [✂].
[621] KCOM, April 2015 CFI response, response to Q4.1, page 3.
[622] Verizon, April 2015 CFI response, page 3.
[623] BT, April 2015 CFI response, page 9.

BT considered that CPs should continue to be free to negotiate their own arrangements for IP interconnection and TDM-IP conversion.[624] It stated that the requirements for regulated interconnection services should be limited to access at the DLE[625] and that it expected TDM technology to dominate local access well beyond the period covered by this market review.[626]

16.24 Virgin Media considered that, although there is likely to be a shift towards IP over the review period, regulation needs to fully account for existing efficient networks based on TDM architecture and should not penalise companies that are investing in modernising their networks.[627] Colt suggested reasons why migration from TDM to IP is slow[628] and did not believe that Ofcom should force this pace; it suggested that removal of regulation would be justified when BT achieves full migration.[629]

16.25 Verizon considered the situation has changed since the NMR 2013 and suggested that industry demand for IP supported a requirement on BT to provide IP-based interconnection.[630] Similarly, [✂] suggested that investment in IP networks should be promoted by removing regulatory protection around TDM and that the size and scale of BT's IPEx should be examined.[631]

16.26 Vodafone stated that the vast majority of requests it receives to interconnect are on an IP basis[632] and that it is increasingly difficult to source non-IP network equipment.[633] Vodafone argued that TDM networks are imposing inefficient costs on the majority of networks that have migrated or are migrating to IP, due to the requirement for conversion at BT's 600+ DLEs.[634] It argued that the shortcomings of IP interconnection are now minor and outstanding issues will largely be resolved by the time Ofcom's review concludes.[635]

16.27 Vodafone considered that it should be for terminating CPs with "legacy" (TDM) networks to either provide an interworking function to allow interconnection using IP (with a suitably efficient number of interconnect circuits) at their own cost, or for those CPs to negotiate with the originating/transit network to continue to interconnect using TDM on commercial terms.[636]

16.28 Three stakeholders (Colt, Post Office and Verizon) considered that the current approach to regulation of interconnect circuits was broadly appropriate and should continue.[637]

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[624] BT, April 2015 CFI response, page 7.
[625] BT, April 2015 CFI response, page 9.
[626] BT, April 2015 CFI response, page 3, paragraph 7.
[627] Virgin Media, April 2015 CFI response, page 4.
[628] Colt, April 2015 CFI response, paragraphs 2.2.4 and 2.2.2, pages 4, 7.
[629] Colt, April 2015 CFI response, paragraph 2.2.2, page 4.
[630] Verizon, April 2015 CFI response, response to Q4.2, page 3.
[631] [✂].
[632] Vodafone, April 2015 CFI response, page 27.
[633] Vodafone, *Input to Narrowband Markets Review: Technology choice and 24 hour rates*, pages 2-3.
[634] Vodafone, April 2015 CFI response, page 3, 26-28; Vodafone, *Narrowband Markets Review: Technology choice and 24 hour rates,* 23 October 2015, pp3-4.
[635] Vodafone, April 2015 CFI response, page 27.
[636] Vodafone, April 2015 CFI response, page 27; Vodafone, *Narrowband Markets Review: Technology choice and 24 hour rates,* 23 October 2015, pages 5-6.
[637] Colt, April 2015 CFI response, page 8; Post Office, April 2015 CFI response; Verizon, April 2015 CFI response, paragraph 19.

Ofcom's analysis

IP interconnection standards

16.29 In the NMR 2013, we considered that further development of IP interconnection standards was required.[638] In the UK, interoperability standards are typically developed by the Network Interoperability Consultative Committee (NICC). The development and adoption of these standards are crucial steps towards achieving effective and efficient interworking between communications networks.

16.30 Since the NMR 2013, the industry has standardised, through the NICC, most features required for effective interconnection between TDM and IP networks and for interoperability of narrowband services. Based on the information provided by NICC, we understand that ND1035[639] now supports the majority of call types.[640] Vodafone has indicated that it considers the areas not covered in ND1035 to be minor.[641] Our understanding is that these relate to certain aspects of emergency call delivery[642] and we would be concerned if there was a move to IP standards that did not fully support the UK implementation of emergency services. However, we understand that the issue relates to specific aspects of the emergency call service and this would not stop a migration of other, non-emergency traffic to IP. As such, we consider that barriers due to IP standards have significantly reduced since the last review and understand that these issues may be resolved by the time we conclude this review.[643]

Evidence of a trend towards IP-based interconnection

16.31 In order to better understand the pace of migration from TDM to IP technology and to inform our approach to the regulation of interconnection between TDM and IP networks, we used our statutory powers to gather data on different types of interconnect circuits, including volumes of voice traffic (in millions of minutes) carried over these circuits between BT and other CPs.[644]

16.32 BT provided historical and forecast data, clarifying that only short-term forecasts, which cover the current financial year, are agreed with other CPs. BT confirmed that it does intend to migrate some traffic from TDM interconnect circuits to IP interconnect circuits and provided its estimates with broad assumptions for the financial year 2016/17.

16.33 Figure 16.4 below shows the volumes of traffic (in millions of minutes) over BT's TDM and IP interconnect circuits separately, as well as the total (i.e. the sum of TDM and IP interconnect traffic) from 2013/14 to 2019/20.

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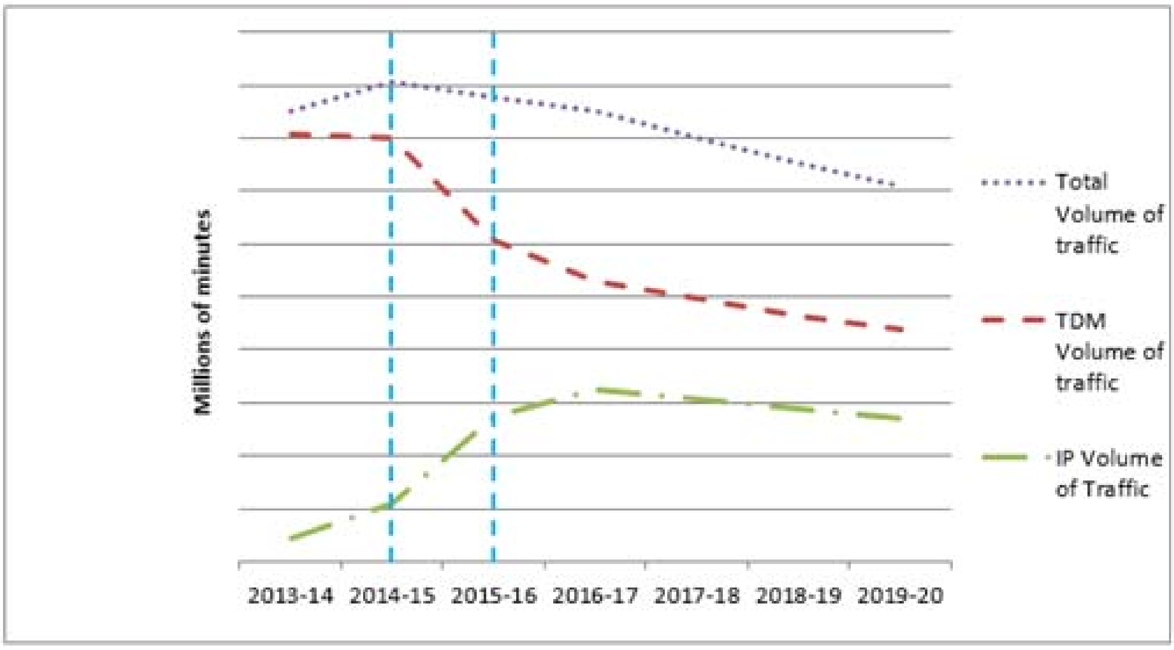
638 NMR 2013, paragraph A5.27.
639 NICC, *ND1035: SIP Network to Network Interface Signalling*, http://www.niccstandards.org.uk/files/current/ND1035V1.1.1.pdf?type=pdf
640 Meeting between NICC and Ofcom, 21 July 2015. Confirmed via email 06/01/2016.
641 Vodafone, April 2015 CFI response, page 27.
642 We note that Colt made a similar point in relation to the need for regulation of call origination. See Colt, April 2015 CFI response, paragraph 2.2.4.
643 Meeting between NICC and Ofcom, 21 July 2015. Confirmed via email 06/01/2016.
644 s.135 notices from various CPs.

Figure 16.4: Volumes of Traffic (in millions of minutes) between BT and other CPs



Source: BT's response to the 3rd s.135 notice, dated 10 July 2015.

Note: 2013/14 and 2014/15 data are actuals; 2015/16 onwards are BT's forecasts. Labels on Y-axis have been redacted for non-confidential version.

16.34 As Figure 16.4 shows TDM volumes of traffic between BT and other CPs is decreasing, while IP traffic is increasing. However, the majority of traffic remains on TDM. BT's forecasts for the next 1-2 years indicate continued steady migration to IP. They do not suggest full migration in the review period, but it should be noted that CPs do not appear to forecast migrations of traffic beyond a year or so.

16.35 Only two CPs, [✂] and [✂], were able to provide us with data on their estimated use of IP interconnect circuits, based on agreed plans with BT, in the review period. Also, only one CP [✂][645] was able to provide estimates on its agreed plans to use IP interconnect circuits with CPs other than BT. Nevertheless, a number of CPs[646] have expressed an intention to migrate voice traffic from TDM to IP and we expect migration to IP will continue during the review period. We also recognise that the current and forecast interconnection between BT and other CPs is influenced by our regulation and as such, a change in regulatory approach to focus on IP interconnect could accelerate the move to IP interconnect.

16.36 We have also considered interconnection between CPs other than BT. We note, in this context, Vodafone argues that the majority of requests it receives are now for IP interconnection rather than TDM.[647] Based on the limited availability of forecast data, we observe that volumes of IP traffic and the number of corresponding interconnect circuits between non-BT CPs have increased. However, we also note that the number of TDM circuits between non-BT CPs has also increased during the past three years[648], which indicates that CPs continue to see TDM as a viable option, at

[645] [✂].
[646] [✂].
[647] Vodafone, April 2015 CFI response, page 27.
[648] [✂].

least where existing route expansion is required; that is, they choose to expand existing TDM routes rather than replace them with IP.

TDM networks' plans for migration to IP

16.37 Despite the migration to IP that is underway for some CPs, BT has not yet carried out a migration of its narrowband services to IP. It has indicated that it is likely to commence this migration during the review period[649], with an intention to fully migrate to IP from TDM by 2025.[650] This means that BT will be providing WCT and WCO services at its DLEs for the duration of the review period and we expect the majority of BT's WCT/WCO traffic will continue to terminate or originate on its DLEs.

16.38 Similarly, Virgin Media, which has also historically provided access connections for a significant number of fixed residential voice customers in the UK, has not yet migrated to IP, although it has indicated that it plans to commence migration during the review period.[651]

16.39 KCOM indicated a technological transition period for its network until 2021. However, it had no confirmed plans to withdraw services running over its copper network and could not provide firm timelines for the transition from TDM to IP.[652]

16.40 Therefore, while some networks have already migrated to IP, others – including BT – still rely on TDM as an important technology with which they serve end consumers.

Impact of technology choice on the point of interconnection

16.41 As outlined above, industry has standardised most features required for effective interconnection between TDM and IP networks and for interoperability of narrowband services, supporting the majority of call types that account for most call volumes. We therefore consider that, while supporting certain services requires the completion of currently on-going standardisation work by NICC, the latter is expected to be completed by the time we conclude the review and is unlikely to represent a barrier to migrating narrowband traffic from TDM to IP.

16.42 Nonetheless, we recognise that the pace of migration to IP may vary by CP. Depending on their type of services, particular market segments and the corresponding investments in TDM or IP technology already made, each CP will seek to make the most efficient use of its assets and optimise its migration strategy. During such periods of technological transition, allowing CPs to follow an efficient migration strategy is important, so as to facilitate innovation and effective competition in the long term.

16.43 BT's and Virgin Media's networks rely on TDM technology to connect their end customers, which represent a significant proportion of the UK's narrowband services market. We recognise that both these networks are in the early stages of migration to IP, whereas later entrants and networks that focused on different geographic areas and/or customer segments, are further along the migration path.

[649] BT's response to 3rd s.135 notice.
[650] BT Group plc Q3 2014/15 results, 30 January 2015, slide 19, http://www.btplc.com/Sharesandperformance/downloads/PDFdownloads/q315-slides.pdf
[651] Notes from meeting with Virgin Media on 20 April 2015.
[652] KCOM's response to 1st NMR, WBA and WLA s135, dated 19 August 2016.

16.44 A history of infrastructure-based entry has led to the development of fixed access and calls markets with competing CPs using different technologies to serve their customer bases. Increasing competition has meant that fewer and fewer parts of the value chain are now subject to *ex ante* regulation, such that the majority of the revenues earned from serving fixed voice customers are now determined by competition between CPs with their own infrastructure. Moreover, fixed call volumes have declined in recent years, such that the costs of providing services to end consumers are increasingly dominated by the costs of the access line and the provision of broadband, rather than the provision of WCO, WCT and fixed voice interconnection at the terminating or originating node. As a result, we consider that CPs are likely to face significant commercial pressures to make efficient use of existing assets and this will be a factor in considering when these are decommissioned in favour of alternative infrastructure.

16.45 Where it is likely to be efficient for CPs to continue to exploit existing infrastructure (i.e. because the forward looking costs of an existing network with sunk assets may be lower than those of migrating to and replacing those assets), the continued use of different technologies is likely to be efficient.

16.46 At this stage, we remain of the view that TDM is likely to be an efficient technology choice, even if IP is what new entrants have deployed. This is because:

- the majority of voice traffic is still carried over TDM networks (and is forecast to remain so until 2020);
- as far as we are aware TDM networks represent a largely sunk asset with low forward-looking costs for this reason; and
- BT is not the only network operator currently using TDM.

16.47 Consistent with our approach to wholesale market definition, technology neutrality favours an approach in which we regulate in such a way that CPs purchasing interconnection can access the first node in the terminating (or originating) network where signals can be accessed by another CP. Therefore, recognising the different starting points of different networks and based on the continued significant use of TDM and the mixed evidence on migration plans provided by CPs, we consider that it remains appropriate for regulation of interconnection to be on the basis of the technology used by the terminating CP for the period of this review.

16.48 Irrespective of the technology choice of the terminating CP, a point of interconnection (PoI) must be made available at which CPs can interconnect to the termination service, without occurring additional transit costs on the terminating network. NGN technology allows the equipment which supports voice services to end customers to be separated from equipment providing the PoI. As such, CPs using NGN technology would need to identify the particular node at which interconnect is available for providing termination services to its customers. Where the terminating CP is using TDM, the relevant PoI would be the switch to which the called customer is connected. For BT, this would be the DLE.[653]

Cost of conversion

16.49 As explained above, where TDM and IP co-exist, conversion is required. Given our proposal to regulate on the basis of the technology used by the CP providing access

[653] The BT DLE would also be the relevant PoI for access to call origination services provided by BT.

to the end customer, we also need to consider the question of how the costs of conversion should be recovered.

16.50 In the NMR 2013, we explained our approach to the costs of conversion (interworking) between TDM networks and NGNs (and, to the extent required, between NGNs). We considered that the provision of conversion should, in the first instance, be agreed by commercial negotiation between interconnecting parties and we did not impose obligations related to the provision of conversion.[654]

16.51 We considered this issue in the context of Ofcom's six principles of pricing and cost recovery: distribution of benefits, cost causation, cost minimisation, effective competition, practicability and reciprocity. As we considered that the market for conversion could be contestable (e.g. for WCT, a CP other than the terminating network is able to provide conversion on behalf of another CP), we believed that relying on commercial agreement in the first instance was appropriate. We suggested that this could be on the basis of a cost-sharing approach.

16.52 We note submissions from stakeholders that the cost of conversion should be borne by the operator of the legacy technology[655] or left to commercial negotiation.[656] In the NMR 2013, we noted that in the event that such commercial negotiations were to fail, CPs would potentially be able to refer the matter to Ofcom as a regulatory dispute. This issue has not been formally raised with Ofcom by CPs since the NMR 2013 Statement.

16.53 Our view is that TDM and IP networks are likely to co-exist for the duration of this review, and this is unlikely to be inefficient. We therefore propose to maintain the approach taken in the NMR 2013, such that the provision of conversion should, in the first instance, be agreed by commercial negotiation between interconnecting parties. We do not propose *ex ante* obligations related to the provision of conversion.

16.54 In the case of interconnecting IP networks, costs of interworking may arise if the two IP networks support different standards. Again we would expect the parties to resolve this via commercial negotiation in the first instance. We would consider any dispute brought to us on the specific facts, but we would not ordinarily expect CPs seeking to interconnect using the relevant NICC standards to bear the costs of interworking to IP protocols not supported by NICC standards.

Proposals in relation to the provision of interconnect circuits by different CPs

Introduction

16.55 Having considered the approach to technology choice and the cost of conversion between TDM and IP, we now consider what this means for the specific regulation of different CPs.

16.56 As noted above, all CPs have obligations related to interconnection under GC1, which states that:

[654] NMR 2013 Statement, paragraph 10.5, A5.122-A5.124.
[655] [✂]; Vodafone, April 2015 CFI response, page 27.
[656] BT, April 2015 CFI response, page 9.

> "The CP shall, to the extent requested by another CP in any part of the European Community, negotiate with that CP with a view to concluding an agreement (or an amendment to an existing agreement) for Interconnection within a reasonable period."[657]

16.57 We now consider whether this is sufficient for CPs seeking to interconnect to BT, to KCOM and to other CPs.

BT

16.58 BT, like other CPs, is subject to GC1. In its CFI response, BT stated that it considers the requirements for efficient interconnection can be met by all CPs complying with GC1 and that specific regulation of BT's interconnect circuits is not necessary.[658]

16.59 However, we consider that GC1 alone is insufficient to ensure effective competition for calls to (and from) the BT TDM network. In relation to BT, an additional consideration to its SMP in WCO and WCT markets is the network effect deriving from its large customer base served by a very distributed set of terminating nodes. This means that CPs interconnecting with BT for WCO and WCT services need to connect to more than 600 DLEs. Because of this, in the absence of appropriate *ex ante* regulation of interconnect circuits, BT would be able to exercise the SMP it holds in relation to WCT in particular (but also in relation to WCO), through the pricing and/or provision of interconnection to these services. BT would also be in a position to discriminate between CPs by providing interconnect circuits to some CPs on less attractive terms than others.

16.60 Therefore, we propose that the circuits required to reach the terminating (and originating nodes) on the BT network are regulated. Specifically, we propose that BT should be subject to regulatory obligations to ensure that it provides interconnect circuits on reasonable request and on terms that are not unduly discriminatory to allow other CPs to effectively compete in downstream markets. 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;
- IEC, as this will then allow those CPs that have deployed ISIs to maximise their 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 call services in downstream markets.

16.61 Furthermore, we propose that BT should be required to provide IBCs to support the three circuit types described above.

16.62 As in the NMR 2013, we do not propose to regulate VICs. VICs are priced by reference to physical interconnect services and we discuss below our proposals for regulating these services.

[657] GC1, 1.1.
[658] BT, April 2015 CFI response, page 9.

16.63 In Section 17, we outline our proposals for general remedies to achieve this aim. In Section 18, we consider whether price regulation is also needed to address the competition concerns identified above.

KCOM

16.64 KCOM could seek to leverage its SMP in WCO into the provision of interconnect circuits. While KCOM's network does not have the same scale as BT's, we consider that it would still have the incentive and ability to refuse access to (or price excessively for) the nodes connecting its customers' access lines in the Hull Area over which KCOM is required to provide WCO.

16.65 In relation to WCT, we recognise that KCOM has a much smaller network of subscribers (as compared to BT and some other CPs) and has far fewer terminating nodes than BT, even though it operates a TDM network. Furthermore, WCT is a two-way access service and so, in contrast to WCO, KCOM will not only provide WCT, but also purchase WCT from other CPs. These features of the WCT market in relation to KCOM suggest it may be less likely to effectively leverage SMP in WCT into the provision of interconnect circuits (in contrast to BT). 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 WCT.

16.66 Due to the potential for KCOM to leverage its SMP in WCO, 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 as 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

16.67 WCT is a two-way access service. In theory, CPs could seek to leverage their SMP in WCT into the provision of interconnection. However, where two CPs are of similar scale and subject to identical regulatory obligations in the WCT market, and seek to purchase WCT from each other to support their downstream customers, we consider that there is less likely to be a competitive distortion requiring further ex-ante regulation.

16.68 Therefore, as in the NMR 2013, we propose that we do not need specific interconnect regulation beyond GC1 on CPs other than BT and KCOM.

Forward look

16.69 We anticipate that during the review period, BT will make progress on its plans for migration off its TDM network. When BT begins to migrate from TDM to IP, we expect it to take the initiative in discussions with CPs and to set out the IP interconnect products that CPs will be able to purchase in order to route traffic to its IP connected customers. In doing so however, BT should seek to avoid carrying out migration in a way that forces CPs to implement more complex routing in order to avoid BT's commercially provided transit and/or conversion.

16.70 Based on the data we have gathered, we expect that IP interconnect will become more significant. Whether there is a need for specific IP interconnection regulation to apply to BT (for example, charge controls on IP interconnect) will be dependent on the network architecture implemented by BT. For example, if a CP can interconnect to BT at a limited number of IP interconnect points, it may be that GC1 and/or obligations related to SMP markets such as WCT are sufficient such that further specific regulation of IP interconnect is unnecessary.

16.71 We note that Colt suggested that TDM regulation should only be removed when BT's migration is completed.[659] Vodafone also proposed an approach whereby a sunset date, 18 months after the end of the review, is placed on BT's ability to demand TDM interconnection so as to secure the regulated geographic termination rate.[660] Our view is that we should impose the minimum regulation required to address the potential market failure identified. Our decision on when to remove TDM interconnect regulation will take into account factors such as the number of customers still connected to TDM networks, the amount of traffic using those interconnects, and the wider costs/benefits compared with IP interconnect for the volume of fixed voice traffic at that time.

16.72 To the extent that KCOM migrates its network from TDM to IP, we would also expect KCOM to positively engage with other CPs, for the efficient migration of traffic to IP interconnect circuits.

Consultation question

Question 16.1: Do you agree with our approach to the regulation of interconnection? Please provide reasons and evidence in support of your views.

[659] Colt, April 2015 CFI response, paragraph 2.2.2, page 4.
[660] Vodafone, April 2015 CFI response, page 3.

Section 17

Remedies on BT and KCOM: interconnect circuits

Introduction

17.1 In Section 16 we explain why we consider it is necessary to regulate BT's and KCOM's provision of interconnect circuits. We consider interconnection regulation is needed to address our competition concerns arising out of BT's SMP in the WCO and WCT markets in the UK excluding the Hull Area, and KCOM's SMP in the WCO market in the Hull Area. In this section we therefore propose a number of obligations on BT and KCOM for their provision of interconnect circuits.

17.2 In summary, we propose to regulate BT's provision of interconnect circuits because the scale, extent and topology of its access network in the UK excluding the Hull Area is such that other CPs need to interconnect to it so as to enable the completion of calls to and from their networks. We consider that KCOM's access network in the Hull Area is such that it has the incentive and ability to refuse access to (or price excessively for) the nodes connecting its customers' access lines over which it is required to provide WCO.

17.3 In this section we set out our proposed remedies in relation to BT's and KCOM's interconnect circuits. Our proposal for a charge control on BT's provision of interconnect circuits is set out in Section 18.

17.4 We propose to reduce interconnection regulation on BT and KCOM in recognition of market developments and the maturity of the technology used. Specifically, we propose:

- removal of the requests for new forms of network access remedy on BT;
- removal of the no undue discrimination obligation in relation to KCOM; and
- removal of the requirement on BT and KCOM to notify technical information.

17.5 Table 17.1 summarises current and proposed remedies on BT and KCOM in relation to interconnect circuits.

Table 17.1: Summary of current and proposed remedies on BT and KCOM

	NMR 2013 remedies	Proposed remedies
BT	- Charge control - Provide network access on reasonable request - Requests for new forms of network access - Requirement not to unduly discriminate - Publish a Reference Offer - Requirement to notify charges - Requirement to notify technical information - Accounting separation - Cost accounting - Transparency as to quality of service	- Charge control - Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Accounting separation - Cost accounting - Transparency as to quality of service
KCOM	- Provide network access on reasonable request - Requirement not to unduly discriminate - Publish a Reference Offer - Notify changes to charges - Notify technical information	- Provide network access on reasonable request - Publish a Reference Offer - Notify changes to charges

17.6 We consider that these proposed remedies address the competition concerns we have identified, are consistent with our statutory duties and satisfy the relevant legal tests. In reaching these proposals we have taken account of recent developments in the relevant markets, the maturity of the technology, expected developments over the course of the review period and views expressed by stakeholders in response to our April 2015 CFI.

17.7 In the remainder of this section, we set out our competition concerns before considering in turn the remedies that we propose for BT and KCOM. Finally, we discuss the interconnection remedies that we propose to remove.

Competition concerns and approach to regulation

17.8 GC1 requires CPs to negotiate with a view to concluding an agreement for interconnection.[661] We consider that GC1 alone is insufficient to ensure effective competition for calls to (and from) BT and, in relation to KCOM, calls from its access lines.

17.9 An additional consideration, in relation to BT's SMP in the WCO and WCT markets, is the network effect deriving from its large customer base served by a highly distributed set of terminating nodes. This means CPs interconnecting to BT to access regulated WCO and WCT services need to connect to more than 600 DLEs. As we explain in Section 16, because of this, in the absence of appropriate *ex ante* regulation of interconnection, BT would be able to exercise the SMP it holds

[661] Ofcom, *Consolidated Version of General Conditions as at 28 May 2015 (including annotations).* Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0026/86273/CONSOLIDATED_VERSION_OF_GENERAL_CONDITIONS_AS_AT_28_MAY_2015-1.pdf.

(particularly in relation to WCT, but also in relation to WCO) through the pricing and/or provision of interconnect circuits. BT would also be in a position to discriminate between CPs by providing interconnect circuits to some CPs on less attractive terms than others.

17.10 In relation to KCOM, it could seek to leverage its SMP in WCO in the Hull Area into the provision of interconnect circuits. While KCOM's network does not have the same scale as BT's, we consider that it would still have the incentive and ability to refuse access to (or price excessively for) the nodes connecting its customers' access lines in the Hull Area over which it is required to provide WCO.

17.11 We therefore propose a number of remedies relating to BT's and KCOM's provision of interconnect circuits.

17.12 In their responses to the April 2015 CFI, some stakeholders commented on the regulation we should apply to interconnection. We address these comments in the discussion of proposed remedies below.

17.13 Overall, we consider that national and EU competition law remedies would be insufficient to address the competition problems we have identified. We therefore believe that it is appropriate to impose *ex ante* regulatory obligations on BT and KCOM in relation to their provision of interconnect circuits to address the competition concerns summarised above.

Proposed remedies on BT and KCOM

17.14 In this subsection we propose a number of remedies on BT and KCOM for their provision of interconnect circuits.

17.15 We assess each proposed remedy in turn by setting out:

- a summary of the existing and proposed requirements;
- the aim and effect of the proposed regulation;
- our proposals; and
- our consideration of the relevant legal tests for the proposed regulation.

Stakeholder comments

17.16 In its CFI response, BT raised concerns regarding the regulation of interconnection. BT considered its provision of interconnect circuits should be treated in the same way as KCOM's, i.e. a requirement to provide network access, no undue discrimination, a Reference Offer, and notice of charges and technical information. It considered there should be no requirements for accounting separation and cost accounting, or a charge control.[662] In contrast, Verizon said we should maintain the interconnection remedies that apply to BT; it considered that the reasons for imposing interconnection regulation discussed in the 2013 NMR Statement remain valid.[663]

17.17 As discussed in Section 16 and as noted above, in the absence of regulation of its interconnect circuits, BT could restrict access to other providers, which could in turn

[662] BT, April 2015 CFI response, page 9.
[663] Verizon, April 2015 CFI response, page 3.

restrict downstream competition. We therefore propose the remedies on BT's interconnect circuits summarised above and discussed in detail in the following paragraphs, in addition to a charge control which is explained in Section 18.

Requirement to provide network access on reasonable request

Current remedies

17.18 BT and KCOM are currently subject to a requirement to provide network access in relation to interconnect circuits on reasonable request.

17.19 KCOM is also required to provide access to interconnect circuits on the basis of fair and reasonable charges. As BT has been subject to a charge control, its obligation does not currently include the requirement to provide network access on fair and reasonable charges.

Aim and effect of regulation

17.20 This remedy is necessary as BT and KCOM could have an incentive not to provide interconnect circuits on a fair and reasonable basis, which would reduce the effectiveness of the remedies we have proposed on BT and KCOM for WCO and, on BT for WCT. The ability of competing CPs to request, and be provided with, interconnection services will facilitate competition in downstream markets by allowing other providers to offer competing end-to-end narrowband services.

Our proposals

17.21 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as Ofcom 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 for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions. Section 89(9) of the Act also authorises SMP services conditions imposing on the dominant provider such rules as they may make in relation to matters connected with the provision of network access about the recovery of cost and cost orientation, subject to the conditions of section 88 being satisfied.

17.22 The proposed condition will require BT and KCOM to meet reasonable requests to provide access to interconnection and to provide such access on fair and reasonable terms and conditions.

17.23 In its April 2015 CFI response, Sky stated that it had experience of BT refusing to offer new forms of interconnect circuits and added that deregulation in this area could serve to provide greater scope for BT to refuse to provide interconnection circuits.[664] We have considered the risk that deregulation of BT's interconnect circuits could lead to a refusal to provide network access, and we are hence proposing that BT should be required to meet reasonable requests to provide network access.

17.24 We also propose that this obligation applies to charges, except where a charge control is in place (see Section 18 for our proposals to charge control BT's interconnect circuits). This ensures that BT provides interconnect circuits on fair and

[664] Sky, April 2015 CFI response, page 3.

reasonable charges in the event that the proposed charge control lapses before the completion of the next market review.

17.25 We do not consider that it would be appropriate to impose a charge control on KCOM's provision of interconnection circuits given the low volume of supply. Therefore, we propose a fair and reasonable charges obligation will apply to KCOM for the entirety of the market review period.

Legal tests

17.26 For the reasons set out below, we are satisfied that the proposed network access conditions for BT's and KCOM's provision of interconnect circuits meet the various tests set out in the Act.

17.27 Section 87(3) of the Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide network access as Ofcom may from time to time direct. Section 87(9) of the Act also authorises SMP services conditions imposing on the dominant provider: such price controls as Ofcom may direct in relation to matters connected with the network access and about the recovery of costs and cost orientation, subject to the conditions of section 88 of the Act being satisfied.

17.28 In proposing these conditions, we have taken into account the factors set out in section 87(4) of the Act. When considering the imposition of such conditions in a particular case, we must take into account the following six factors set out in section 87(4):

- the technical and economic viability (including the viability of other network access products, whether provided by the dominant provider or another person), having regard to the state of market development, of installing and using facilities that would make the proposed network access unnecessary;

- the feasibility of the provision of the proposed network access;

- the investment made by the person initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed (taking account of any public investment made);

- the need to secure effective competition (including, where it appears to Ofcom to be appropriate, economically efficient infrastructure based competition) in the long term;

- any rights to intellectual property that are relevant to the proposal; and

- the desirability of securing that electronic communications services are provided that are available throughout the Member States.

17.29 In reaching our proposal that BT and KCOM should be subject to a requirement to provide network access on reasonable request, we have taken all of the above six factors into account. In particular, having considered the economic viability of building access networks to achieve ubiquitous coverage that would make the provision of interconnect circuits unnecessary, we consider that the SMP condition is required to secure effective long-term downstream competition.

17.30 In proposing to impose a fair and reasonable charges obligation, we are also required to ensure that each proposed condition satisfies the tests set out in section 88 of the Act.

17.31 Section 88(1)(a) of the Act requires that Ofcom must not impose pricing 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 charges to be fair and reasonable, BT and KCOM may price excessively. Therefore, we consider that it appears to us from the market analysis that there is a relevant risk of adverse effects arising from price distortion in that BT and KCOM might fix or maintain some or all prices at excessively high levels so as to have adverse effects for end users of public electronic communication services.

17.32 Section 88(1)(b) of the Act requires that the pricing condition should be appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on consumers of public electronic communications services.

17.33 We consider that fair and reasonable charges will prevent BT (where the proposed charge control does not apply) and KCOM from charging excessively. In this way, this proposed condition supports the aim of promoting sustainable competition and consumer benefits.

17.34 We consider that the provision of access to interconnect circuits on fair and reasonable terms will promote sustainable competition by ensuring that there is no distortion or restriction of competition and that other CPs can effectively compete downstream. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end customers of the services.

17.35 We are also required, under Section 88(2) of the Act, to consider BT's and KCOM's investment in the matters to which the conditions we are proposing relate. We believe that fair and reasonable charges will allow costs to be taken into account and will also provide for common cost recovery. Each condition is therefore an appropriate basis upon which to control BT's (in the event that the proposed charge control lapses before the completion of the next market review) and KCOM's prices.

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

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

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

17.39 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In relation to the provision of interconnect circuits, each 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 and KCOM's networks;

- not unduly discriminatory given the scale, extent and topology of BT's network and its presence in the markets for WCT and WCO and, for KCOM, given its position as the dominant provider of WCO in the Hull Area.

- proportionate since without such an obligation BT and 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 either to provide access where it is not technically feasible or reasonable; and

- transparent as it is clear the intention is to ensure that BT and KCOM provide access to their networks in order to facilitate competition.

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

Requirement not to unduly discriminate

Current remedies

17.41 BT and KCOM are currently under an obligation not to unduly discriminate in the provision of interconnect circuits.

Aim and effect of regulation

17.42 We consider that, in order to meet our objective to promote efficient and sustainable competition at the wholesale level, a non-discrimination SMP condition on BT is necessary.

17.43 BT could have the incentive (and would have the ability given its SMP and the scale and reach of its network) to discriminate selectively between competing providers by setting different terms and conditions for different CPs for the provision of interconnect circuits. For example, where a CP was a strong competitor in certain conveyance and transit markets or other downstream markets reliant on WCT (and/or WCO), BT could have an incentive to price higher (or hinder the connection or repair of circuits) relative to other CPs that posed less of a competitive threat. This could have the effect of restricting or distorting competition in those downstream markets.

Our proposals

17.44 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.

17.45 We propose a condition on BT not to unduly discriminate in relation to the provision of interconnect circuits.

17.46 We do not propose to apply the no undue discrimination obligation (or any other form of non-discrimination obligation) to KCOM's provision of interconnect circuits. In Section 10 we set out our proposal not to apply a no undue discrimination remedy to KCOM in the WCO market and, because the regulation of interconnect circuits is specifically designed to support this remedy in the Hull Area, we do not propose an obligation of no undue discrimination in relation to KCOM's interconnect circuits.

<u>Legal tests</u>

17.47 For the reasons set out below, we are satisfied that the proposed condition for BT in respect of the provision of interconnect circuits meets the various tests set out in the Act. As explained above, sections 87(6)(a) authorises the SMP condition we propose to make.

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

17.49 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 downstream competition.

17.50 We also 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 downstream markets for access and calls by ensuring that BT does not unfairly favour particular third parties and therefore distort competition.

17.51 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable as it ensures that competitors, and hence consumers, are not disadvantaged by BT discriminating between competing providers;

- not unduly discriminatory in that it reflects the circumstances of BT with regard to the scale, extent and topology of its access network, and its level of vertical integration;

- proportionate in that in that it is the least restrictive means of ensuring that BT does not discriminate in providing network access 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.

17.52 Article 9(4) of the Access Directive requires that, where network access obligations are imposed, NRAs should ensure the publication of a Reference Offer containing at least the elements set out in Annex II to that Directive. We are satisfied that this requirement is met.

17.53 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

17.54 The requirements for the transparency of charges, terms and conditions in markets in which one operator is dominant are complementary remedies to ensure that third party CPs are able to make effective use of the dominant provider's network access.

17.55 BT and KCOM are currently subject to three transparency obligations in respect of interconnection. They are:

- a requirement to publish a Reference Offer;
- a requirement to notify changes to charges in advance; and
- a requirement to notify technical information.

17.56 In the following sub-sections, we discuss our proposed requirements to publish a Reference Offer and to notify changes to charges. As we explain at the end of this section, we are not proposing to impose a requirement on BT or KCOM to notify technical information.

Publish a Reference Offer

Current remedies

17.57 BT and KCOM are currently required to publish a Reference Offer in relation to the provision of interconnect circuits.

Aim and effect of regulation

17.58 The main reasons for requiring the publication of a Reference Offer are to assist with transparency in monitoring potential anti-competitive behaviour and to give visibility to the terms and conditions on which other providers can purchase wholesale access services. The publication of a Reference Offer therefore helps to ensure stability in markets and ensures that incentives to invest would not be undermined.

17.59 Additionally, the publication of a Reference Offer allows for faster negotiations and can help to avoid possible disputes. Where a non-discrimination requirement applies, as in the case of BT, the publication of a Reference Offer gives confidence to those purchasing wholesale services that they are being provided on non-discriminatory terms.

Our proposals

17.60 Section 87(6)(c) of the Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such a 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. 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.

17.61 We propose to retain the condition on BT and KCOM to publish a Reference Offer for their provision of interconnect circuits.

17.62 As we are proposing to give KCOM more flexibility on terms and conditions in relation to its provision of interconnect circuits by removing the no undue discrimination remedy, we consider that the proposed requirement to publish a Reference Offer should apply to KCOM's standard contract in this market. While we acknowledge that some CPs may negotiate terms and conditions that differ from KCOM's standard contract for the same services, we expect that others may continue to use on the standard terms and conditions, and therefore consider it is important for transparency for changes to KCOM's standard contract to be published.

17.63 We consider it appropriate for the published Reference Offer to include:

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

Legal tests

17.64 For the reasons set out below, we are satisfied that the proposed conditions for BT and KCOM in respect of the provision of interconnect circuits meets the various tests set out in the Act. As explained above, sections 87(6)(c), (d) and (e) authorise the SMP condition we propose to make.

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

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

17.67 We also consider that each proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, they promote competition and encourage the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition for the maximum benefit of consumers.

17.68 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In relation to the provision of interconnect circuits, each proposed condition 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;

- not unduly discriminatory as it reflects the scale, extent and topology of BT's network and its presence in the markets for WCT and WCO and, for KCOM, given its position as the dominant provider of WCO in the Hull Area;

- proportionate in that BT and KCOM are only required to provide the information necessary to ensure there is no material adverse effect on competition, and the information allows CPs to make decisions about which interconnect circuits to purchase; and

- transparent, in that the condition is clear in its intention that BT and KCOM publish details of their interconnection offering.

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

Requirement to notify changes to charges

Current remedies

17.70 BT and KCOM are required to give 56 days' notice of changes to charges for the provision of interconnect circuits.

Aim and effect of regulation

17.71 The advance notice of changes to charges at the wholesale level assists transparency by providing advance notice of changes to charges for competing providers who purchase wholesale access services. Advance notice of changes to charges therefore helps to ensure stability in markets, without which incentives to invest might be undermined and market entry made less likely, resulting in a detrimental effect on downstream competition.

Our proposals

17.72 Section 87(6)(b) of the Act authorises the setting of SMP services conditions which require a dominant provider to publish, in such manner as Ofcom may direct, all such information, for the purpose of securing transparency. 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.

17.73 We propose that it is appropriate for BT and KCOM to be subject to an obligation to notify (by means of a published notice) changes to charges for the provision of interconnect circuits.

17.74 As concerns KCOM, as we are proposing to give it more pricing flexibility relation to the provision of interconnect circuits by removing the no undue discrimination obligation, the proposed requirement to notify changes to charges would only apply to KCOM's published standard charges for interconnection services. While we acknowledge that some CPs may negotiate charges that differ from KCOM's standard charges for the same services, we expect that others may continue to rely on the standard charges and therefore consider it is important for transparency for changes to KCOM's standard charges to be notified in advance.

17.75 We consider that the notice should include:

- a description of the access service;
- the location of terms and conditions in the Reference Offer;
- the effective date or period from which the changes will have effect; and
- the current and proposed charge.

17.76 In the NMR 2013, we reduced the notice period from 90 days to 56 days.[665] As for WCO in Sections 7 and 10, we have considered whether this notice period remains appropriate. We did not receive any information in response to the April 2015 CFI that suggests 56 days is not a sufficient period of time to notify of changes in charges in relation to the provision of interconnect circuits and are not aware of a strong justification for doing so. We therefore continue to consider a 56-day period appropriate.

Legal tests

17.77 For the reasons set out below, we are satisfied that the proposed SMP conditions for BT and KCOM meet the various tests set out in the Act. As explained above, sections 87(6)(b) and (d) authorise the SMP conditions we propose to make.

17.78 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

17.79 We have considered our statutory obligations and the Community requirements under section 3 of the Act. In particular, the proposed obligations would facilitate service interoperability. The proposed obligations would promote the interests of purchasers of interconnection services by enabling them to adjust their downstream offerings in competition with BT and KCOM, in response to changes in their charges. Finally, the proposed obligations would make it easier for Ofcom and competitors to BT to monitor any instances of discrimination.

17.80 We also consider that each proposed condition meets the Community requirements set out in section 4 of the Act. In particular, each proposed condition would promote 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.

17.81 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. In relation to the provision of interconnect circuits, each proposed condition is:

- objectively justifiable, because visibility of BT's and KCOM's charges is necessary to enable competitors to set prices for their services that are based on

[665] Ofcom, *Review of the fixed narrowband services market*, 26 September 2013, paragraphs 6.181-6.183. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0014/50720/final_statement.pdf.

purchasing the regulated inputs. It also allows Ofcom and other CPs to monitor BT's and KCOM's charges for possible anti-competitive behaviour;

- not unduly discriminatory as we propose to impose it on BT and KCOM only, for which we consider the provision of interconnect circuits is required to allow remedies imposed in the WCO and (for BT only) WCT markets to function effectively;

- 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 and KCOM notify those CPs that purchase interconnect circuits of changes to charges.

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

Approach to regulatory financial reporting

17.83 In the following sub-sections, we explain why we propose accounting separation and cost accounting obligations on BT for the provision of interconnect circuits. We propose to implement these obligations by way of a single SMP Condition (draft SMP Condition 10). We do not currently require, and are not proposing, accounting separation and cost accounting obligations on KCOM for the provision of interconnect circuits.

17.84 Our proposed accounting separation and cost accounting obligations are underpinned by detailed requirements for regulatory financial reporting which specify what information we require BT to prepare and provide in each market.

17.85 In the 2014 Regulatory Financial Reporting Statement[666] we set out our conclusions on the regulatory financial reporting policy that should be applied to BT across all regulated markets and the changes to the framework for BT's regulatory financial reporting. In Annex 2 to the 2014 Regulatory Reporting Statement we set out pro-forma SMP conditions which would implement the policy decisions made in that statement. We explained that in order to preserve the integrity and consistency of BT's Regulatory Financial Reporting, we considered that our starting point should be that the changes we proposed should be implemented across all regulated markets, subject to this being appropriate in light of the market analysis in each review. We noted that there were significant advantages to BT and other stakeholders of BT applying one set of accounting rules across all markets and we also noted that BT was broadly supportive of the principle of applying a consistent approach across all markets.[667]

17.86 Consistent with this approach, we have therefore considered whether regulatory financial reporting obligations are appropriate for interconnect circuits and, to the

[666] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.
[667] Ibid., paragraphs 7.15-7.19.

extent that they are, whether the pro-forma SMP conditions are appropriate in light of our market analysis.

17.87 For the reasons explained below and noting the benefits of applying a consistent approach across all markets, our provisional view is that it is appropriate to impose regulatory financial reporting obligations on interconnect circuits, subject to a minor modification. We also note that in the 2015 Directions Statement, we set out the necessary directions to give effect to other decisions made in the 2014 Regulatory Reporting Statement about changes to BT's reporting requirements. We discuss these further, and our proposals in respect of these, in Section 19.

Accounting separation: BT

Current remedies

17.88 BT is currently subject to accounting separation obligations for the provision of interconnect circuits.

Aim and effect of regulation

17.89 As set out in Section 7, the accounting separation obligation requires BT to report financial information for individual markets and services, providing a greater level of detail than that derived from statutory accounts. The accounting separation obligation also requires BT to report separately for external sales, which allows Ofcom and other stakeholders to monitor the activities of BT to ensure that it does not discriminate unduly. In practice these obligations require BT to produce financial statements that reflect the performance of the regulated wholesale markets as though they were separate businesses.

Our proposals

17.90 Under sections 87(7) and 87(8), the dominant provider may be required to maintain a separation for accounting purposes between such different matters relating to network access or the availability of relevant facilities.

17.91 We propose an accounting separation obligation on BT in relation to its provision of interconnect circuits. We consider that this obligation is necessary to monitor the overall impact and effectiveness of the remedies proposed in Table 17.1 and, in particular, to monitor BT's activities with regard to our proposed non-discrimination obligations. The proposed obligation is also necessary to support transparency by providing a greater detail of information on the relevant markets than that derived from BT's statutory financial statements and give visibility, and thus reassurance, to stakeholders that BT has complied with its SMP conditions and allow them to contribute to the regulatory regime.

17.92 We therefore propose that accounting separation requirements should apply to BT for the provision of interconnect circuits.

17.93 In respect of the specific form of the accounting separation requirements we are proposing for BT in in relation to interconnect circuits we propose the form of condition set out in the 2014 Regulatory Financial Reporting Statement but modified to remove the reference to the Regulatory Accounting Guidelines. This form of condition implements our policy decisions on regulatory financial reporting set out in that statement.[668] The purpose of the condition is to: give Ofcom a greater role in the way that BT prepares its regulatory financial statements;[669] improve the presentation of the published regulatory financial statements and supporting documentation;[670] and ensure that Ofcom and other stakeholders have the information they need.

Legal tests

17.94 For the reasons set out below, we are satisfied that the proposed condition for BT in respect of the provision of interconnect circuits meets the various tests set out in the Act. As explained above, sections 87(7) and (8) authorise the SMP condition we propose.

17.95 We consider that each proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

17.96 We consider that this proposal meets our duties under sections 3 and 4 of the Act. We consider that the imposition of an accounting separation obligation protects competition in relation to the provision of electronic communications networks and services, ensuring the provision of network access and service interoperability for the purposes of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the obligation would ensure that other obligations designed to curb potentially damaging leverage of market power, can be effectively monitored and enforced.

17.97 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, we believe section 4(8) is met, as the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services in that it helps to ensure that the dominant provider complies with other obligations.

17.98 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, as it relates to the need to ensure competition develops fairly to the benefit of consumers;
- not unduly discriminatory as we are proposing a number of remedies on BT as a consequence of its unique position in WCT and WCO (reinforced by the scale and topology of its network);
- proportionate, in that it is the least onerous obligation necessary as a mechanism to allow us and third parties to monitor the impact and effectiveness of the remedies proposed and monitor potentially discriminatory behaviour by BT; and
- transparent, in that it is clear that the intention is to monitor the impact and effectiveness of the remedies proposed, and the particular accounting separation requirements of BT are clearly documented within the SMP condition.

[668] Ofcom, *Regulatory Financial Reporting Statement,* 20 May 2014, page 1. Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf.
[669] This included establishing new Regulatory Accounting Principles (including a requirement for consistency with regulatory decisions) and a change control process whereby BT is required to notify us about proposed changes to its regulatory accounting methodology.
[670] This included a requirement on BT to publish annual reconciliation reports that show the impact of material changes and errors.

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

Cost accounting: BT

Current remedies

17.100 BT is currently subject to cost accounting obligations for the provision of interconnect circuits.

Aim and effect of regulation

17.101 As set out in Section 7, cost accounting obligations require the dominant provider to maintain a cost accounting system to capture the costs, revenues, assets and liabilities associated with the provision of services and to attribute them in a fair, objective and transparent manner to individual services in order that the costs of individual markets and services may be determined. The cost accounting obligation is an important means of ensuring that:

- Ofcom and stakeholders can have confidence in the financial information prepared and provided by BT on individual markets and services since the attribution processes and rules supporting that financial information are fair, objective and transparent. Where we do not consider that the attribution process and rules are fair and objective, transparency (via publication of the processes and rules followed by BT) allows us to effectively challenge them. In turn, this helps assess the impact and effectiveness of the charge control.

- Revenues and costs are attributed to individual markets and services in a consistent manner. This mitigates the risk of double recovery of costs or that costs might be unfairly loaded onto particular products or markets.

  - 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.

Our proposals

17.102 Section 87(9) to (11) (subject to section 88) of the Act authorises Ofcom to impose appropriate cost accounting obligations on dominant providers, in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities. We propose cost accounting requirements on BT with regard to its provision of interconnect circuits. We consider that this obligation is necessary to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent.

17.103 In respect of the specific form of the cost accounting requirements we are proposing for BT in these markets we propose the form of condition set out in the 2014 Regulatory Financial Reporting Statement but modified to remove the reference to the Regulatory Accounting Guidelines.[671] This form of condition implements our

[671] As explained in the 2016 BCMR Statement, we no longer consider that it would be useful to establish high level guidelines and accounting rules in the Regulatory Accounting Guidelines by way of direction. Where we find concerns about BT's detailed application of cost attribution rules, in line

policy decisions on regulatory financial reporting set out in that statement. The purpose of the condition is to: give Ofcom a greater role in the way that BT prepares its regulatory financial statements; improve the presentation of the published regulatory financial statements and supporting documentation; and ensure that Ofcom and other stakeholders have the information they need.

Legal tests

17.104 For the reasons set out below, we are satisfied that the proposed condition for BT in respect of the provision of interconnect circuits meets the various tests set out in the Act. As explained above, sections 87(9), (10) and (11) authorises the SMP condition we propose to make.

17.105 Section 87(9)(c) authorises conditions imposing such rules as we may make for the purposes of matters connected with the provision of network access to the relevant network, or with the availability of relevant facilities about the use of cost accounting systems. Such conditions include conditions requiring the application of presumptions in the fixing and determination of costs and charges for the purposes of the price controls, rules and obligations imposed by virtue of that subsection (section 87(10)). Where such conditions are imposed, section 87(11) imposes a duty on us to set an SMP condition which imposes an obligation: to make arrangements for a description to be made available to the public of the cost accounting system used in pursuance of that condition; and to include in that description details of:

- the main categories under which costs are accounted for; and
- the rules applied for the purposes of that system with respect to the allocation of costs.

In setting such conditions, we must be satisfied that the conditions about network access pricing set out in section 88 are also satisfied.

17.106 We consider our proposal meets the conditions in section 88, in that it would address the risks of excessive pricing, and promote efficiency and sustainable competition, to the benefit of consumers, and would not undermine investment by BT. We propose to impose a charge control on BT's provision of interconnect circuits.

17.107 We consider that imposing a cost accounting obligation is necessary for our charge control obligation to work, and that imposing a cost accounting obligation is consistent with section 88.

17.108 We consider that the proposed condition fulfils our duty under section 87(11) in that the cost accounting obligation require the publication of a description of the cost accounting system used and the main categories of cost and the cost allocation rules applied.

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

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with what we have done in the BCMR 2016 we will direct BT as to the specific reporting requirements consistent with the Regulatory Accounting Principles arising from each regulatory decision. We therefore proposed amending the proposed conditions to reflect our decision not to issue the Regulatory Accounting Guidelines. The proposed conditions therefore require BT to prepare the RFS in accordance with the SMP conditions, the Regulatory Accounting Principles and the Accounting Methodology Documents.

17.110 We have considered our duties under section 3 of the Act. In particular, we consider that the imposition of the proposed cost accounting obligations 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 (including supporting ancillary services) 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 obligation complements the accounting separation remedy (by ensuring the costs attributed to interconnect circuits are fair, objective and transparent) and will thereby ensure that other obligations designed to curb potentially damaging leverage of market power can be effectively monitored and enforced.

17.111 We also consider that the proposed condition meets the Community requirements as set out in section 4 of the Act. In particular, 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 efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers. Also, the proposed cost accounting obligation can help monitor the impact and effectiveness of the charge control by ensuring that costs attributed to interconnect circuits are fair, objective and transparent.

17.112 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, in that it is necessary to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent. This helps ensure the appropriate maintenance and provision of accounts in order to monitor BT's activities with regard to the pricing remedies we propose;

- not unduly discriminatory as BT holds a unique position in WCT and WCO (reinforced by the scale and topology of its network);

- proportionate, in that the obligation is required in order to ensure that the processes and rules used by BT to attribute revenues and costs to individual markets and services are fair, objective and transparent; and

- transparent, in that it is clear in its intention to ensure the appropriate maintenance and provision of accounts for the purposes set out above and the particular cost accounting requirements of BT are clearly documented.

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

Transparency as to quality of service: BT

Current remedies

17.114 BT is currently required to provide transparency as to QoS for its provision of interconnect circuits. This obligation requires BT to publish such QoS information as Ofcom may direct.

Aim and effect of regulation

17.115 The intention of the transparency of QoS 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 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.

Our proposals

17.116 We consider that service provision and fault repair are critical areas in which to maintain transparency of BT's service levels. These areas remain key to monitoring the effectiveness of the access and (for WCT only) no undue discrimination remedies which we propose.

17.117 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 17.2 below:

Table 17.2: BT's non-discrimination KPIs in relation to interconnect circuits[672]

	Proposed KPIs to be reported by BT
Interconnection	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.

17.118 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.

Legal tests

17.119 Section 87(6)(b) of the CA03 authorises the setting of SMP services conditions which require a dominant provider to publish, in such manner as Ofcom may direct, all such information, for the purpose of securing transparency. For the reasons set out below, we are satisfied that the proposed condition and direction for BT in respect of the provision of interconnect circuits meets the various tests set out in the Act.

17.120 We consider that the proposed condition meets our statutory obligations and the Community requirements under sections 3 and 4 of the Act.

672 See Annex 5 for definitions of these terms.

17.121 We consider that, in ensuring the network access that third party CPs receive from BT allows them 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.

17.122 We have also 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.

17.123 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition (including a provision continuing the KPI Directions on BT's provision of interconnect circuits) is:

- objectively justifiable, in that it aims to prevent undue discrimination in the provision of service by requiring BT to publish quality of service information about the service it provides to itself and to other providers;

- not unduly discriminatory, in that it is proposed for BT and no other operator holds the same position as BT in relation to WCT and WCO in the UK excluding the Hull Area;

- proportionate, in that it only requires BT to publish information as directed by Ofcom in the event we consider such information is required to monitor BT's compliance with access and no undue discrimination obligations, which is the minimum condition to ensure the desired objective; and

- Transparent, in that it is clear in its intention that BT is required to publish quality of service information.

17.124 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.

Remedies on BT and KCOM that we propose to remove

Requests for new forms of network access: BT

17.125 In previous market reviews we imposed on BT a process for requests for new forms of network access in relation to the provision of interconnect circuits. We are now proposing to remove this remedy in recognition of the maturity of BT's TDM network and the provision of calls over it.[673]

17.126 The remedy in relation to new forms of network access is intended to support access seekers and ensure that there is a reasonable and transparent process for assessing requests from them. However, as BT's TDM network is mature and well established, the case for requiring BT to set out a process for new requests is weaker than at the time of previous market reviews. Therefore, we no longer consider it necessary to prescribe the process that BT should follow in responding to such requests. In the event that an access seeker does require a new form of access, the access seeker

[673] It should be noted that, if BT intends to migrate its wholesale narrowband services to IP, we would expect it to engage with industry about replacement products in sufficient time. This is likely to be a much longer and more significant process than what was imposed under previous obligations.

will still be able to request this under the general access remedy and BT will be required to assess if the request is reasonable.

Notify technical information: BT and KCOM

17.127 In previous market reviews we imposed an obligation on BT and KCOM to notify technical information in relation to their provision of interconnect circuits. The notification of technical information remedy was designed to ensure that competing providers had sufficient time to respond to technical changes that may affect them. We are now proposing to remove this remedy as we do not think it is necessary in recognition of the maturity of BT's and KCOM's TDM networks and the provision of calls over them.

No undue discrimination: KCOM

17.128 As explained in Section 10, we propose to lift the no undue discrimination in relation to WCO for KCOM. Because the regulation of interconnect circuits is specifically designed to support this remedy in the Hull Area (whereas in relation to BT it is designed to support the effectiveness of the WCT remedy also), we do not propose an obligation of no undue discrimination in relation to KCOM. We consider that the fair and reasonable access obligation, coupled with the transparency obligations described earlier, are likely to provide sufficient protection to effective competition in WCO in the Hull Area.

17.129 We also note that KCOM's conduct would, in any case, need to be compliant with competition law given its dominant position in relation to WCO.

Consultation questions

Question 17.1: Do you agree with the remedies we propose in relation to BT's interconnect circuits? Please provide reasons and evidence in support of your views.

Question 17.2: Do you agree with the remedies we propose in relation to KCOM's interconnect circuits? Please provide reasons and evidence in support of your views.

Section 18

Price regulation of BT's interconnect circuits

Summary of proposals

18.1 In this section we set out the options and our preferred approach with respect to price regulation of BT's TDM interconnect circuits at terminating or originating switches, this is, in general BT's DLEs in the United Kingdom, excluding the Hull Area.

18.2 We propose to implement the following charge controls in relation to BT's TDM interconnect circuits at the DLE:

- a cap on the interconnect services basket (ISB)[674] that is in the range 0% to CPI+5% annual change in the basket average price (i.e. CPI+X, where we are consulting on X in the range -CPI to 5%); and

- sub-caps on individual ISB services in the range +5% to +10% on top of the ISB cap (i.e. CPI+X+Y, where we are consulting on Y in the range 5% to 10%).

18.3 We do not propose charge controls on any other CP's interconnect circuits, including KCOM.[675]

18.4 The rest of this section is set out as follows:

- introduction on BT's TDM interconnect circuits, the 2013 NMR, developments since the 2013 NMR, stakeholder responses to the April 2015 CFI; and

- price regulation options, our proposals and analysis of charge controls of TDM interconnect circuits provided by BT at the DLE, including the cost standard, the level of charges and other charge control details, and the relevant legal tests.

Introduction

2013 NMR

18.5 In the 2013 NMR Statement, we set the charge control for the ISB with reference to the LRIC+ cost standard. We recognised that the majority of interconnect circuits carry both WCO and WCT traffic and in the remedies for WCO considered that it was reasonable for these charges to contribute to common costs, including those no longer recovered from FTRs at LRIC. We considered whether it would be appropriate to set charges for interconnect circuits only used for termination traffic at LRIC, and concluded that it would not, because of the complexity involved in developing pricing

[674] The ISB includes three types of interconnect circuits that BT provides: ISI, IEC and CSI, plus IBCs which are required for any form of TDM interconnect. See "Overview of interconnect circuits currently provided by BT and KCOM" in Section 16 for further details. The full list of individual services in the ISB is included in the Annex to Condition 5D, as set out in Annex 6 of this Consultation.
[675] See Section 10 for the remedies on KCOM.

rules for different types of circuits and the possibility that splitting circuits could lead to an inefficient use of circuits.[676]

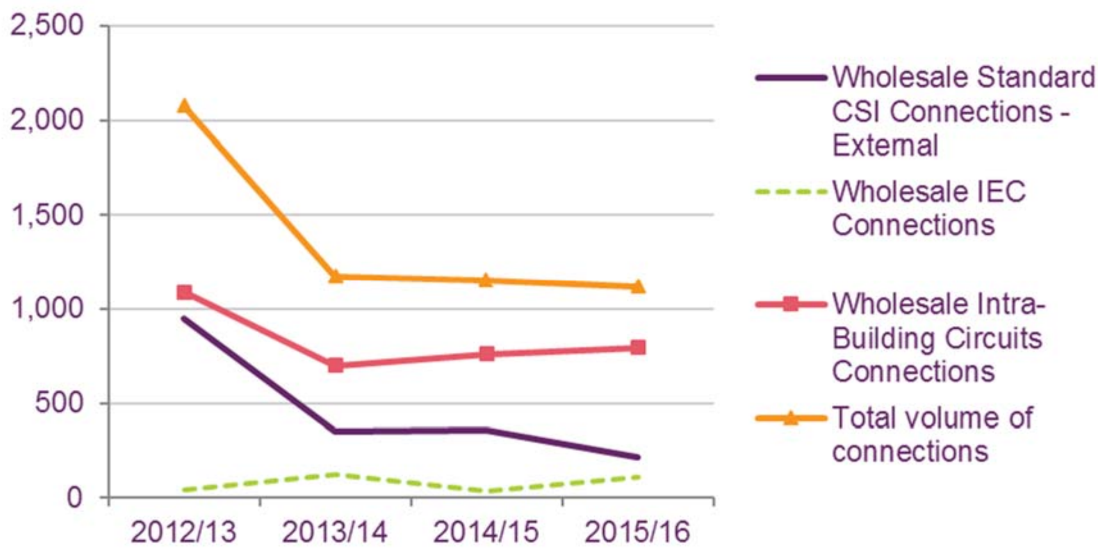
18.6 Given the relatively low level of the ISB revenue and the declining volumes of services, we considered that it would not be appropriate to build a new ISB cost model. We noted that BT was earning returns above WACC on the ISB, which we considered was primarily due to the assets used to provide interconnect services reaching the end of their lives and the associated decline in mean capital employed. We decided to charge control the TDM interconnect services provided by BT in a basket at RPI-RPI (i.e. restricting any overall price increase to zero).[677]

18.7 Additionally, we implemented a 10% sub-cap on each individual charge in the ISB, as this would provide a safeguard to customers from sudden price shocks on individual charges.[678]

Developments since the 2013 NMR

18.8 Since the 2013 NMR Statement publication we have continued to observe a general decline in the volume of TDM interconnect circuits supplied by BT. Figures 18.1 and 18.2 below show the external connection and rental volumes from 2012/13 to 2015/16. Since 2012/13, the total volume of connections has decreased by more than 46% and the total volume of rentals has fallen by around 20%. However, most of the reduction in connection volumes was between 2012/13 and 2013/14, with overall connections largely stable since. For rentals, the largest decline was between 2014/15 and 2015/16, implying that more circuits were ceased than connected over that period.

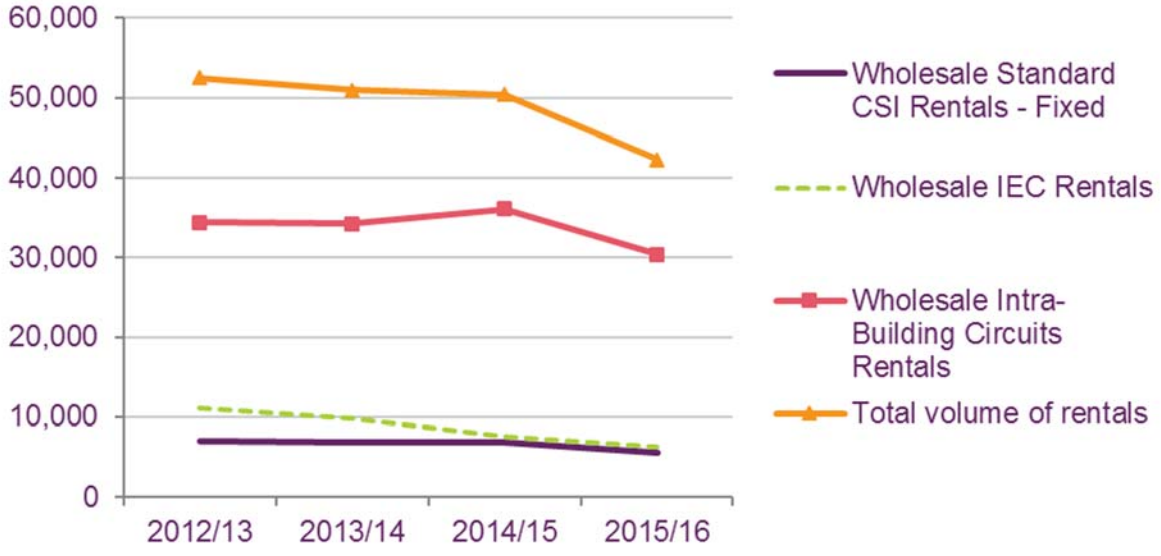
Figure 18.1: Interconnect services external connections (number of circuits)



Source: 2014 BT RFS for financial year 2012/13; 2015 BT RFS for financial year 2013/14; and 2016 BT RFS for financial years 2014/15 and 2015/16.

[676] 2013 NMR Statement, paragraphs 10.78-10.86, pages 252-254.
[677] RPI refers to the Retail Prices Index.
[678] 2013 NMR Statement, paragraphs A6.242-A6.248.

Figure 18.2: Interconnect services external rentals (number of circuits)



Source: 2014 BT RFS for financial year 2012/13; 2015 BT RFS for financial year 2013/14; and 2016 BT RFS for financial years 2014/15 and 2015/16.

18.9 As shown in Table 18.1 below, this decline in service volumes has led to BT's revenue from interconnect circuits falling. Over the review period, we expect circuit volumes to decline further as traffic switches to IP interconnection.[679] Moreover, we note a general decline in fixed voice traffic meaning that demand for interconnect circuits to carry WCT and WCO traffic is likely to reduce.[680]

[679] See Figure 16.4 in Section 16 for BT's traffic forecasts over different forms of interconnection.
[680] From BT's 2012 and 2016 RFS, external WCT minutes provided by BT have fallen from 55bn minutes in 2011/12 to 30bn minutes in 2015/16.

Table 18.1: Revenues and ROCE with respect to BT's interconnect circuits

Interconnect circuits	2012/13 (RFS2014)	2013/14 (RFS2015)	2014/15 (RFS2016)	2015/16 (RFS2016)
Internal revenue[681]	£10m	£6m	£0	£0
External revenue	£33m	£32m	£29m	£25m
Total revenue	£43m	£38m	£29m	£25m
Total revenue adjustment[682]	(£10m)	(£6m)	NA	NA
Mean Capital Employed	£51m	£35m	£30m	£27m
ROCE	30.4%	35.0%	11.1%	3.8%
Adjusted ROCE	11.8%	17.1%	NA	NA
Pre-tax nominal WACC*	9.9%	9.9%	10.8%	10.8%

Source: 2012/13 data in BT's 2014 RFS; 2013/14 data in BT's 2015 RFS; and 2014/15 and 2015/16 data in BT's 2016 RFS. Adjusted ROCE in BT's presentation dated 4 July 2016 (slide 6).

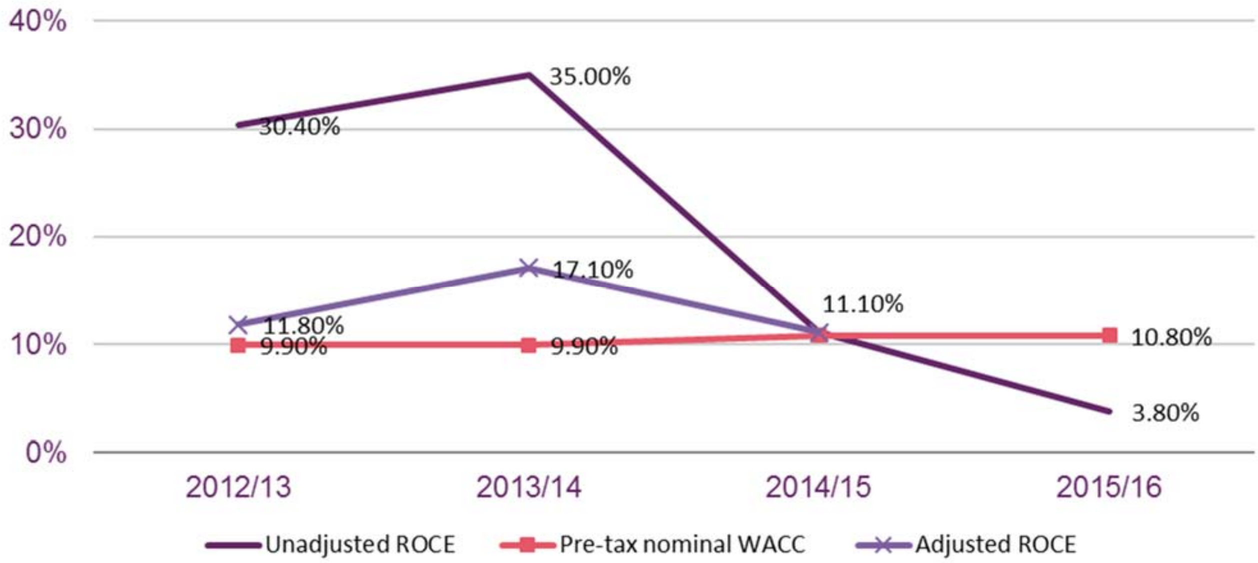
*Pre-tax nominal WACC for 2012/13 and 2013/14 in the March 2013 LLCC Statement; and for 2014/15 and 2015/16 in FAMR 2014. From 2016/17 onwards the pre-tax nominal WACC is estimated at 9.8% (see April 2016 BCMR Statement).

18.10 Figure 18.3 below shows that BT's return on capital employed (ROCE) has declined (on average) since 2012/13.

[681] See BT's Change Control Notification (CCN) 2015-16 in respect of all methodology changes that were implemented between the Current Cost Financial Statements for the year ended 31 March 2015 and the Current Cost Financial Statements for the year ended 31 March 2016 at http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2016/ChangeControlNotification201516.pdf. In CCN, section 3.10, BT explains the reported methodology change for internal interconnect. It says that "[*t]he proposal is to remove all internal revenues published within the Interconnect market, as BT cannot interconnect with itself and BT Wholesale does not bill any downstream BT divisions for "internal" interconnect*." It also said that "[a]*lthough the volume of circuits previously shown as internal interconnect are for circuits that are not billed externally, we will no longer assume that they are traded internally."*

[682] The adjustment is to remove internal revenues as proposed in CCN, section 3.10. See footnote 681 for further details. This adjustment is reflected in BT's 2016 RFS.

Figure 18.3: BT's ROCE and WACC for interconnect services



Source: see Table 18.1.

18.11 In financial year 2015/16, the ROCE is 7% below the pre-tax nominal WACC. However, BT's RFS data overstate the position for the regulated interconnect services as they refer to interconnect circuits both at DLEs and tandem switches, while the ISB regulation only applies to interconnect circuits provided at BT's DLEs. Our view is that only BT's TDM interconnect circuits provided at the DLEs should be regulated because the requirement arises from our proposed regulation of BT's SMP in WCO and WCT (which for calls to TDM connected customers are services provided by BT at its DLEs).[683]

18.12 Currently, BT does not account separately for interconnect circuits at the DLEs. BT said that to break down revenues, costs and mean capital employed by exchange type, it [✂].[684] BT's estimates of external interconnect circuit revenues, costs and capital employed for connections to its DLEs in 2014/15 are summarised in Table 18.2 below.

[683] BT sent us a letter (25 October 2016 by e-mail) on adjustments to operating costs, mean capital employed and FAC of interconnect circuits as a whole. However, the focus of our price regulation of interconnect circuits is only at the DLEs.
[684] BT response to the 9th s.135 Notice (6 January 2016).

Table 18.2: BT's external revenue, costs and mean capital employed for interconnect circuits at the DLEs

External interconnect circuits connected to BT DLEs	2014/15
Revenue	[✂] [£5m–£10m]
Total current cost accounting	[✂] [£5m–£10m]
Fully allocated costs (FAC)	[✂] [£5m–£10m]
Mean Capital Employed (MCE)	[✂] [£5m–£10m]

Source: BT's response to the 9th s.135 Notice (6 January 2016), section B, question 2.

18.13 Only a relatively small proportion of the external revenues and the mean capital employed in Table 18.1 is related to interconnect at DLEs.[685] In particular, the external revenue (DLE and tandem) in 2014/15 in Table 18.1 is £29m, while the external revenue (DLE only) in Table 18.2 is [✂] [£5m–£10m], i.e. a proportion of c.[✂]% of the external revenue in Table 18.1. A relatively similar proportion applies in the case of the mean capital employed.

18.14 From Table 18.2, it appears that returns would be comfortably above the relevant WACC in 2014/15, even more so if we apply the WACC to the MCE reported above and combine this with the total current cost accounting costs, rather than rely on BT's FAC reported in Table 18.2 which appears to imply a high WACC in the calculation of FAC.

18.15 We do not have the 2015/16 DLE financial information. While reported returns could be lower than in 2014/15 (if consistent with the trend seen for aggregate returns in relation to interconnection), we note that the DLE returns appear to start from a higher rate than returns at the aggregate level of interconnection. We therefore propose to investigate further the financial information in relation to DLE interconnection.

Stakeholder responses to the April 2015 CFI

18.16 We received seven stakeholder responses that referred to the charge control for BT's TDM interconnect services.

18.17 BT said that there should be no charge control and any remaining issues on pricing or service could be dealt with through commercial negotiation and if necessary through Ofcom's dispute resolution powers.[686]

18.18 Three stakeholders (Colt, Post Office and Verizon) considered that the current approach to regulation of interconnect circuits was broadly appropriate and should continue.[687]

18.19 Three other stakeholders [✂], Sky and Vodafone) considered that charges were not representative of the cost of provision and, thus, were excessive. They also

[685] BT response to the 9th s.135 Notice (6 January 2016).
[686] BT, April 2015 CFI response, page 9.
[687] Colt, April 2015 CFI response, page 8; Post Office, April 2015 CFI response; Verizon, April 2015 CFI response, paragraph 19.

suggested that a charge control at LRIC, rather than the current flat nominal cap would be appropriate.[688]

18.20 We address these comments in our analysis below.

Proposals for price regulation

18.21 Below we consider two price regulation options: fair and reasonable charges and a charge control.

Fair and reasonable charges

18.22 Rather than imposing a charge control we could rely on the requirement that we propose in Section 17 that BT provides network access on fair and reasonable terms, including charges – which is the approach we have proposed for WCO.[689] However, we do not consider that this would be a sufficient constraint on BT's pricing. First, interconnect circuits support both terminating and origination traffic at the DLEs and whereas there appears to be increasing competition in relation to WCO, this is not the case for WCT. Second, the topology and scale of BT's terminating (and originating) network is such that CPs need to purchase more (and a different array) of interconnect circuits from BT as compared to other CPs.

18.23 Our current view is that requiring interconnect circuit charges to be fair and reasonable, without further pricing obligations, could allow BT to set charges at such a level that would restrict downstream competition and particularly the effectiveness of the SMP remedies proposed for the WCO and WCT markets.

Charge controls

18.24 We have set out above why we do not consider that relying on the proposed fair and reasonable charges obligation would be sufficient to address this concern. Where there is a risk of a firm setting excessive charges, 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 charge changes, our approach to charge control regulation based on a control period of three years seeks to incentivise cost efficiency, thereby imitating the effect of a competitive market.

18.25 A charge control can help ensure that customers and ultimately consumers are not exploited, incentivise cost efficiency on the part of the dominant provider, and provide greater certainty for customers in relation to the maximum charges they are likely to face (at least on average when charges are controlled in a basket).

Summary of our proposal

18.26 We continue to consider that a charge control for TDM interconnect circuits provided by BT is appropriate.

688 [✂]; Sky, April 2015 CFI response, page 3; Vodafone, April 2015 CFI response, page 25.
689 We are proposing a fair and reasonable charges obligation for interconnect circuits that would apply where there is no charge control, including new products or following the expiry of a charge control. See Section 17.

Cost standard

18.27 In the 2013 NMR, WCO charges were set on a LRIC+ basis and we considered it inappropriate to cap the charges of interconnect circuits that were used to support call origination on a LRIC basis. We thought that this would be inappropriate even if LRIC were the most appropriate approach for capping charges for interconnect circuits that were used to support call termination, because interconnect circuits typically support a mix of traffic (not just WCT).

18.28 As in the previous NMR, we continue to consider that SMP regulation of WCO is appropriate. While we have not proposed a charge control on WCO, we consider that it remains appropriate for charges relating to WCO to make a contribution to common costs – including those previously recovered from WCT. Therefore, because circuits are shared between originating and terminating traffic, we consider the appropriate regulation is one based on LRIC+.

18.29 As the WCT charge control is currently based on LRIC, it may in principle be consistent for TDM interconnect circuits used to deliver WCT traffic only to be capped at LRIC. However, we do not propose doing so for the following reasons:

- **Complexity of setting charges at LRIC:** as we would only be applying a LRIC cap on interconnect circuits used only for WCT, and we are not aware that termination-only circuits presently exist, we have no way to accurately assess the expected volume of such circuits. It is also difficult to anticipate the mix of circuit types (Customer Sited Interconnect, Intra-Building Circuits, Interconnection Extension Circuits, etc.). Consequently, any LRIC-based charge would not be based on data relating to actual usage of termination-only circuits which would likely lead to significant inaccuracies in modelling LRIC.

- **Timing and industry disruption:** voice services are moving towards IP. The evidence we currently have suggests that it may be appropriate in the next review to focus on IP interconnection either instead of, or in addition to, TDM interconnection (see Section 16). In addition, BT intends to migrate all customers off TDM and onto IP by 2025.[690] Therefore, implementing a charge control for TDM termination-only interconnect circuits at a time when the reliance on TDM interconnection is expected to reduce is likely to be disruptive for industry (since we are not aware that such circuits exist presently and introducing them would involve implementation and re-arrangement costs) and we propose that this would not be proportionate to the likely competition or efficiency benefits from doing so.[691]

18.30 We therefore prefer to continue with our current approach of setting the charge control for TDM interconnect services at BT's DLEs on a LRIC+ basis.

The level of charges

18.31 Given the relatively small materiality of the external revenue from interconnect circuits at BT's DLEs (see Table 18.2) and the falling volumes (see Figure 18.1 and

[690] BT, April 2015 CFI response, page 5, paragraph 14.
[691] We also note that the materiality of the external revenue for TDM interconnect services at BT DLEs is relatively small (see Table 18.2). The revenue for termination-only circuits would be a further sub-set of this.

18.2), we consider that it would not be proportionate to build a detailed cost model at this stage to set charges for services in the ISB.

18.32 However, we note that the most recent information in BT's 2016 RFS suggests that BT's ROCE for interconnect services (including DLEs and tandems) is below the relevant WACC in 2015/16 (see Figure 18.3 above). As explained above, it is not clear that this would necessarily be the case at the DLE level and is a matter we propose to investigate further.

18.33 As we expect interconnect service volumes as well as volumes of TDM calls to continue to fall over the review period, (see Figure 16.4), an approach aiming to keep average charges constant may be insufficient to allow BT to recover all of its interconnect circuit costs. We are planning to investigate further the 2015/16 information for external TDM interconnect circuits at BT DLEs. But other evidence suggests that the 2015/16 ROCE figure may be misleading for the purpose of setting an ISB charge control for the next review period given that:

- there were methodology changes in BT's 2016 RFS which are related with Virtual Interconnect Circuits (VICs) and we are still considering whether those changes are appropriate;

- if the methodology changes are appropriate, VICs reflect the desire to move to a more consolidated network of terminating and originating nodes. An IP network would have fewer nodes and we think that fewer terminating nodes is likely to be efficient and we would not want regulated charges to increase as a result of BT moving to a more efficient estate of interconnect nodes;

- we expect future cost reductions in interconnect circuits.

18.34 We expect future cost reductions in interconnect circuits because:

- assets depreciate and are unlikely to be replaced through much capex in future;

- we have observed a decline in the volumes of interconnect circuits, which started before the 2013 NMR, reducing not only the revenues but also the costs related with interconnect circuits;

- we would expect operating cost efficiencies (e.g. in the 2016 BCMR we decided that an efficiency target of 4.5% per year for TI (Traditional Interface leased lines) was appropriate); and

- as part of BT's migration to 21CN, some DLEs have been closed and DLE routes migrated to their parent NGS (Next Generation Switches).[692] This generates potential cost savings to BT that may not be adequately reflected in the costs allocated to interconnect circuits in the RFS.

18.35 On this basis, there could be a case for retaining a constant cap on charges, either in nominal terms (i.e. CPI-CPI) or in real terms (i.e. CPI-0%). While we propose to charge control BT's TDM interconnect circuits (specifically at the DLE level), we are still undertaking work to determine the extent to which a constant cap on charges might be insufficient to allow BT to recover all of its interconnect circuits costs at DLEs. In so far as there might be a cost recovery problem for DLE interconnect, we do not expect that charges would need to increase significantly in real terms.

[692] See BT's slide presentation to Ofcom meeting (4 July 2016).

Consequently, we are consulting on a cap that is in the range 0% to CPI+5% for the annual change on the basket average price (i.e. CPI+X, with X in the range -CPI to 5%).

Other charge control details

Duration

18.36 We propose that the charge control for the ISB be implemented for a period of three years, from 1 October 2017 to 30 September 2020.

Sub-caps

18.37 We consider that sub-caps on each individual ISB service provide benefits in that they mitigate the risks of excessive pricing on certain circuits or charges and mitigate the risks of gaming (see paragraphs 18.43 and 18.44 below) while allowing BT some pricing flexibility.

18.38 We consider that a sub-cap on each charge should be less restrictive than the overall basket control. Given that the sub-caps are designed to apply to every service in the basket, a sub-cap as tight or tighter than the basket cap would defeat the objective of pricing flexibility within the basket.

18.39 In the 2013 NMR Statement[693], we imposed sub-caps of 10% on top of the ISB cap (at 0%) on each individual ISB service to address the risk that customers of certain services might be disproportionately affected if charges for individual services increased very significantly within a charge control year.[694]

18.40 Given that we are consulting on an ISB cap in the range 0% to CPI+5%, an ISB cap closer to the top of this range together with sub-caps of 10% on top of the ISB cap may allow BT too much pricing flexibility. For example, if the ISB cap was set at CPI+5%, then a 10% sub-cap would allow an individual ISB charge to increase by CPI+5%+10%, i.e. a 15% price increase in real terms. Since this would be possible over each year of the control, we are concerned that this could leave certain interconnecting CPs exposed (if other CPs purchase in large number the circuits where BT has an incentive to raise prices within the basket). In order to address this, we are consulting on a range for the sub-caps between +5% and +10% (on top of the overall ISB cap).

18.41 In other words, for an overall ISB cap of CPI+X, for the sub-caps on each charge within this, we are consulting on sub-caps defined as CPI+X+Y where Y is in the range 5% to 10%.

Prior year revenue weights

18.42 We have generally preferred to adopt prior year revenue weights within charge controls and we adopted this approach for the 2013 NMR. Since prior year weighting relies on information that is already known at the start of a charge control period, this makes complying with the charge control less complex since at the time of setting new charges BT can consider the implications for compliance with certainty.

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[693] 2013 NMR Statement, paragraphs A6.242-A6.248.
[694] We note though that BT did not increase the charge for any individual service in the ISB by 10% in a year. Individual charges are available at www.btwholesale.com.

18.43 The risk of using prior year weights in the basket is when the relative volumes of services within a basket change substantially and in a predictable way. In such a scenario, a CP may be able to game the control by increasing the charge of the service that has growing volumes (or volumes declining at a lower rate than on average), since it is given a lower weighting within the basket control.

18.44 In principle, it is possible for connections to decline more quickly than rentals, meaning that price increases could be concentrated on rentals, with offsetting reductions in connections. But with the use of sub-caps (see paragraph 18.37) we can limit the extent to which relative volume changes can be used to exploit pricing opportunities within the overall basket cap. Also, we note that all the individual charges under the ISB have recently remained unchanged, at least, since 1 of October 2014.[695]

18.45 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.

18.46 We therefore propose to use prior financial year revenue weights when testing compliance with the charge control on interconnect circuits. This maintains the approach used in the 2013 NMR formula for the ISB charge control and is consistent with our approach in other charge controls, e.g. in the FAMR 2014.[696]

External charges and revenues

18.47 BT has reported internal revenues for interconnect circuits in previous RFS. See Table 18.1 above for a summary of BT's interconnect revenues reported in the RFS from 2012/13. However, as BT does not interconnect with itself, interconnect revenues should not be treated as internal.

18.48 BT has dealt with this issue in section 3.10 of its Change Control Notification 2015-16, where it explains that it has removed all internal revenue previously published in relation to interconnect services.

18.49 We therefore propose to use external revenues only for the ISB charge control as the prior year weighting within the charge control formula.

Multiple price changes during a year

18.50 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). We propose to use the same general formula for the ISB charge control as was used in the 2013 NMR. Consistent with the 2013 NMR, the approach will:

[695] See BT Wholesale's price list at https://www.btwholesale.com/pages/static/help-and-support/pricing/carrier-price-lists.htm as of 18 November 2016.
[696] BT has previously reported the ISB charge control compliance using prior year revenue weights that consider all TDM interconnect circuits, rather than just those at the DLE. In the forthcoming review period we propose to require BT to comply using prior year revenue weights with consideration only to TDM interconnect circuits at BT DLEs.

- weight all service charges to reflect the proportion of the year during which they were in effect; and

- evaluate charge changes for each service in relation to the weighted average charge that applied during the prior year for that service, rather than based on the charge on the last day of the prior control year.

18.51 This approach will allow BT flexibility over the frequency and timing of charge changes, while preventing potential gaming of the charge control.

Deficiency and excess provisions

18.52 Deficiency and excess provisions have been included in previous charge controls and we propose to use them for the ISB. These provisions have two functions:

- where BT charges below the cap, it gives the ability to use the 'deficiency' created by setting charges below the charge control requirements within a given year towards the charge control compliance in the following year. Therefore, the deficiency avoids penalising BT for bringing forward a charge reduction or increasing charges less than the cap; and

- where BT charges in excess of the cap, it is required to make the excess up the following year by charging less than the cap would otherwise have allowed.

18.53 We believe that symmetrical (i.e. symmetrical with respect to whether BT charges below the cap or whether the control is exceeded) provisions remain appropriate. We are therefore proposing to continue using deficiency and excess provisions for the ISB charge control.

18.54 We also propose to continue requiring BT to make repayments to other affected CPs (as soon as is reasonably practicable), in the event that it charges in excess of the cap in any given year for ISB services.

Rounding

18.55 We propose that interconnect circuit charges should be rounded to the nearest penny for measuring compliance with the ISB charge control.

Compliance

18.56 We propose that BT is required to supply information in order for us to monitor its compliance with the control. BT would be required to provide this information annually to Ofcom, no later than three months after the end of the charge control year.[697]

Legal tests

Aim of regulation

18.57 Section 87(9) of the Act authorises Ofcom to set SMP services conditions imposing on the dominant provider, among others, such price controls as Ofcom may direct in relation to matters connected with the provision of network access to the relevant

[697] This requirement is set out in Condition 5D in Annex 6. BT is also required to publish non-confidential compliance schedules in relation to interconnect circuits as set out in Section 19.

network, or with the availability of the relevant facilities provided the conditions set out in Section 88 of the Act are satisfied.

18.58 As discussed in Section 16, CPs are dependent on the provision of interconnect circuits by BT in order to make the remedies imposed in the WCO and WCT 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.

The condition

18.59 The charge control condition we are proposing aims to ensure that BT does not price excessively for external TDM interconnect circuits provided at its DLE.

18.60 Based on our analysis in this section, we are proposing that charges for the ISB should be subject to a CPI+X cap with X in the range -CPI to 5% and that individual charges should be subject to a sub-cap of the form CPI+X+Y, where Y is in the range 5% to 10%.

Legal tests

18.61 Section 87(9) of the Act authorises Ofcom to set SMP services conditions imposing on the dominant provider, among others, such price controls as Ofcom may direct in relation to matters connected with the provision of network access to the relevant network, or with the availability of the relevant facilities provided the conditions set out in Section 88 of the Act are satisfied.

18.62 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 explain above that we consider that there is a risk of such adverse effects since in the absence of charge controls BT might fix and maintain some or all of its prices at an excessively high level so as to have adverse consequences for end-users of public electronic communications services.

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

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

18.64 Setting the ISB controlling percentage in the range 0% to CPI+5% reasonably reflects the economic costs incurred by BT in providing TDM 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.

18.65 We consider that this approach promotes sustainable competition by allowing CPs to purchase interconnection services from BT (and to invest in their own infrastructure where this is efficient to do so) at prices that allow them to compete effectively downstream. We consider that this approach is appropriate for the purposes of conferring the greatest benefits on end users of the services.

18.66 We are also required, under section 88(2) of the Act, to take into account BT's investment in matters to which the condition relates. We explain in this section our rationale for the level of the control proposed. That analysis considered the costs currently incurred by BT in providing physical interconnection.

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

18.68 In particular, we have sought to impose 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.

18.69 We have considered the Community requirements set out in section 4 of the Act and believe that the condition meets these 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 promote competition.

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

- objectively justifiable: because, without the charge controls, BT would have the ability and incentive to price excessively to third parties, which would adversely affect downstream competition that relies on BT's provision of WCT and WCO.

- not unduly discriminatory: because we are imposing the charge control on BT as a consequence of its unique position in WCT and WCO (reinforced by the scale and topology of its network).

- proportionate: as it requires BT to comply with the charge control for an important input to downstream markets, which we consider will support the level of competition we currently observe in the retail market, while allowing BT to recover its efficiently incurred costs. It also incentivises BT to improve its efficiency, because with charges capped for the period of the control, profit maximisation requires cost reductions; and

- 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.

18.71 For the reasons set out above, we consider that our proposed charge control condition is appropriate to address the competition concerns identified in the corresponding market, in line with section 87(1) of the Act.

Summary of our proposals

18.72 We propose to implement the following charge controls in relation to BT's external TDM interconnect circuits at the DLE:

- a cap within the range of 0% to CPI+5% for the annual change in the average price of a basket of externally provided circuits, comprising both connections and rentals for ISI, IEC, CSI and IBCs; and

- a sub-cap within the range 5% to 10% on top of the basket level cap for each and every individual interconnect service within the basket.

Consultation question

Question 18.1: Do you agree with our charge controls proposals for BT's interconnect circuits? Please provide reasons and evidence in support of your views.

Section 19

Regulatory financial reporting

Introduction

19.1 BT and KCOM are currently subject to regulatory financial reporting requirements designed to provide us with the information necessary to make informed regulatory decisions, monitor compliance with SMP conditions, ensure that those SMP conditions continue to address the underlying competition issues and investigate potential breaches of SMP conditions and anti-competitive practices.

19.2 As part of these requirements, each year BT and KCOM prepare Regulatory Financial Statements (RFS). The RFS are prepared according to a defined framework and methodology and include published statements as well as information that is not published but submitted to us privately.

19.3 In this section we set out our views on what specific regulatory financial reporting requirements are appropriate to support our proposed remedies. We set out our proposals in Sections 7, 10, 12 and 17 to impose cost accounting and accounting separation obligations on BT in all narrowband markets and on KCOM in the WFAEL, ISDN2, ISDN30 and WCO markets.

19.4 In this section we:

- Set out our proposals on directions specifying the more detailed reporting requirements for the RFS which we consider are appropriate in respect of the markets we are reviewing. These proposals are consistent with the policy decisions made in the 2014 Regulatory Financial Reporting Statement about changes to BT's reporting requirements.[698]

- Set out the regulatory financial reporting requirements we propose to impose, by way of directions, on BT and KCOM in the markets covered by this review. In particular, we explain why we need this information and what needs to be provided publicly and privately.

- Set out the need for compliance information and other requirements.

19.5 In the rest of this section we first set out the regulatory financial reporting requirements on BT before considering KCOM. The directions we propose to impose on BT and KCOM in relation to our proposed regulatory financial reporting requirements are included in Annex 7.

19.6 As explained below, the main changes we propose to make to the information published in BT's RFS include the removal of all service level reporting for WCO as well as minor changes to the lists of services and components associated with narrowband markets reported in the RFS more generally.

[698] Ofcom, *Regulatory Financial Reporting: Final Statement*, 20 May 2014, https://www.ofcom.org.uk/__data/assets/pdf_file/0025/78460/financial-reporting-statement-may14.pdf

19.7 The main changes we propose to make to the information published in KCOM's RFS include the removal of FAC component reporting for each narrowband market; we propose to require KCOM to provide this information privately instead.

BT: Directions to implement regulatory accounting requirements as set out in the 2014 Regulatory Financial Reporting Statement

19.8 As explained in Sections 7, 12 and 17 we are proposing to impose on BT accounting separation and cost accounting obligations in relation to the WFAEL, ISDN2, ISDN30, WCO and WCT markets and for interconnect circuits. For the reasons set out, we are proposing to impose on BT SMP conditions capturing the specific form of BT's accounting separation and cost accounting requirements that flowed from our policy conclusions in the 2014 Regulatory Financial Reporting Statement. In that statement, we also set out our reasoning and policy decisions about the more detailed requirements which we considered were appropriate for the RFS in all regulated markets and which we would implement by way of directions.[699]

19.9 We previously gave these directions for markets including WFAEL, ISDN30 and ISDN2 in the 2015 Directions Statement.[700] These reporting directions specified requirements in relation to:

- the Regulatory Accounting Principles;
- consistency with regulatory decisions and preparing the RFS on a RAV (Regulatory Asset Value) basis;
- transparency;
- audit of the RFS;
- the reconciliation report;
- BT's adjusted financial performance;
- the preparation, delivery, publication, form and content of the RFS;
- network components; and
- Electricity charge attributions.

19.10 We do not consider that reporting directions specifying requirements for consistency with regulatory decisions or for BT's adjusted financial performance are relevant for this review. As explained in the 2014 Regulatory Financial Reporting Statement, these requirements are relevant where we consider regulatory decisions should be reflected in the RFS in order to ensure consistency, as per Regulatory Accounting

[699] As set out in Section 7, the conditions were amended in the 2016 BCMR Statement to remove the reference to Regulatory Accounting Guidelines. The proposed conditions therefore do not reference the Regulatory Accounting Guidelines.

[700] The 2015 Directions Statement also imposed these directions on the WLA and WBA markets. Further, these directions were imposed on the business connectivity markets in annex 35 of the 2016 BCMR Statement. This will be the first time these directions, in this form, are imposed on WCO, WCT or interconnect circuits. For the avoidance of doubt, if we adopt the proposals set out in this chapter, the proposed directions would replace the existing regulatory financial reporting directions on BT.

Principle number four.[701] We do not consider that any adjustments are required to BT's RFS to ensure that reporting is consistent with regulatory decisions (although as noted below, we propose to give the form of that direction to the extent it relates to the use of the RAV to prepare the RFS). For the same reasons, we do not consider that an Adjusted Financial Performance Schedule is required.[702] We therefore do not propose to make directions that require consistency with regulatory decisions or to BT's adjusted financial performance. Further, the reporting direction for electricity charge attributions made in the 2015 Directions statement related to the WLA market and is not relevant to narrowband markets.[703] We therefore do not propose to make a direction for electricity charge attributions.

The directions we propose to give on narrowband markets

19.11 However, we consider that the other seven directions from the 2015 Directions Statement specifying requirements in relation to regulatory financial reporting are appropriate in the context of each of the markets we are reviewing and therefore, we propose to make these directions as part of this review. Imposing these directions will align the narrowband markets with the regulatory financial reporting directions imposed in other recent market reviews; this will ensure that regulatory financial reporting is prepared on a consistent basis.[704] We describe each of these directions below and explain why we propose impose them on narrowband markets and interconnect circuits.

Regulatory Accounting Principles (RAP)[705]

19.12 We decided to introduce the RAP in the 2014 Regulatory Financial Reporting Statement.[706] The RAP are a set of guiding principles with which BT's Regulatory Financial Reporting must comply. To preserve the integrity and consistency of the RFS we consider that the RAP should be implemented across all regulated markets (to the extent that each market review considers this to be appropriate) as there are significant advantages to BT and other stakeholders of BT applying one set of principles across all markets. We therefore propose to implement these requirements by giving a direction to BT in the form set out in the 2015 Directions Statement in respect of the proposed narrowband markets and interconnect circuits.

19.13 We consider that giving the proposed direction specifying the Regulatory Accounting Principles in relation to each market would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act because:

[701] Paragraphs 3.36 to 3.42, 2014 Regulatory Financial Reporting Statement.
[702] The consistency directions made in the April 2016 BCMR Statement, relating to, for example, the outcome of the cost attribution review (see Annex 28, 2016 BCMR Statement), have been implemented by BT in its 2015/16 RFS. BT set this out in its June 2016 Change Control Notification. As the 2015/16 RFS reflects the consistency directions made in the April 2016 BCMR Statement across all markets, including narrowband markets, we do not propose to re-issue these directions for the narrowband markets.
[703] See paragraph 1.17 of the 2015 Directions Statement.
[704] Specifically, the directions in the 2015 Directions Statement (which applied to the WFAEL, WLA, ISDN2, ISDN30 and WBA markets) and the 2016 BCMR Statement (which applied to business connectivity markets).
[705] The Regulatory Accounting Principles are: 1. Completeness; 2. Accuracy; 3. Objectivity; 4. Consistency with regulatory decisions; 5. Causality; 6. Compliance with the statutory accounting standards; 7. Consistency of the RFS as a whole and from one period to another.
[706] Paragraph 1.12 and section 3, 2014 Regulatory Financial Reporting Statement.

- Our proposal is designed to give Ofcom a greater role in determining how BT should prepare its Regulatory Financial Statements, thereby ensuring the Regulatory Financial Statements are aligned with Ofcom's regulatory decisions and giving confidence to stakeholders about the absence of bias in the preparation of the Regulatory Financial Statements. It also ensures that the presentation and usability of the Regulatory Financial Statements is improved and that the obligations that are imposed on BT are proportionate.

- The above proposal therefore seeks to ensure the RFS remain relevant, thereby increasing transparency. Ultimately, this promotes competition.

19.14 In proposing this change, we have taken due account of all applicable recommendations issued by the European Commission under Article 19(1) of the Framework Directive, in particular the 2005 EC Recommendation.

19.15 We also consider that each proposed direction meets the tests set out in section 49(2) of the Act in that it is:

- Objectively justifiable because by specifying the Regulatory Accounting Principles we will establish the attributes for BT's regulatory financial reporting.

- Not unduly discriminatory because it reflects BT's market position in the UK excluding the Hull area. KCOM is the only other SMP provider which has regulatory accounting obligations, but we have not established the need for such regulation at present.

- Proportionate because our proposal is no more than is required to ensure an absence of bias and consistency with regulatory decisions. While we are establishing Regulatory Accounting Principles, BT retains an important role in determining the basis of preparation of the Regulatory Financial Statements, and can continue to put through methodology changes where this is in line with the Regulatory Accounting Principles and such changes have been notified to Ofcom.

- Transparent because it is clear that the intention of our proposal is to ensure we take a greater role in the basis of preparation of the Regulatory Financial Statements to ensure an absence of bias and consistency with regulatory decisions.

Preparing the RFS on a RAV basis

19.16 For the purposes of some price controls we use the RAV of access duct.[707] However, prior to the 2014 Regulatory Financial Reporting Statement, BT valued duct on a current cost (CCA) basis. This meant that we had to make an adjustment for each charge control and investigation that included access duct to revalue it on a RAV basis. This made it difficult for stakeholders to see in the RFS the revised returns for markets where we apply the RAV adjustment. Therefore, in the 2014 Regulatory Financial Reporting Statement, we decided that BT must prepare the RFS on a RAV basis.[708] To preserve the integrity and consistency of the RFS, we consider that

[707] The RAV is the value ascribed by Ofcom to access duct which was in existence prior to August 1997 (i.e. assets which were in existence prior to the change in valuation method from historical cost accounting to current cost accounting). For further details, see section 6.2.5 of BT's 2015/16 Accounting Methodology Document.
[708] Paragraph 3.91, 2014 Regulatory Financial Reporting Statement.

access duct associated with all regulated markets should be prepared on a RAV basis.[709] We consider it appropriate to implement this requirement in this review and we therefore propose to implement these requirements by giving a direction to BT in relation to the proposed narrowband markets and interconnect circuits. We consider that it is appropriate to propose the form direction from the 2015 Directions statement but, for the reasons set out in paragraph 19.10 above, amended to remove references to consistency with regulatory decisions.

19.17 We consider that giving the proposed direction specifying the RAV methodology for each market would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act for the reasons given in paragraph 19.13. In proposing this change, we have taken due account of applicable recommendations issued by the European Commission under Article 19(1) of the Framework Directive, in particular the 2005 EC Recommendation.

19.18 We also consider that each proposed direction meets the tests set out in section 49(2) of the Act in that it is:

- Objectively justifiable because the requirements specifying the RAV methodology will establish further detail and will also provide BT with clarity as to the requirements which it will need to follow to ensure that the Regulatory Financial Statements are prepared on the RAV basis.

- Not unduly discriminatory because it reflects BT's market position in the UK excluding the Hull area. KCOM is the only other SMP provider which has regulatory accounting obligations, but we have not decided that KCOM should prepare its Regulatory Financial Statements on a RAV basis.

- Proportionate because our proposals are no more than is required to ensure that BT is provided with clarity as to the requirements which it will need to follow to ensure that the Regulatory Financial Statements are prepared on the RAV basis.

- Transparent because it is clear that our proposals seek to provide BT with clarity as to the requirements which it will need to follow to ensure that the Regulatory Financial Statements are prepared on the RAV basis.

Transparency

19.19 One of the purposes of imposing a cost accounting obligation is to ensure that fair, objective and transparent criteria are used to prepare regulatory financial statements. Therefore, the purpose of any such direction is to ensure that any information, material or explanatory document prepared by BT in respect of the RFS is sufficiently transparent such that a suitably informed reader can gain a clear understanding of the information presented. To preserve the integrity and consistency of the RFS, we consider that all markets should be subject to the same transparency direction. We consider that it is appropriate to implement these requirements in this review and propose to give a direction to BT in the form set out in the 2015 Directions Statement in respect of the proposed narrowband markets and interconnect circuits.

19.20 We consider that giving the proposed direction, specifying the transparency requirements for each market, would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act for the reasons given in paragraph 19.13. In proposing this change, we have taken due

[709] We note that BT's 2015/16 RFS was prepared on a RAV basis. See page 9 of the 2015/16 RFS.

account of all applicable recommendations issued by the European Commission under Article 19(1) of the Framework Directive, in particular the 2005 EC Recommendation.

19.21 We also consider that each proposed direction meets the tests set out in section 49(2) of the Act in that it is:

- Objectively justifiable because the Accounting Methodology Documents previously prepared by BT were difficult to understand. The changes we have decided to introduce will seek to clarify that BT should be providing less detailed, but clearer Accounting Methodology Documents.

- Not unduly discriminatory because it reflects BT's market position in the UK excluding the Hull area. KCOM is the only other SMP provider which has regulatory accounting obligations, but we have not at present established the need for such changes. In any case, KCOM's Secondary Accounting Documents do not exhibit the same level of complexity as BT's.

- Proportionate because the changes are no more than is required to ensure that presentation of the basis of preparation is clear for users, and they reduce the regulatory burden on BT.

- Transparent because it is clear that the intention of our changes is to ensure that presentation of the basis of preparation is clear for users.

Audit of the RFS

19.22 Audit of the RFS can help give users confidence that the information provides a fair reflection of financial performance, is free from error and has been prepared following the accounting methodology statements published by BT and relevant directions issued by Ofcom.[710] To preserve the integrity and consistency of the RFS we consider that all markets should be subject to the same audit direction. We consider that it is appropriate to implement these requirements in this review and therefore, propose to give a direction to BT in the form set out in the 2015 Directions Statement in respect of the proposed narrowband markets and interconnect circuits.

19.23 We consider that giving the proposed direction, specifying the audit requirements for each market, would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act for the reasons given in paragraph 19.13. In proposing this change, we have taken due account of all applicable recommendations issued by the European Commission under Article 19(1) of the Framework Directive, in particular the 2005 EC Recommendation.

19.24 We also consider that each proposed direction meets the tests set out in section 49(2) of the Act in that it is:

- Objectively justifiable because it is important for both stakeholders and Ofcom that an appropriate level of assurance is provided on the RFS.

- Not unduly discriminatory because it reflects BT's market position in the UK excluding the Hull area. KCOM is the only other SMP provider which has

[710] Chapter 5 of the 2014 Financial Reporting Statement explained the changes to audit requirements imposed on BT.

regulatory accounting obligations and KCOM is required to secure an appropriate level of audit opinion on its Regulatory Financial Statements.

- Proportionate because the audit requirements are no more than is necessary to ensure that an appropriate level of assurance is provided on the RFS.

- Transparent because it is clear that the intention of our changes is to ensure that an appropriate level of assurance is provided on the RFS.

Reconciliation report

19.25 In the 2014 Financial Reporting Statement we decided as a matter of policy that BT must publish the impact of all material changes and errors in an annual reconciliation report with an accompanying assurance report from their regulatory auditors. Changes to attribution methods or the correction of errors can affect all markets reported in the RFS. As a result, to preserve the integrity and consistency of the RFS, we consider that all markets should be subject to the same direction to produce a reconciliation report. We consider that it is appropriate to implement these requirements in this review and therefore, propose to give a direction to BT in the form set out in the 2015 Directions Statement in respect of the proposed narrowband markets and interconnect circuits.

19.26 We consider that giving the proposed direction, specifying the requirements in relation to the reconciliation report and the accompanying audit opinion for each market, would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act for the reasons given in paragraph 19.13. In proposing this change, we have taken due account of all applicable recommendations issued by the European Commission under Article 19(1) of the Framework Directive, in particular the 2005 EC Recommendation.

19.27 We also consider that each proposed direction meets the tests set out in section 49(2) of the Act in that it is:

- Objectively justifiable because it is necessary for there to be visibility in relation to changes and errors made in the Regulatory Financial Statements, both for us and for other stakeholders, and it is therefore necessary for us to specify the requirements in relation to the content of the reconciliation report and the accompanying audit opinion.

- Not unduly discriminatory because it reflects BT's market position in the UK excluding the Hull area. KCOM is the only other SMP provider which has regulatory accounting obligations, but KCOM is not subject to a requirement to publish a reconciliation report.

- Proportionate because our proposals are no more than is required to provide visibility in relation to changes and errors both for us and for other stakeholders.

- Transparent because it is clear that our proposals seek to provide visibility in relation to changes and errors both for us and for other stakeholders and to provide BT with clarity about the requirements specifying the content of the reconciliation report and the accompanying audit opinion.

Network components

19.28 This direction specifies all of the cost components used by BT to prepare the RFS. To preserve the integrity and consistency of BT's Regulatory Financial Reporting it is important that there is a single list of components used to attribute costs to services in regulated markets. In the Directions Statement, we gave a direction to BT in respect of, among others, the WFAEL, ISDN30 and ISDN2 markets, specifying the network components. In the 2016 BCMR Statement[711], we gave a direction to BT specifying the list of network components in relation to the markets covered by that review. This list was an updated list based on the list contained in the Directions Statement. To preserve the integrity and consistency of BT's Regulatory Financial Reporting it is important that there is a single list of components used to attribute costs to services in regulated markets and we consider that the list set out in the direction given in the 2016 BCMR Statement is appropriate in relation to the markets covered by this review.[712] We therefore propose to specify the network components by giving a direction in the form set out in the 2015 BCMR Statement in respect of the proposed narrowband markets and interconnect circuits.

19.29 We consider that giving the proposed direction, specifying BT's list of network components for each market, would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act for the reasons given in paragraph 19.13. In proposing this change, we have taken due account of all applicable recommendations issued by the European Commission under Article 19(1) of the Framework Directive, in particular the 2005 EC Recommendation.

19.30 We also consider that each proposed direction meets the tests set out in section 49(2) of the Act in that it is:

- Objectively justifiable because it is necessary for us to give a direction specifying network components. Our proposal about the modification of list of network components is objectively justifiable because it is necessary to make the reporting of services in Narrowband markets consistent with the reporting of services in other regulated markets.

- Not unduly discriminatory because it reflects BT's market position in the UK excluding the Hull area. KCOM is the only other SMP provider which has regulatory accounting obligations and we have also decided to update KCOM's list of components in this consultation to enable it to prepare its Regulatory Financial Statements.

- Proportionate because our proposal is no more than is required to specify network components. Our proposal about the modification of network components is no more than is required to make the reporting of services in Narrowband markets consistent with the reporting of services in other regulated markets.

[711] Paragraph 16.90 of the 2016 BCMR Statement says that, following a review of the network components, i) components that are only utilised by services in markets where no cost accounting obligation exists were removed from the component list, ii) nine new components were introduced and iii) seven components were withdrawn.
[712] Some of the components added to the network component list in the 2016 BCMR Statement are relevant to the Narrowband markets, e.g. the component for 'Openreach time related charges'.

- Transparent because it is clear that our proposal seeks to specify network components and to make the reporting of services in Narrowband markets consistent with the reporting of services in other regulated markets, and to ensure that these components remain fit for purpose.

19.31 We set out in the next sub-section our proposals for the direction specifying requirements in relation to the preparation, delivery, publication, form and content of the RFS. This includes proposals in relation to the information that BT publishes in its RFS, provides to us privately and includes in non-confidential compliance statements.

Preparation, delivery, publication, form and content of the RFS

19.32 This direction provides details of the financial information to be included in the published RFS and to be provided to Ofcom privately. It therefore plays an important role in ensuring the RFS provide relevant information to stakeholders. Some elements of the published RFS relate to all markets[713], while others are specific to particular markets. To preserve the integrity and consistency of the RFS, we consider that all markets should be subject to appropriate reporting requirements.

19.33 We set out below some background on why such financial information is necessary and the categories of information we generally require. We then consider, separately for each narrowband market and interconnect circuits, the information we propose to require BT to provide.

Background

19.34 It is important that BT maintains appropriate and reliable accounts that capture information on an ongoing basis relevant to its provision of services in narrowband markets. In the 2014 Regulatory Financial Reporting Statement we said that regulatory financial reporting should provide us with the information necessary to make informed regulatory decisions, monitor compliance with SMP conditions, ensure that those SMP conditions continue to address the underlying competition issues, and investigate potential breaches of SMP conditions and anti-competitive practices.[714]

19.35 We also said that sufficient information should be published to enable stakeholders to: contribute to the development of robust regulatory decisions; review and challenge data on which those decisions are made; assist us in monitoring compliance and to intervene in a timely fashion when required; and have reasonable confidence that BT has complied with its SMP conditions.[715] We said that we would consider and determine what level of information would provide reasonable

[713] For example, the reconciliation of the RFS as a whole to BT Group's statutory accounts.
[714] Paragraph 2.28, 2014 Regulatory Financial Reporting Statement.
[715] Paragraphs 2.29 to 2.41, 2014 Regulatory Financial Reporting Statement. We also said that publishing financial information supports stakeholders' contribution to an informed regulatory framework and adds credibility to the regulatory accounting system. We said that this was consistent with the guidance in the 2005 EC Recommendation which states that: "regulatory accounting information serves national regulatory authorities and other parties that may be affected by regulatory decisions based on that information, such as competitors, investors and consumers. In this context, publication of information may contribute to an open and competitive market and also add credibility to the regulatory accounting system". See Commission Recommendation of 19 September 2005 on accounting separation and cost accounting systems under the regulatory framework for electronic communications, Official Journal L 266, 11/10/2005 P. 0064 - 0069, Annex – Guidelines on reporting requirements and publication of information ("the 2005 EC Recommendation").

confidence in any particular case, following input from stakeholders.[716] We also set out in the 2014 Regulatory Financial Reporting Statement that cost, volume and revenue information published in the RFS should reflect the level of the remedy.[717]

19.36 In light of the approach set out in the 2014 Regulatory Financial Reporting Statement, we have considered what specific regulatory accounting requirements are required to support the remedies we have proposed in this review. We set out our proposals relating to reporting requirements in the following categories:

- **Public information**. This is information that we consider would give stakeholders reasonable confidence that BT has complied with its SMP conditions, allow them to contribute to the regulatory regime (as set out in paragraph 19.35), and is consistent with the level of the remedy. For example, if the remedy is in the form of a charge control on individual services or baskets of services, information should be published relating to those services or baskets of services.[718] We consider that our proposals are proportionate and strike a balance between the information that stakeholders need in order to contribute to the regulatory regime, as set out above, and confidentiality concerns that BT may have around the commercial nature of its financial information.[719]

- **Private information**. This is information that we receive privately from BT. As set out in paragraph 19.34, we may require this information in order to, for example, make informed regulatory decisions, monitor compliance with SMP conditions, ensure that those SMP conditions continue to address the underlying competition issues, and investigate potential breaches of SMP conditions and anti-competitive practices.

19.37 We also set out our proposals for the non-confidential compliance schedules that BT should publish on its website alongside the public version of the RFS.

Public information

19.38 In the published RFS, financial information on specific markets broadly relates to three areas:

- **Market level information**. This is information on the revenues, operating costs, capital employed and returns on MCE for a specific market as a whole. In the 2015/16 RFS, this information is set out in the schedules on pages 21, 25 and 28 for the 2015/16 financial year. For example, in 2015/16, these schedules show that revenue in the WFAEL market was £1.7bn and the return on MCE was

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716 Paragraph 2.39, 2014 Regulatory Financial Reporting Statement.
717 Paragraphs 4.76 to 4.85, 2014 Regulatory Financial Reporting Statement.
718 In certain circumstances, we may decide that BT needs to publish regulatory financial data that goes beyond the level of the remedy in order to give stakeholders reasonable confidence that BT has complied with its SMP conditions and allow them to contribute to the regulatory regime. For example, in the 2016 BCMR Statement, given the broad baskets used in that charge control, we decided that BT must publish financial information on certain individual services (see paragraphs 16.44 - 16.46 and 16.52 – 16.61). For the narrowband markets, we consider that all the information we propose that BT should publish is consistent with the level of the remedy.
719 The 2005 EC Recommendation also says that, when requiring information to be published, national regulatory authorities should have due regard for commercial confidentiality. See paragraph 5 of the 2005 EC Recommendation.

13.2%. The schedules also show a breakdown of operating costs and capital employed.[720]

- **Service level information**. This can include the revenue, volumes, prices and FAC of specific services or groups of services associated with the relevant market. For example, in relation to the WFAEL market, page 32 of the 2015/16 RFS gives this information for 12 services provided in that market.

- **Cost components for reported services**. In BT's cost attribution system, costs are ultimately attributed to cost components which in turn are attributed to services. A cost component schedule therefore shows how the service level FAC information is broken down by cost component. For example, in relation to the WFAEL market, page 33 of the 2015/16 RFS shows which cost components are used by each reported WFAEL service. We propose to amend the cost component schedules reported in the RFS so that the component cost information is reported in unit costs rather than the total component cost.[721] This change will make it easier to compare component costs where those components are shared across markets, for example between the WFAEL and WLA markets.

19.39 Consistent with our decision in the 2014 Regulatory Financial Reporting Statement, we consider that it is appropriate to impose the following requirements on BT in relation to the provision of public information for each narrowband market and interconnect circuits, and therefore, we propose to make directions to this effect. We have separated proposals for each market between market level, service level and cost component information.

WFAEL market

Market level information

19.40 We propose that BT must publish the revenue, operating costs, capital employed and returns for the WFAEL market. In practice, this means that the WFAEL market will continue to be included in the 'performance summary by market' schedule in the RFS and the 'attribution of wholesale current costs and mean capital employed' schedules.[722] Trends in market level financial performance are informative in the context of considering the impact and effectiveness of the remedies we propose in the WFAEL market as a whole. Market level cost information also provides transparency regarding how BT has allocated costs between regulated markets (and also between regulated and unregulated markets). We see this as facilitating stakeholder confidence that such costs have been allocated consistently and appropriately. It also mitigates against the risk of double recovery of costs or that costs might be unreasonably loaded onto particular services or markets. We consider it is appropriate to require BT to publish this information in order to understand and demonstrate the overall reliability and robustness of the RFS.

[720] Operating cost and capital employed are broken down by what BT calls 'sectors' on pages 25 and 28 of the 2015/16 RFS. These sectors provide a high level view of the types of operating costs and assets associated with the relevant market.
[721] For example, page 33 of the 2015/16 RFS shows which cost components are used by each reported WFAEL service. The cost component value by service is reported in £millions. We propose to amend this so that the values are reported in £units. The bottom row of this schedule would then change from £units to £millions and could be reconcilable to the service level FAC information.
[722] See pages 21, 25 and 28 of the 2015/16 RFS.

Service level information

19.41 We propose that BT must publish revenue, volume, average price and FAC for WFAEL services, split between internal and external customers, at the level that they are regulated.

19.42 We have proposed that WFAEL charges are subject to a fair and reasonable charges obligation and a no undue discrimination and EOI obligation. Publishing internal and external prices can help demonstrate compliance with the no undue discrimination obligation.

19.43 We consider that publishing internal and external revenues and volumes can demonstrate the impact and effectiveness of the remedies proposed in the WFAEL market and provides transparency about the relative usage of WFAEL services by BT and external CPs.

19.44 While the fair and reasonable charging obligation is not a cost-based remedy (unlike, for example, a charge control or basis of charges obligation), we consider that it is important to publish service-level cost information for this market because many costs are shared with those in other regulated markets. For example, WLR rentals share substantial costs with services in other markets, in particular MPF rentals. We consider it is important for stakeholders to see the effects of BT's attribution of costs between markets, where those costs are shared, to ensure that attributions have been made appropriately and add credibility to the financial reporting regime. We therefore propose that BT must publish service level FAC information.

19.45 We do not consider it would be appropriate to require BT to disclose information on revenues, volumes, prices and FAC for every WFAEL charge but we consider it is appropriate to require it for the principal WFAEL services. We consider that the current level of service reporting in the WFAEL market remains broadly appropriate and reflects the main WFAEL services. We therefore propose that BT should publish revenue, volume, average price and FAC information on the following services/groups of services:

- Analogue Core WLR Rentals;
- WLR Connections;
- WLR Transfers;
- WLR Conversions;
- Analogue Premium Rentals;
- WLR Premium Connections;
- WLR Premium Conversions;
- Caller Display;
- Time Related Charges; and
- Other WLR.

19.46 BT is currently required to separately report information for WLR Simultaneously Provided Connections and Conversions. These services relate to charges for WLR provided in combination with SMPF. In Section 7 we said that we will consider in our separate WLA market review what regulation is appropriate for WLR and SMPF services provided simultaneously, including regulatory financial reporting requirements in the WLA market. Therefore, in relation to the WFAEL market we propose to remove separate reporting of these two services.

19.47 In the 2014 FAMR Statement we required BT to publish a schedule of volumes and direct costs for TRCs associated with Fixed Access markets.723 We considered that this requirement was appropriate because we were setting a charge control on TRCs using cost information from BT and we had concerns with the cost information supplied by BT.[724] However, following our proposals to impose a fair and reasonable charging obligation on all WFAEL services, we propose to remove the requirements to publish this schedule for TRCs associated with the WFAEL market.

Cost components for reported services

19.48 We propose that BT must publish the calculation of service level FAC based on network component costs and usage factors for the WFAEL market. As noted above, the WFAEL rental services (mainly purchased internally by BT) share a number of costs with rental services (mainly purchased by other CPs) in other markets and we consider it is appropriate for stakeholders to see the effects of BT's attribution of costs. This can help assess compliance with the no undue discrimination obligation because it shows that components which are common to services in different markets (in particular those relating to services in the WFAEL and WLA markets) are attributed appropriately.

Approach to remedies in the wholesale ISDN2 and ISDN30 markets

19.49 As discussed in Section 7, we are proposing targeted remedies for ISDN, restricting most regulation to existing ISDN lines. We propose to largely deregulate the provision and rental of new lines after a transitional period. In Section 8, in order to address the issue of excessive pricing of existing ISDN lines, we propose to retain a charge control, based on current charges, on all wholesale ISDN2 and ISDN30 lines for a transitional period (currently, as proposed, until the end of the first year of the charge control) and existing lines from the end of the transitional period. In the following discussion of the ISDN2 and ISDN30 markets, we refer to lines which will have been installed before the end of the transitional period as 'existing lines', and new ISDN lines which will be installed after the transitional period as ''new lines'.

ISDN2 market

Market level information

19.50 We propose that BT must publish the revenue, operating costs, capital employed and returns for the ISDN2 market. In practice this means that the ISDN2 market will continue to be included in the 'performance summary by market' schedule and the 'attribution of wholesale current costs and mean capital employed' schedules in the RFS.[725] This is for the same reasons as set out in paragraph 19.40. We consider it is

[723] 2014 FAMR Statement, paragraphs 18.201 to 18.208. This schedule can be seen on page 134 of the 2015/16 RFS.
[724] For example, 2014 FAMR Statement, paragraph 18.208.
[725] See pages 21, 25 and 28 of the 2015/16 RFS.

appropriate to require BT to publish this information in order to understand and demonstrate the overall reliability and robustness of the RFS.

Service level information

19.51 We propose that BT must publish revenue, volume, and the average price for ISDN2 services, split between internal and external customers, at the level that they are regulated.

19.52 In Section 7 we have proposed that ISDN2 rentals, connections and transfers will be subject to a charge control in the form of a price cap in the transitional period, and that from the end of the transitional period, rental charges and transfer for existing lines will be subject to a price cap. Connections and subsequent rental and transfer of those connections after this date will not be subject to a charge control. We have also proposed a no undue discrimination and EOI obligation on all lines in the transitional period and on existing lines from thereafter. Publishing internal and external prices helps demonstrate compliance with the no undue discrimination obligation and allows stakeholders to see how average prices compare to the price cap.

19.53 We consider that publishing internal and external revenues and volumes demonstrates the impact and effectiveness of the remedies proposed in the ISDN2 market and provides transparency about the relative usage of ISDN2 services by BT and external CPs. We do not currently require, and do not propose to require, FAC information to be reported since the proposed charge control is index-based, rather than based directly on BT's forecast costs, and we do not therefore consider that stakeholders need visibility of ISDN2 service FAC to assess compliance with the control.

19.54 Although we are proposing removing most SMP remedies on new ISDN2 connections and subsequent rentals and transfers from the end of the transitional period, we consider that it is important to continue to report, for the whole of the next market review period, the revenue associated with new lines to ensure that the market total reconciles with that reported in the 'summary performance by market' schedule. We therefore propose that BT should publish revenue, volume and average prices for the following services/groups of services:

Transitional period (proposed to be year 1 of the charge control) (same services as currently reported[726])

- ISDN2 Rentals
- ISDN2 Connections
- ISDN2 Transfers

After the transitional period (proposed to be from year 2 of the charge control)

- ISDN2 Rentals – Existing Lines;
- ISDN2 Transfers – Existing Lines; and

[726] See page 44 of the 2015/16 RFS.

- ISDN2 – New Connections, Transfers and Rentals (revenue reporting only).

Cost components for reported services

19.55 Given that we do not propose to require BT to publish FAC for ISDN2 at the individual service level, we do not propose to require BT to publish component level FAC for ISDN2 services.

ISDN30 market

Market level information

19.56 We propose that BT must publish the revenue, operating costs, capital employed and returns for the ISDN30 market. In practice this means that the ISDN30 market will continue to be included in the 'performance summary by market' schedule and the 'attribution of wholesale current costs and mean capital employed' schedules in the RFS.[727]. This is for the same reasons as set out in paragraph 19.40. We consider it is appropriate to require BT to publish this information in order to understand and demonstrate the overall reliability and robustness of the RFS.

Service level information

19.57 We also propose that BT must publish revenue, volume, and average price for ISDN30 services, split between internal and external customers, at the level that they are regulated.

19.58 In Section 8 we have proposed that ISDN30 rental, connection, transfer and ancillary services will be subject to a charge control in the form of a price cap in the transitional period, and that from the end of the transitional period, rental and transfer charges for existing lines and ancillary services reasonably necessary for existing ISDN30 lines will be subject to a charge control. Connections and subsequent rentals and transfers after the transitional period will not be subject to a charge control. We have also proposed a no undue discrimination and EOI obligation on all lines for the transitional period and on existing lines from thereafter. Publishing internal and external prices helps demonstrate compliance with the no undue discrimination obligation and allows stakeholders to see how average prices compare to the price cap.

19.59 We consider that publishing internal and external revenues and volumes demonstrates the impact and effectiveness of the remedies proposed in the ISDN30 market and provides transparency about the relative usage of ISDN30 services by BT and external CPs. We do not currently require, and do not propose to require, FAC information to be reported since the charge control is not directly based on BT's costs and we do not consider that stakeholders need visibility of ISDN30 service FAC to assess compliance with the control.

19.60 Although we propose removing most SMP remedies on new ISDN30 rentals, transfers, connections and ancillary services from the end of the transitional period, we consider that it is important to continue to report, for the whole of the next market review period, the revenue associated with new lines to ensure that the market total reconciles with that reported in the 'summary performance by market' schedule. We

[727] See pages 21, 25 and 28 of the 2015/16 RFS.

therefore propose that BT should publish revenue, volume and average prices for the following services/groups of services:

Transitional period (proposed to be year 1 of the charge control)

- ISDN30 Rentals
- ISDN30 Connections
- ISDN30 Transfers
- ISDN30 Enhanced Care[728]
- ISDN30 Direct Dialling – Rentals
- ISDN30 Direct Dialling – Planning
- ISDN30 Direct Dialling – Connections

After the transitional period (proposed to be from year 2 of the charge control)

- ISDN30 rentals – Existing Lines;
- ISDN30 transfers – Existing Lines;
- ISDN30 Enhanced Care – Existing Lines;
- ISDN30 Direct Dialling – Rentals – Existing Lines; and
- ISDN30 – New Connections, Transfers, Rentals and Ancillary Services[729] (revenue reporting only).

Cost components for reported services

19.61 Given that we do not propose to require BT to publish FAC for ISDN30 at the individual service level, we do not propose to require BT to publish component level FAC for ISDN30 services.

WCO market

Market level information

19.62 We propose that BT must publish the revenue, operating costs, capital employed and returns for the WCO market. In practice this means that the WCO market will continue to be included in the 'performance summary by market' schedule in the RFS and the 'attribution of wholesale current costs and mean capital employed' schedules.[730] This is for the same reasons as set out in paragraph 19.40. We consider it is appropriate to require BT to publish this information in order to understand and demonstrate the overall reliability and robustness of the RFS.

[728] In section 8, we refer to these as service maintenance levels (SML) 3 and 4.
[729] This would include Enhanced Care for new lines, new Direct Dialling connections and new Direct Dialling planning.
[730] See pages 21, 25 and 28 of the 2015/16 RFS.

Service level information

19.63 Since we do not propose a no undue discrimination obligation in respect of WCO, we do not consider it is appropriate to continue requiring BT to publish internal and external prices and volumes for WCO at the individual service level. In practice, this means that the 'call origination summary' schedule in the RFS will no longer be published.[731] However, for the reasons set out below, we expect this information to continue to be provided to us privately.

19.64 Similarly, we do not currently require, and do not propose to require, service-level FAC information to be reported because we do not consider this would be appropriate given the remedies we propose. As set out in Section 7, our proposal to impose a fair and reasonable charging obligation is to address concerns over a potential price squeeze rather than excessive prices. Information on the FAC of WCO services is not clearly relevant to a price squeeze assessment so we do not require BT to publish this information. As set out below, we propose to require that FAC information is provided privately.

Cost components for reported services

19.65 Given that we do not propose to require BT to publish FAC for WCO at the individual service level, we do not propose to require BT to publish component level FAC for WCO services.

<u>WCT market</u>

Market level information

19.66 We propose that BT must publish the revenue, operating costs, capital employed and returns for WCT. In practice, this means that WCT will continue to be included in the 'performance summary by market' schedule in the RFS and the 'attribution of wholesale current costs and mean capital employed' schedules.[732] This is for the same reasons as set out in paragraph 19.40. We consider it is appropriate to require BT to publish this information in order to understand and demonstrate the overall reliability and robustness of the RFS.

Service level information

19.67 We propose that BT must publish revenue, volume, and average price for WCT services, split between internal and external customers, at the level that they are regulated.

19.68 We are proposing to set a maximum price cap on all CPs with SMP in WCT, including BT. For BT, we are also proposing to set a no undue discrimination obligation alongside regulatory financial reporting obligations in the form of accounting separation and cost accounting obligations.[733]

19.69 Requiring BT to publish internal and external prices helps demonstrate compliance with the no undue discrimination obligation and allows stakeholders to see how average prices during the year compare to the price cap. We consider that publishing

[731] See page 94 of the 2015/16 RFS.
[732] See pages 21, 25 and 28 of the 2015/16 RFS.
[733] As set out in Section 12, we propose to impose additional obligations on BT because of the volume of calls terminated by BT.

internal and external revenues and volumes demonstrates the impact and effectiveness of the remedies proposed for WCT, and provides transparency about the relative usage of WCT by BT and external CPs. Given the proposal to remove the time of day gradient[734], we propose to simplify the WCT summary schedule published in the RFS to remove time of day information where BT does not vary prices by time of day. Where BT does vary prices by time of day, we propose that time of day information on volumes and prices will continue to be required.

19.70 We do not currently require, and do not propose to require, service-level FAC information to be reported since the charge control is not based on BT's costs.

19.71 The current level of service reporting in the RFS sees WCT services being reported by network section, with local exchange segments and sticks[735] being separately reported. In Section 15 we proposed that the distinction between segments and sticks was not necessary.[736] We therefore propose that BT should publish revenue, volume and, average price information, split between internal and external customers, for a single service "WCT services".

Cost components for reported services

19.72 Given that we do not propose to require BT to publish FAC for WCT at the individual service level, we do not propose to require BT to publish component level FAC for WCT services.

Interconnect circuits

Market level information

19.73 We propose that BT must publish the revenue, operating costs, capital employed and returns for interconnect circuits. In practice this means that interconnect circuits will continue to be included in the 'performance summary by market' schedule in the RFS and the 'attribution of wholesale current costs and mean capital employed' schedules.[737] This is for the same reasons as set out in paragraph 19.40. We consider it is appropriate to require BT to publish this information in order to understand and demonstrate the overall reliability and robustness of the RFS.

Service level information

19.74 We propose that BT must publish revenue, volume, average price and FAC for interconnect circuits at the level that they are regulated. As noted in Section 17, BT has proposed in its 2015/16 Change Control Notification (CCN) to remove all internal revenues published in relation to interconnect circuits.[738] Therefore, from 2015/16 all revenues, volumes and averages prices reporting in the RFS relate to external customers only.

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[734] See Section 15.
[735] A "stick" is provided where BT provides two services, both of which include in the cost base a switch, but where only one switching stage is used. For example, where a calling party and called party are connected to the same DLE, a Same or Adjacent DLE call may be provided. In this case the call uses only the BT network to provide WCO plus WCT. Since both WCO and WCT include a switching stage, but only one switching stage is required, a stick is provided (e.g. WCO plus a WCT stick) which includes the relevant network transmission but not the switching stage.
[736] Paragraph 15.30.
[737] See pages 21, 25 and 28 of the 2015/16 RFS.
[738] Section 3.10, 2015/16 CCN.

19.75 We are proposing to set a price cap on the ISB as well as sub caps on individual ISB services. We are also proposing a no undue discrimination obligation. We consider it is appropriate to require BT to report price information to allow stakeholders to see how average prices compare to the price caps, and the publication of external revenues will allow Ofcom and other stakeholders to monitor the activities of BT to ensure that it does not discriminate unduly. We consider that publishing service level revenues and volumes helps demonstrate the impact and effectiveness of the regulation we propose for interconnect circuits. Publishing the revenues also allows stakeholders to see the revenues that are used as the weighting in the charge control formula.[739]

19.76 We propose to require BT to publish service level FAC information for ISB services since this would be consistent with the proposed charge control remedy, which, as set out in section 18, has been informed by cost information on interconnect circuits. We consider that revenue, volume, average price and FAC should be reported for the following services, which is consistent with the current level of reporting in the RFS:

- external wholesale standard Customer-Sited Interconnect connections;
- external wholesale standard Customer-Sited Interconnect rentals – fixed;
- external wholesale standard Customer-Sited Interconnect rentals – per km;
- external wholesale interconnection extension circuits connections;
- external wholesale interconnection extension circuits rentals – fixed;
- external wholesale interconnection extension circuits rentals – per km;
- external wholesale intra-building circuits connections;
- external wholesale intra-building circuits rentals;
- external wholesale in-span interconnection links rentals;
- external nominated in-span interconnection links – per km; and
- external wholesale rearrangements.[740]

19.77 As set out in Section 16, we are proposing to only regulate interconnect circuits at the DLE level of BT's network as this is consistent with the level at which we regulate WCO and WCT. CPs can also connect to BT's network at the tandem level. In order to comply with our proposed obligations, BT will need to separately identify revenues and costs associated with interconnect at the DLE and, in doing so, it may need to appropriately attribute revenues and costs to different types of interconnect service.

[739] See Section 17.
[740] According to p.69 of BT's 2016 wholesale catalogue, external wholesale rearrangements are as follows, "Rearrangement of Intra building circuits is necessary when an operator wishes to alter the actual routing of the circuit within the exchange (physical rearrangement) or the type of service offered over the circuit (software rearrangement)", https://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2016/WholesaleCatalogue2015-16.pdf

We expect BT to explain its approach to attributing revenues and costs in its Accounting Methodology Document (AMD).

Cost components for reported services

19.78 We propose that BT must publish the calculation of service level FAC based on network component costs and usage factors for interconnect circuits. This is consistent with our proposal to require the publication of service level FAC information. Network component cost information will help us and stakeholders understand the costs of interconnect circuits and assess whether costs have been attributed appropriately.

Private information

19.79 As explained above, in addition to information reported in the published RFS, BT also provides information to Ofcom privately which, overall, ensures that we have the information necessary to make informed regulatory decisions, monitor compliance with SMP conditions, ensure that those SMP conditions continue to address the underlying competition issues and investigate potential breaches of SMP conditions and anti-competitive practices.

19.80 BT currently provides a number of additional financial information (AFI) schedules privately to Ofcom, including a 'data file' which provides detailed information on all of the revenues, volumes, costs and cost categories that support the published RFS.

19.81 We propose to amend the information that BT provides to us as follows:

- remove schedules no longer required; and
- amend existing schedules.

Schedules no longer required

19.82 AFI28 relates to the disclosure of NTS Retail and PRS Bad Debt Service information in relation to the WCO market.[741] We no longer require this information (as the requirements that they related to have now been removed) so we propose to remove the requirement for BT to provide this schedule.

Amendments to existing schedules

Data file

19.83 One of the directions imposed on BT requires it to provide a data file which contains the information supporting the RFS. We have worked closely with BT to ensure that the files it provides to comply with this direction allow us to interrogate the data underpinning the RFS. We propose to make minor amendments to the direction relating to the provision of the flat file to capture the arrangements that are currently in place.

[741] See Table on page 42 of *Changes to BT and KCOM's regulatory and financial reporting 2013/14 update*, 3 April 2014, available here: https://www.ofcom.org.uk/consultations-and-statements/category-2/bt-kcom-financial-reporting-1314/summary

19.84 We also expect the data file to be capable of providing the following information (which, as explained above, will not be included as part of public reporting):

- Revenue, volume and cost information relating to each new ISDN2 and ISDN30 rental, connection and ancillary service and related component. This will help us understand whether BT is allocating costs appropriately between old and new ISDN lines which helps ensure compliance with the no undue discrimination obligation. It will also help us assess the impact and effectiveness of the remedies we are proposing.

- Revenue, volume and cost information relating to each WCO and WCT service and related components. This information helps us understand how BT is allocating costs between and within markets and helps us assess the impact and effectiveness of the remedies we are proposing. For WCO, where BT offers time of day pricing, we propose that the data file must include volumes and averages prices for each time of day price.

19.85 We propose to amend the direction to clarify that the data file should include this information.

TRC reporting

19.86 BT currently provides a schedule showing volume, revenue and cost data for TRCs associated with Fixed Access markets.[742] We propose to continue to require this schedule for TRCs associated with the WFAEL market. We require this information to monitor the impact and effectiveness of the proposed remedies, to ensure they continue to address the competition problems identified and to enable our timely and effective intervention should this be necessary. TRCs are provided in a number of different regulated markets and, given that the 2014 FAMR Statement had concerns with the cost data associated with TRCs[743], we consider that a further reason to continue to require this schedule is to ensure that BT records information necessary for the purposes of monitoring TRC revenues and costs, and to enable comparison of TRC costs across markets where relevant (for example between the WFAEL and WLA markets).

DLRIC and DSAC data

19.87 BT currently provides DLRIC and DSAC data for each service in each regulated market under AFI 29.[744] DLRIC and DSAC data can inform our market reviews and our assessment and analysis of appropriate remedies where SMP is present. It is important to receive this information on all markets in order to ensure the overall coherence of the data on DLRIC and DSAC.[745] We propose to make a small amendment to the directions to clarify that we require BT to provide this information

[742] This was a decision made in the 2014 FAMR Statement, see paragraphs 18.201 to 18.208.
[743] For example, 2014 FAMR Statement, paragraph 18.208.
[744] WFAEL, WLA, ISDN2, ISDN30, Low Bandwidth TISBO, Medium Bandwidth TISBO, High Bandwidth TISBO, TI Regional Trunk, Technical Areas (Point of Handover), AISNO non-WECLA, AISBO WECLA, MISBO non-WECLA, WCO, WCT, Technical Areas (Interconnect Circuits) and WBA market A.
[745] That is, in order to be confident in the data received for a particular service or market, it is important to be able to see how it relates to the same data for other services or markets, to ensure the overall robustness of the data and to demonstrate that attribution and LRIC methodologies have been followed appropriately.

in relation to all markets. This does not affect the amount of information currently provided by BT.

Non-confidential compliance information

19.88 In the 2014 Regulatory Financial Reporting Statement we said that "BT must produce non-confidential compliance schedules for each regulated market. These non-confidential compliance statements must be published on BT's website in the same location as the Published Regulatory Financial Statements and at the same time as the confidential compliance statements are provided to Ofcom".746 Publication of compliance statements helps provide assurance about BT's compliance with charge controls.

19.89 Following the 2015 Directions Statement BT has published non-confidential compliance schedules on its website in 2014/15 and 2015/16 in relation to the WLR, ISDN, WBA markets.[747] We propose to impose directions requiring BT to publish non-confidential compliance schedules for the narrowband markets where we are proposing a price control, i.e. the ISDN2 and ISDN30 markets, and in relation to the provision of interconnect circuits.[748]

Proposed Direction for the preparation, delivery, publication, form and content of the RFS

19.90 We therefore propose to implement the requirements set out above in paragraphs 19.32 to 19.89 by giving a direction to BT setting the requirements explained above in relation to preparation, delivery, publication, form and content of the RFS in respect of the proposed narrowband markets and interconnect circuits. We consider that it is appropriate for the form of the proposed direction to be based on the form of the direction given in the 2015 Directions Statement with the modifications necessary to reflect our proposals set out above.

19.91 We consider that giving the proposed direction specifying requirements in relation to the preparation, delivery, publication, form and content of the RFS for each market would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act for the reasons given in paragraph 19.13. In proposing this change, we have taken due account of all applicable recommendations issued by the European Commission under Article 19(1) of the Framework Directive, in particular the 2005 EC Recommendation.

19.92 We also consider that each proposed direction meets the tests set out in section 49(2) of the Act in that it is:

- Objectively justifiable because the Direction will reflect the proposals in this consultation. Our proposals concerning the additional information to be provided, both in public and in private, seek to ensure that stakeholders have sufficient information about the products and services they purchase to provide them with

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[746] Paragraph 4.49, 2014 Regulatory Financial Reporting Statement.
[747] See the 'Regulatory Financial Statements' section of BT's website, http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/index.htm
[748] We do not propose to require BT to publish non-confidential compliance schedules for WCT, since, as set out in Section 15, we are proposing to introduce a single maximum rate for the FTR cap, indexed by CPI-X each year. We will publish the relevant price caps on our website each year (i.e. updating for CPI), as we do for Mobile Call Termination rates (see https://www.ofcom.org.uk/about-ofcom/latest/media/analysts/regulated-prices).

reasonable confidence about BT's compliance with its SMP conditions and that we have sufficient information necessary to carry out our functions.

- Not unduly discriminatory because it reflects BT's market position in the UK excluding the Hull area. KCOM is the only other SMP provider which has regulatory accounting obligations, and we have explained in this consultation the reasons for requiring relevant information from BT both publicly and privately.

- Proportionate because the Direction will be no more than is required in order to ensure the effectiveness of the proposals in this consultation and ensures that Ofcom and stakeholders are provided with a sufficient level of information, and does not extend beyond these.

- Transparent because it is clear that the intention of the Direction will be to make sure that the RFS remain fit for purpose and that Ofcom and stakeholders are provided with a sufficient level of information.

KCOM reporting

19.93 In Section 10 we propose to impose accounting separation and cost accounting remedies on KCOM in relation to the WFAEL, ISDN2, ISDN30 and WCO markets. We said that we are proposing to impose on KCOM the SMP conditions capturing the specific form of KCOM's accounting separation and cost accounting requirements from the 2004 Regulatory Financial Reporting Statement.[749] Given KCOM's size relative to BT and its potential impact on the UK telecoms market, the regulatory financial reporting requirements on KCOM in the past have been less than those applied to BT.[750]

19.94 In the 2004 Regulatory Reporting Statement we also set out our reasoning and policy decisions about the detailed requirements which we considered were appropriate for KCOM's RFS in all regulated markets and which we implemented by way of six directions. These six directions currently apply to KCOM and specify requirements in relation to the following:

- **Direction 1: Network components**. This direction specifies all of the network cost components used by KCOM to prepare the RFS. To preserve the integrity and consistency of KCOM's regulatory financial reporting it is important that there is a single list of components used to attribute costs to markets and services in each regulated market.

- **Direction 2: Transparency**. One of the purposes of imposing a cost accounting obligation is to ensure that fair, objective and transparent criteria are used to prepare regulatory financial statements. The purpose of this direction is therefore to ensure that any information, material or explanatory document prepared by KCOM in respect of the RFS is sufficiently transparent, such that a suitably

[749] *The Regulatory Financial Reporting Obligations on BT and Kingston Communications Final Statement and Notification*, 22 July 2004.
[750] This was recognised in our 2004 Regulatory Financial Reporting Statement. In paragraph 3.25 we said "Given Kingston's size relative to BT and its potential impact on the UK telecoms market, Ofcom considers that there is some scope to reduce the level of detail that Kingston is required to prepare, have audited and publish on a regular basis. However, Ofcom notes that it expects Kingston to have processes in place that will
enable it to produce this information if required." Statement available here: https://www.ofcom.org.uk/__data/assets/pdf_file/0034/55969/finance_report.pdf.

informed reader can gain a clear understanding of the information presented. To preserve the integrity and consistency of the RFS we consider that all markets should be subject to the same transparency direction.

- **Direction 3: Preparation, audit, delivery and publication of the RFS**. This direction sets out which financial schedules KCOM is required to provide for each regulated market and the audit opinion that it is required to obtain for each schedule (consistent with Directions 5 and 6). This direction plays an important role in ensuring that the RFS provide relevant information to stakeholders. Some elements of the published RFS relate to all markets[751], while others are specific to particular markets. To preserve the integrity and consistency of the RFS, we consider that all markets should be subject to appropriate reporting requirements.

- **Direction 4: Form and content of the RFS**. This direction sets out the format of each financial schedule from Direction 3. As with Direction 3, this direction plays an important role in ensuring that the RFS provide relevant information to stakeholders and, to preserve the integrity and consistency of the RFS, we consider that all markets should be subject to appropriate reporting requirements.

- **Direction 5 (form of the 'FPIA' opinion for financial statements) and Direction 6 (form of the 'PPIA' opinion for financial statements)**. These directions set out the standard of audit review for each financial schedule set out in Direction 3. FPIA means 'fairly presents in accordance with' and PPIA means 'properly prepared in accordance with'.[752]

19.95 We propose that these six directions should continue to apply to KCOM, but we have proposed modifications to Directions 1, 3 and 4 to reflect our how we are proposing to regulate KCOM and to ensure that Ofcom and stakeholders receive relevant financial information. These modifications are explained below.

Modification to Direction 1: Network components

19.96 In the 2016 BCMR Statement we decided to amend KCOM's list of network components to include the following components:[753]

- Local Loop Infrastructure;
- Exchange to Exchange Infrastructure;
- Electronics;
- Field provision;
- Field maintenance;
- Back-office Provision;
- Back-office Maintenance;

[751] For example, the reconciliation of the RFS as a whole to KCOM's statutory accounts.
[752] Paragraphs 4.56 and 4.57 of the 2014 Regulatory Financial Reporting Statement explain what opinion is required under FPIA and PPIA.
[753] Paragraph 14.120 and 14.121, 2016 BCMR Statement.

- Sales and Product Management;
- Net Current Assets; and
- Other.

19.97 We have considered whether these additional components should be applied to the narrowband markets. For the reasons given below, we propose to amend the list of network components associated with the WFAEL, ISDN2, ISDN30 and WCO markets consistent with the 2016 BCMR Statement. To preserve the integrity and consistency of KCOM's RFS it is important that there is a single list of components used to attribute costs to services in regulated markets. Consistent with the 2016 BCMR Statement, we propose that KCOM would need to implement this change for its 2017/18 RFS in order to allow time for KCOM to update its accounting systems.

WFAEL market

19.98 KCOM's 2015/16 RFS reports four components in relation to the WFAEL market:

- exchange concentrator;
- exchange-exchange transmission length;
- Product Policy and Planning for narrowband call services; and
- local loop infrastructure.

19.99 We do not consider that these components reflect the main cost elements of WFAEL services. At a high level, we would expect the components to broadly reflect the costs associated with the main building blocks required to provide WFAEL services, for example: the copper line and associated duct; frames; jumpering[754]; line cards and testing equipment. We therefore propose to amend the list of network components associated with the WFAEL market consistent with the 2016 BCMR Statement. These components are set out in paragraph 19.96.

19.100 Once included in KCOM's cost attribution system, we would expect the component Exchange to Exchange Infrastructure to capture the costs of frames and jumpering associated with WFAEL services, while the Electronics component would capture costs of line cards and testing equipment.

ISDN2 market

19.101 KCOM's 2015/16 RFS reports four components in relation to the ISDN2 market:

- exchange concentrator;
- exchange-exchange transmission length;
- Product Policy and Planning for narrowband call services; and
- local loop infrastructure.

[754] The engineering activity associated with wiring the end-users line with the CPs equipment.

19.102 We do not consider that these components reflect the main cost elements of ISDN2 services. At a high level, we would expect the components to broadly reflect the costs associated with the main building blocks required to provide ISDN2 services, for example: the copper line and associated duct; frames; jumpering; line cards and testing equipment. We therefore propose to amend the list of network components associated with the ISDN2 market consistent with the 2016 BCMR Statement. These components are set out in paragraph 19.96.

19.103 Once included in KCOM's cost attribution system, we would expect the component Exchange to Exchange Infrastructure would capture the costs of frames and jumpering associated with ISDN2 services, while the Electronics component would capture costs of line cards and testing equipment.

ISDN30 market

19.104 KCOM's 2015/16 RFS reports four components in relation to the ISDN30 market:

- exchange concentrator;
- exchange-exchange transmission length;
- Product Policy and Planning for narrowband call services; and
- local loop infrastructure.

19.105 We do not consider that these components reflect the main cost elements of ISDN30 services. At a high level, we would expect the components to broadly reflect the costs associated with the main building blocks required to provide ISDN30 services; for example, the copper or fibre line and associated duct; frames; jumpering; line cards and testing equipment. We therefore propose to amend the list of network components associated with the ISDN30 market consistent with the 2016 BCMR Statement. These components are set out in paragraph 19.96.

19.106 Once included in KCOM's cost attribution system, we would expect the component Exchange to Exchange Infrastructure would capture the costs of frames and jumpering associated with ISDN30 services while the Electronics component would capture costs of line cards and testing equipment.

WCO market

19.107 KCOM's 2015/16 RFS reports seven components in relation to the WCO market: i) exchange concentrator; ii) exchange processor; iii) exchange-exchange transmission link; iv) exchange-exchange transmission length; v) national operator assistance; vi) emergency operator assistance; and vii) Product Policy and Planning for narrowband call services. These components appear broadly appropriate and reflect the main cost elements of WCO services. However, to ensure consistency with cost components proposed in other markets, we propose to amend the list of network components associated with the WCO market consistent with the 2016 BCMR Statement. These components are set out in paragraph 19.96. As a result, once these new components are included in KCOM's cost attribution system, we would expect, for example, that the current component Product Policy and Planning for narrowband call services would be replaced with the proposed new component Sales and Product Management.

Modification to Direction 1

19.108 We propose modifying the information set in Annex A to Direction 1 by adding the network components listed at paragraph 19.96 above.

19.109 We consider that the proposed modifications to Direction 1 would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act because:

- Our proposal is aligned with Ofcom's regulatory decisions and gives confidence to stakeholders about the absence of bias in the preparation of the Regulatory Financial Statements. It also ensures that the presentation and usability of the Regulatory Financial Statements is improved and that the obligations that are imposed on KCOM are proportionate.

- The proposal therefore seeks to ensure that the RFS remain relevant, thereby increasing transparency. Ultimately, this promotes competition.

19.110 We also consider that the proposed modifications meet the tests set out in section 49(2) of the Act in that it is:

- Objectively justifiable because it is necessary for us to give a direction specifying network components. Our proposal about the modification of list of network components is objectively justifiable because it is necessary to make the reporting of services in Narrowband markets consistent with the reporting of services in other regulated markets.

- Not unduly discriminatory because it reflects KCOM's market position in the Hull area. BT is the only other SMP provider which has regulatory accounting obligations and we have also decided to update BT's list of components in this consultation.

- Proportionate because our proposal is no more than is required to specify network components and ensure that the reporting of services in narrowband markets is consistent with the reporting of services in other regulated markets.

- Transparent because it is clear that our proposal seeks to specify network components and to make the reporting of services in Narrowband markets consistent with the reporting of services in other regulated markets and to ensure that these components remain fit for purpose.

Modifications to Direction 3 (preparation, audit, delivery and publication of the RFS) and Direction 4 (form and content of the RFS)

19.111 Together, Directions 3 and 4 specify what financial schedules KCOM should prepare and what information it should publish in its RFS.

19.112 Although the 2014 Regulatory Financial Reporting Statement did not explicitly apply to KCOM[755], we consider that some of the principles from that statement are relevant when considering the regulatory financial reporting we require from KCOM. In particular, we consider it is appropriate that the information we require KCOM to publish in its RFS should reflect the level of the remedy (as it does with BT's reporting) and strike a balance between information that stakeholders need in order

[755] See paragraphs 2.125 and 2.126 of the 2014 Regulatory Financial Reporting Statement.

to contribute to the regulatory regime, confidentiality concerns that KCOM may have around the commercial nature of its financial information and, in the case of KCOM, its smaller scale relative to BT.

19.113 We have not previously required KCOM to provide us with information privately. However, as set out below, we propose to remove the requirement for KCOM to publish cost component information for the WFAEL, ISDN2, ISDN30 and WCO markets on the basis that we are not proposing to impose cost-based remedies on KCOM in the form of cost-based charge controls or cost orientation obligations.[756] In order for KCOM to demonstrate compliance with its cost accounting obligations, we propose to require KCOM to provide us with cost component information for each of these markets privately. This will help demonstrate to us that KCOM is using an appropriate cost accounting system to attribute costs to markets.[757]

19.114 We also propose to remove the requirement for KCOM to publish two schedules showing internal and external sales by market in relation to narrowband markets.[758] These schedules show average time of day prices for WCO and revenue information for all regulated markets. We do not consider that it is appropriate to require average time of day prices to be reported for WCO given that we propose to remove the obligations on KCOM not to unduly discriminate. The revenue information on this schedule is duplicated in other schedules in the RFS.

19.115 In addition, KCOM publishes a profit and loss and balance sheet which consolidates the information for each of the WFAEL, ISDN2, ISDN30 and WCO markets.[759] We propose to remove these two schedules because the information is already included in the individual profit and loss and balance sheet schedules for each individual market.

19.116 Further, we propose to make some minor modifications to Direction 3 to reflect KCOM's current reporting arrangements.[760]

19.117 After reviewing the reporting currently provided publicly by KCOM, in the rest of this section we set out our proposals on:

- the public information to be reported by KCOM in relation to the narrowband markets; and

- the information on cost components that we require KCOM to provide us with privately.

[756] A summary of our proposals for KCOM can be found in Tables 10.1 and 10.2 in Section 10 of this consultation.
[757] We will continue to require KCOM to publish a description of its cost accounting system each year. See http://www.kcomplc.com/regulatory/regulatory-accounts/.
[758] See pages 50 and 51 of KCOM's 2015/16 RFS.
[759] See pages 9 and 10 of KCOM's 2015/16 RFS.
[760] These modifications clarify that KCOM is not required to publish incremental cost information and it is only required to publish a consolidated network services reconciliation statement (see page 59 of KCOM's 2015/16 RFS) and not one for each market. These modifications do not affect the information to be published by KCOM in its RFS.

WFAEL market

Public information

19.118 KCOM currently publishes a profit and loss account, balance sheet and a cost component breakdown for the WFAEL market.[761]

19.119 We propose that KCOM must continue to publish the profit and loss and balance sheet schedules. Trends in market-level financial performance allow us to monitor developments in the market and are informative in the context of considering the impact and effectiveness of remedies as a whole. Market level cost information also provides transparency regarding how KCOM has attributed costs between regulated markets (and also between regulated and unregulated markets). We see this as facilitating stakeholder confidence that such costs have been attributed consistently.

19.120 We propose to remove the obligation for KCOM to publish a component cost breakdown for the WFAEL market. As set out in paragraph 19.113, we do not consider that the publication of this information is appropriate where a cost-based charge control is not being imposed.

19.121 KCOM also publishes a schedule showing internal and external sales by market.[762] For WFAEL, this information is duplicated in the profit and loss account so we propose to remove the requirement to publish this schedule.[763]

Private information on cost components

19.122 As set out in paragraph 19.113, we propose that KCOM must provide cost component information to us privately to demonstrate that it is using an appropriate cost accounting system to attribute costs to markets, including the use of the required network components. We therefore propose that KCOM must provide us with a schedule showing the breakdown by cost component of the operating costs and capital employed associated with the WFAEL market.

ISDN2 market

Public information

19.123 KCOM currently publishes a profit and loss account, balance sheet and a component cost breakdown for the ISDN2 market.[764]

19.124 We propose that KCOM must continue to publish a profit and loss account and balance sheet. Trends in market level financial performance allow us to monitor developments in the market and are informative in the context of considering the impact and effectiveness of remedies as a whole. Within the profit and loss account, we propose that internal sales and external sales should be split between existing lines and new lines from the end of the transitional period, consistent with the remedy. Market level cost information also provides transparency regarding how KCOM has attributed costs between regulated markets (and also between regulated

[761] See pages 12 to 14 of KCOM's 2015/16 RFS, available here: http://www.kcomplc.com/regulatory/regulatory-accounts/
[762] Pages 50 and 51 of KCOM's 2015/16 RFS.
[763] The revenue information is duplicated for all markets so we propose to remove this schedule in its entirety.
[764] See pages 16 to 18 of KCOM's 2015/16 RFS.

and unregulated markets). We see this as facilitating stakeholder confidence that such costs have been attributed consistently.

19.125 We propose to remove the obligation for KCOM to publish a component cost breakdown for the ISDN2 market. As set out in paragraph 19.113, we do not consider that the publication of this information is appropriate where no cost based charge control is being imposed.

19.126 KCOM also publishes a schedule showing internal and external sales by market.765 For ISDN2 this information is duplicated in the profit and loss account so we propose to remove the requirement to publish this schedule.

Private information on cost components

19.127 As set out in paragraph 19.113, we propose that KCOM must provide cost component information to us privately to demonstrate that it is using an appropriate cost accounting system to attribute costs to markets, including the use of the required network components. We therefore propose that KCOM must provide us with a schedule showing the breakdown by cost component of the operating costs and capital employed associated with the ISDN2 market.

<u>ISDN30 market</u>

Public information

19.128 KCOM currently publishes a profit and loss account, balance sheet and a component cost breakdown for the ISDN30 market.[766]

19.129 We propose that KCOM must continue to publish a profit and loss account and balance sheet. Trends in market level financial performance allow us to monitor developments in the market and are informative in the context of considering the impact and effectiveness of remedies as a whole. Within the profit and loss account, we propose that internal sales and external sales should be split between existing lines and new lines from the end of the transitional period, consistent with the remedy. Market level cost information also provides transparency regarding how KCOM has attributed costs between regulated markets (and also between regulated and unregulated markets). We see this as facilitating stakeholder confidence that such costs have been attributed consistently.

19.130 We propose to remove the obligation for KCOM to publish a component cost breakdown for the ISDN30 market. As set out in paragraph 19.113, we do not consider that the publication of this information is appropriate where no cost based charge control is being imposed.

19.131 KCOM also publishes a schedule showing internal and external sales by market.[767] For ISDN2, this information is duplicated in the profit and loss account so we propose to remove the requirement to publish this schedule.

[765] Pages 50 and 51 of KCOM’s 2015/16 RFS.
[766] See pages 20 to 22 of KCOM’s 2015/16 RFS.
[767] Pages 50 and 51 of KCOM’s 2015/16 RFS.

Private information on cost components

19.132 As set out in paragraph 19.113, we propose that KCOM must provide cost component information to us privately to demonstrate that it is using an appropriate cost accounting system to attribute costs to markets, including the use of the required network components. We therefore propose that KCOM must provide us with a schedule showing the breakdown by cost component of the operating costs and capital employed associated with the ISDN30 market.

WCO market

Public information

19.133 KCOM currently publishes a profit and loss account, balance sheet and a component cost breakdown for the WCO market.[768]

19.134 We propose that KCOM must continue to publish a profit and loss account and balance sheet. Trends in market level financial performance allow us to monitor developments in the market and are informative in the context of considering the impact and effectiveness of remedies as a whole. Market level cost information also provides transparency regarding how KCOM has attributed costs between regulated markets (and also between regulated and unregulated markets). We see this as facilitating stakeholder confidence that such costs have been attributed consistently.

19.135 We propose to remove the obligation for KCOM to publish a component cost breakdown for the WCO market. As set out in paragraph 19.113, we do not consider that the publication of this information is proportionate where no cost based charge control is being imposed.

19.136 KCOM also publishes a schedule showing internal and external sales by market.769 For WCO, this information is duplicated in the profit and loss account so we propose to remove the requirement to publish this schedule. In addition, these schedules publish internal and external time of day prices and volumes (minutes). Since we have not proposed to impose a no undue discrimination obligation in respect of WCO, we do not consider it is appropriate to continue requiring KCOM to publish internal and external prices and volumes for WCO.

Private information on cost components

19.137 As set out in paragraph 19.113, we propose that KCOM must provide cost component information to us privately to demonstrate that it is using an appropriate cost accounting system to attribute costs to markets, including the use of the required network components. We therefore propose that KCOM must provide us with a schedule showing the breakdown by cost component of the operating costs and capital employed associated with the WCO market.

Modification to Direction 3 (Preparation, Audit, Delivery and Publication of the RFS)

19.138 We propose modifying Direction 3 for each market as follows:

[768] See pages 24 to 26 of KCOM’s 2015/16 RFS.
[769] Pages 50 and 51 of KCOM’s 2015/16 RFS.

- Annex A will be modified so that the cost component schedule should be provided to Ofcom privately rather than published for each of the WFAEL, ISDN2, ISDN30 and WCO markets.

- Annex B will be modified so that the schedules showing internal and external revenue for all markets and time of day pricing and volumes for WCO are no long required for narrowband markets.

19.139 We consider that the proposed modifications to Direction 3 would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act because:

- Our proposal is aligned with Ofcom's regulatory decisions and gives confidence to stakeholders about the absence of bias in the preparation of the Regulatory Financial Statements. It also ensures that the presentation and usability of the Regulatory Financial Statements is improved and that the obligations that are imposed on KCOM are proportionate.

- The proposal therefore seeks to ensure the RFS remain relevant, thereby increasing transparency. Ultimately, this promotes competition.

19.140 We also consider that proposed modifications meet the tests set out in section 49(2) of the Act in that they are:

- Objectively justifiable because the Direction will reflect the proposals in this consultation. Our proposals concerning the information to be provided, both in public and in private, seek to ensure that stakeholders have sufficient information about the products and services they purchase to provide them with reasonable confidence about KCOM's compliance with its SMP conditions and that we have sufficient information necessary to carry out our functions.

- Not unduly discriminatory because it reflects KCOM's market position in the Hull area. BT is the only other SMP provider which has regulatory accounting obligations, and we have explained in this consultation the reasons for requiring relevant information from KCOM both publicly and privately.

- Proportionate because the modifications will be no more than is required in order to ensure the effectiveness of the proposals in this consultation and ensures that Ofcom and stakeholders are provided with a sufficient level of information, and does not extend beyond these.

- Transparent because it is clear that the intention of the modifications will be to make sure that the RFS remain fit for purpose and that Ofcom and stakeholders are provided with a sufficient level of information.

Modification to Direction 4 (Form and Content of the RFS)

19.141 We propose modifying Direction 4 as follows:

- Annexes 7 and 8 will be removed. These annexes contain schedules showing the consolidated profit and loss account and balance sheet for the WFAEL, ISDN2, ISDN30 and WCO markets.

- Annex 9 will be modified for the ISDN2 and ISDN30 markets to split internal and external sales between existing lines and new lines in the P&L schedule from the end of the transitional period.

19.142 We consider that the proposed modifications to Direction 4 would fulfil our general duties under section 3 of the Act and meet the Community requirements set out in section 4 of the Act because:

- Our proposal is aligned with Ofcom's regulatory decisions and gives confidence to stakeholders about the absence of bias in the preparation of the Regulatory Financial Statements. It also ensures that the presentation and usability of the Regulatory Financial Statements is improved and that the obligations that are imposed on KCOM are proportionate.

- The proposal therefore seeks to ensure the RFS remain relevant, thereby increasing transparency. Ultimately, this promotes competition.

19.143 We also consider that proposed modifications meet the tests set out in section 49(2) of the Act in that they are:

- Objectively justifiable because the modifications will reflect the proposals in this consultation. Our proposals concerning the information to be provided, both in public and in private, seek to ensure that stakeholders have sufficient information about the products and services they purchase to provide them with reasonable confidence about KCOM's compliance with its SMP conditions and that we have sufficient information necessary to carry out our functions.

- Not unduly discriminatory because it reflects KCOM's market position in the Hull area. BT is the only other SMP provider which has regulatory accounting obligations, and we have explained in this consultation the reasons for requiring relevant information from KCOM both publicly and privately.

- Proportionate because the modifications will be no more than is required in order to ensure the effectiveness of the proposals in this consultation and ensures that Ofcom and stakeholders are provided with a sufficient level of information, and does not extend beyond these.

- Transparent because it is clear that the intention of the modifications will be to make sure that the RFS remain fit for purpose and that Ofcom and stakeholders are provided with a sufficient level of information.

Consultation question

Q19.1: Do you agree with our proposals for BT and KCOM's regulatory financial reporting? Please provide reasons and evidence in support of your views.