



Review of the wholesale broadband access markets

Draft statement on market definition, market power
determinations and remedies

Draft
Statement

Notified to the European
Commission:

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Contents

Section		Page
1	Summary	2
2	Introduction	7
3	Product market definition	30
4	Geographic market definition	82
5	Market power assessment	124
6	Remedies	145
7	Charge control framework for WBA Market A services	202

About this document

This document sets out Ofcom's conclusions on the review of the Wholesale Broadband Access market.

Broadband services play an important role in enabling residential and business consumers to access a range of content and services. Effective retail competition plays a key role in ensuring that consumers benefit from lower prices, greater choice, better quality services and innovation. It has also encouraged high take-up of broadband among consumers.

The Wholesale Broadband Access market includes the wholesale broadband products that communications providers provide for themselves and sell to each other. This market is important because it helps to create competition among the providers of broadband services that consumers buy.

This draft statement, which explains our decisions to ensure this market remains competitive, is today being notified to the European Commission for comments. Once this notification process is complete, we will publish a final statement to bring our decisions into effect.

Section 1

Summary

- 1.1 Broadband services play an important role in enabling residential and business consumers to access a range of content and services. Effective retail competition plays a key role in ensuring that consumers benefit from lower prices, greater choice, better quality services and innovation, and has helped to promote high levels of broadband adoption.
- 1.2 This statement sets out our conclusions on how we should regulate the wholesale broadband access (WBA) market over the next few years. In doing so, it considers the level of competition that exists, and is anticipated to exist, in this market.
- 1.3 The WBA market sits between the retail broadband market, which relates to the products that consumers buy, and the Wholesale Local Access (WLA) market, which relates to the access connection between the consumer and the network. The WBA market concerns the wholesale broadband products that CPs provide for themselves and sell to each other.
- 1.4 Competition in retail broadband services depends on effective competition in the WBA market, complemented by regulation where necessary.
- 1.5 Levels of competition in WBA vary across the country. Urban areas are most likely to have a choice of broadband access providers, thanks to competition from communications providers (CPs) using cable – primarily Virgin – and those that take advantage of local loop unbundling (LLU), such as Sky and TalkTalk. The intensity of competition tends to reduce as the population density decreases. This is because the economics of rolling out broadband infrastructure is more challenging in areas with lower population density.
- 1.6 However, these geographic variations are evolving as the market develops. Since 2010, competition has spread to more rural areas as CPs have continued to roll out their broadband networks, but it has still not reached the most remote areas.
- 1.7 Our definition of the WBA market has evolved in line with market developments: whereas in 2010 we defined four distinct geographic markets, we now define only three: Market A – where no more than two Principal Operators¹ (PO) are present or forecast to be present, which accounts for 9.5% of UK premises; Market B – in which there is effective competition, accounting for 89.8% of premises; and the Hull Area – 0.7% of UK premises, where KCOM is the only significant provider.² Market A tends to be in the most rural and remote parts of the country.
- 1.8 As we have found effective competition in Market B, we are not imposing regulation in that market. In addition, we are removing regulation in those parts of Market B where there is currently regulation – approximately 12% of UK premises. In Market A, where we have found BT has significant market power (SMP), and the Hull Area,

¹ We explain what we mean by 'Principal Operator' in Section 4. As described in Section 4 we do not count POs as being present, or forecast to be present, in areas where they only have a fibre service, due to the uncertainty over how fibre competition will develop.

² See Sections 3 and 4 for a full discussion of our market definition.

where we have found KCOM has SMP, we are imposing general access, non-discrimination and transparency obligations.³

- 1.9 In Market A we are also implementing a charge control at a level of CPI-X%, together with cost accounting obligations.

Introduction and context

- 1.10 The purpose of this review is to analyse the state of competition in the WBA market and to consider the appropriate form of ex ante regulation, if any, that should be imposed in that market. The market review process requires us to identify any competition problems and impose appropriate remedies; in order to do so we have to identify and define relevant markets and assess whether any CP has SMP.
- 1.11 The WBA market logically sits between the retail broadband market and the Wholesale Local Access (WLA) market. The WLA market concerns access to the fixed telecommunications infrastructure – the connection between consumers' premises and the telecommunications network. It is therefore critical for all fixed line services. We are also publishing today a statement on the WLA market.⁴ The WBA market relates to the wholesale broadband products that CPs provide for themselves and sell to each other. It is important for consumers because these services are one of the building blocks of the retail broadband offers that consumers buy.
- 1.12 This is now the fourth such review of the WBA market, the last of which we completed in 2010/2011.⁵ In that review we defined four geographic markets:
- the Hull Area, where KCOM was the sole supplier of fixed broadband access;
 - Market 1: exchanges where only BT was present or forecast to be present;
 - Market 2: exchanges where two POs, including BT, were present or forecast to be present or where three were present or forecast to be present, but BT's market share was 50 per cent or more; and
 - Market 3: exchanges where four or more POs were present or forecast and exchanges where three POs were present or forecast but where BT's share was less than 50 per cent.
- 1.13 We imposed general access, non-discrimination and transparency conditions on BT in Market 1 and Market 2 and KCOM in the Hull Area. We also imposed a charge control and cost orientation obligation on BT in Market 1, and cost orientation but no charge control in Market 2. This was in part to take account of the likelihood of further entry in Market 2.
- 1.14 Since 2010 we have seen the market continue to evolve. LLU has been rolled out further, but that roll-out is now slowing considerably as CPs reach the less profitable exchanges. In parallel, there has been further consolidation among CPs, with the

³ These remedies are currently in place where BT and KCOM have been found to have SMP.

⁴ <http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/specific-conditions-entitlement/market-power/fixed-access-market-reviews-2014/statement/>

⁵ Ofcom, *Review of the wholesale broadband access markets*, 3 December 2010 <http://stakeholders.ofcom.org.uk/binaries/consultations/wba/statement/wbastatement.pdf> and Ofcom, *WBA Charge Control*, 20 July 2011 <http://stakeholders.ofcom.org.uk/binaries/consultations/823069/statement/statement.pdf>.

most recent development being Sky's purchase of O2's fixed broadband business. In addition, fibre-based 'superfast' broadband (SFBB) services are increasingly available in many parts of the country, with state-funded roll-out via Broadband Delivery UK (BDUK) planned in some of the remaining areas.

Market definition and market power

- 1.15 The first step in the market review process is to identify and define the relevant market and assess the degree of market power.
- 1.16 We have looked at the definition of both the retail and the wholesale broadband access markets because, whilst this review focuses on the wholesale market, the aim of regulation is to promote and support competition in the retail market. These are well-established markets that have been the subject of a number of market reviews. As explained above, since the last review, further roll-out of LLU has occurred, although the rate of that roll-out is slowing. There has been investment in deployment of networks to support SFBB services by Virgin and BT, particularly in areas found to be competitive in the last review, though these deployments are now beginning to extend into more rural areas. Take-up of SFBB services by consumers is increasing, though the majority of UK consumers currently still rely on standard broadband services.⁶
- 1.17 Over the period covered by this review, we expect further LLU roll-out to be much more limited. We also expect continued deployment of SFBB services, particularly in rural areas, predominantly supported by funding under the BDUK scheme. This could introduce a new source of competitive pressure, which we recognise has the potential to allow further deregulation in future. However, we consider that the strength of this constraint over the period of this review is uncertain as it is not clear how competition in fibre will develop.
- 1.18 We also foresee roll-out of fourth generation (4G) mobile networks, offering higher mobile broadband speeds than current mobile networks. 4G roll-out will also increase consumer choice and may enable some consumers to reduce dependence on fixed broadband, providing an additional constraint in the WBA market. However, we do not consider that this constraint is likely to be significant during the course of this review period.
- 1.19 We consider these developments are a continuation of the general evolution of the market.
- 1.20 Our conclusions on market definition and market power analysis are fairly similar to those of in the last review. We conclude that the relevant WBA product market remains defined as:

“Asymmetric broadband access and any backhaul as necessary to allow interconnection with other communications providers which provides an always on capability, allows both voice and data services to be used simultaneously and provides data at speeds greater than a dial up connection. This market includes both business and residential customers.”

⁶ Ofcom's speed research shows that, as of November 2013, 69% of consumers access broadband via Asymmetric Digital Subscriber Line (ADSL) technology which provides standard broadband speed services. <http://consumers.ofcom.org.uk/2014/04/broadband-speeds-research-shows-superfast-surge/>.

- 1.21 We have found that services provided via copper, cable and fibre access networks are within the same market, but that broadband access provided via mobile, wireless and satellite networks are outside the relevant market.
- 1.22 We have concluded that all speeds of broadband access are in the same wholesale market. There may come a point when this changes but the timing of this is uncertain. In the period relevant to our review, the prices of superfast services are likely to be constrained by the prices of lower speed services.
- 1.23 We have defined three distinct geographic markets, to reflect the geographical differences in competition and supply conditions:⁷
- the Hull Area: 0.7% of UK premises.
 - Market A: exchanges where there are no more than two POs present or forecast to be present, which accounts for 9.5% of UK premises.
 - Market B: exchanges where there are three or more POs present or forecast to be present, which accounts for 89.8% of UK premises.
- 1.24 We have analysed the conditions of competition in the three markets we have identified, and our findings on market power are that:
- KCOM has SMP in the provision of WBA services in the Hull Area;
 - BT has SMP in the provision of WBA services in Market A; and
 - No operator has SMP in the provision of WBA services in Market B.

Remedies

- 1.25 In 2010, we found 77.6% of UK premises to be in areas with effective competition. In this review, we have found that the competitive areas of the country – Market B – have extended further. We are not imposing any regulation in these areas. We will also remove regulation with immediate effect in exchange areas within Market B where regulation has previously been imposed.
- 1.26 Based on our finding of market power in Market A, we have found there is a risk of various competition problems including: refusal to supply, discrimination, excessive pricing and margin squeeze. We are imposing general access and non-discrimination⁸ obligations on BT to ensure that other CPs have the opportunity to use wholesale products supplied by BT to compete effectively at the retail level. We are also imposing obligations requiring BT to publish information that provides transparency of the services it provides in Market A. BT will also be subject to an accounting separation obligation to provide transparency as to the services it provides to external CPs and to its own retail divisions, and a cost accounting obligation to provide transparent cost data.
- 1.27 BT's services in Market A will be subject to a charge control in order to ensure that BT does not set excessive prices for wholesale broadband services which would ultimately be passed on to consumers. We are imposing a CPI-X charge control and the value of X will be 10.7%.

⁷ Based on analysis of data gathered in October and November 2013. See Section 4.

⁸ We are imposing non-discrimination requirements on BT on an 'Equivalence of Inputs' basis.

- 1.28 We have used a more aggregated model to calculate the value of X than we used in setting the charge control in 2011. There are significant uncertainties in forecasting both revenues and costs in this market, which means that a highly detailed model would not provide greater accuracy. Furthermore, a simplified model is a more proportionate approach now that we are controlling prices in only a relatively small part of the overall WBA market.
- 1.29 We are also setting sub-caps on the following services:
- contracted bandwidth – CPI-7.7%;
 - end-user access rental – CPI-4.7%; and
 - some ancillary services: migration, re-grade and cancellation charges – CPI-4.7%.
- 1.30 In the Hull Area, we are imposing the same general access, non-discrimination and transparency remedies as we imposed in 2010.

Section 2

Introduction

Scope and purpose of this review

- 2.1 This statement sets out our conclusions on how we should regulate the wholesale broadband access (WBA) market over the next few years. In doing so, it considers the level of competition that exists, and is anticipated to exist, in this market.
- 2.2 The WBA market sits between the retail broadband market, which relates to the products that consumers buy, and the Wholesale Local Access (WLA) market, which relates to the access connection between the consumer and the network. The WBA market concerns the wholesale broadband products that CPs provide for themselves and sell to each other.
- 2.3 Today, we are also publishing a statement on the Fixed Access Market Review (the 2014 FAMR Draft Statement),⁹ which includes the WLA market. That market review has considered what regulation we should put in place to allow access to infrastructure in the access network of any dominant providers.
- 2.4 In reviewing the WBA market, we are concerned with assessing whether there is sufficient competition based on competing infrastructures, or whether we need to impose additional remedies at the WBA level in order that CPs can provide competing retail offers.
- 2.5 We set out our market review process in summary below and we provide more detail in Annex 3.

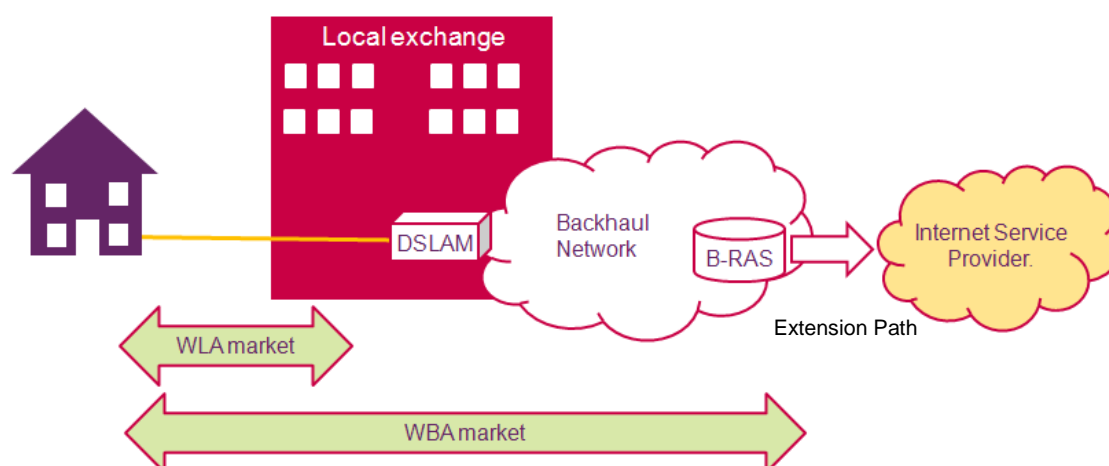
Background to this statement

WBA product description

- 2.6 WBA products offer the opportunity to enter the broadband market without the need to deploy an access network (or the need to use an upstream remedy such as Local Loop Unbundling (LLU) or Virtual Unbundled Local Access (VULA)). WBA products require only a limited number of interconnection points to provide nationwide coverage. As such, WBA products can be used by new providers entering the market, or by providers wishing to offer services in exchange areas where they have not deployed their own access network. Given the economics of providing full national coverage by deploying alternate access networks or via LLU, all providers except BT are likely to be dependent on WBA products to some extent to provide service on a national basis.
- 2.7 Figure 2.1 illustrates WBA products using the current copper access network.

⁹ <http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/specific-conditions-entitlement/market-power/fixed-access-market-reviews-2014/draftstatement/>

Figure 2.1: WBA products using current generation copper access network



2.8 WBA products are built using a number of elements:

- the access network considered in the WLA market review, which includes the connection from the customer's premise to the local exchange;¹⁰
- the broadband equipment at the local exchange (Digital Subscriber Loop Access Multiplexor (DSLAM), or Multi-Service Access Node (MSAN));¹¹
- backhaul connectivity across the WBA provider's network; and
- the functionality of the Broadband Remote Access Server (BRAS), which provides management of the end-user's internet sessions.

2.9 The characteristics of WBA products support the main features of retail broadband offers:

- The maximum upstream and downstream speeds are constrained by the capabilities of the specific equipment deployed by the WBA product provider at the local exchange. For products that use the copper access network, the distance between the customer premise and the local exchange (or cabinet, in the case of fibre-to-the-cabinet (FTTC)) is an additional limiting factor. In addition to the upstream and downstream speed limits, retail products may be differentiated by maximum data caps and/or fair use policies during peak hours.¹²
- The WBA provider's network may support Differentiated Services¹³, or alternative technical means, to facilitate the provision of Quality of Service (QoS). Data traffic may be classified according to priority, e.g. "best effort", "assured rate" or "real time", with sub-classes used for more granular prioritisation control.

¹⁰ As discussed in the 2014 FAMR Draft Statement, Sub-Loop Unbundling is a remedy also offered in the WLA market. This provides access at the cabinet instead of the local exchange. However the general characteristics of WBA products built using SLU would be the same.

¹¹ CPs may provide voice and broadband over the copper access line by deploying a MSAN rather than a DSLAM. The broadband service provided over the MSAN is equivalent to that provided via a DSLAM.

¹² When the network is busy, an ISP may choose to limit the speed at which some bandwidth hungry traffic (such as peer-to-peer networking or video on demand services) may operate.

¹³ For example, "Wholesale Broadband Connect – Operational Handbook version 4", paragraph 6.8 on Packet marking of traffic, BT Wholesale.

- The CP is typically offered a sufficient level of control over the capacity used on the WBA provider's backhaul network, e.g. by setting the upstream and downstream throughput limits.
- 2.10 Products in the WBA market offer CPs the ability to use the WBA provider's core network in order to facilitate the handover of end users' traffic from the WBA provider's network to the CP's network at convenient locations.¹⁴
- 2.11 The customer access element of the WBA product is controlled by the WBA provider, allowing for much less opportunity for innovation by the interconnected CP than the latter could potentially achieve by deploying their own network. Product differentiation is focused at the retail services level.
- 2.12 BT provides a number of WBA products, using the network architecture shown in Figure 2.1 above. A DSLAM supports ADSL (which is technically capable of offering a headline speed of up to 8Mb/s downstream), while an MSAN supports ADSL2+ technology (deployed as part of BT's 21st Century Network (21CN) deployment, which is technically capable of offering headline speeds up to 24Mbit/s). Using ADSL, BT offers the following products:
- DataStream, which is a legacy product based on Asynchronous Transfer Mode (ATM) technology; and
 - IPstream, which provides an IP service offering aggregated access for CPs.
- 2.13 Using ADSL2+ technology, BT provides the Wholesale Broadband Connect (WBC) product.
- 2.14 BT is also deploying a Next Generation Access (NGA) network, using Fibre to the Cabinet (FTTC) and Fibre to the Premise (FTTP). FTTC means that the DSLAM is located in the street cabinet (which is located closer to the customer than the local exchange). The cabinet is then connected to the network using fibre whilst the copper line remains in place between the customer and the cabinet. The DSLAM in the cabinet uses Very high bit rate DSL (VDSL) technology. FTTP replaces the access connection between the customer and the network completely with fibre and no DSLAM is needed.
- 2.15 BT provides access to its FTTC and FTTP deployments through the WBC FTTC/FTTP products. These offer headline speeds of up to 80Mb/s for FTTC and up to 330Mb/s for FTTP.

The findings of the last WBA market review

- 2.16 In December 2010, we published our findings in the last WBA review.¹⁵ In that review we concluded that the relevant product market was:

“Asymmetric broadband access and any backhaul as necessary to allow interconnection with other communications providers which provides an always on capability, allows both voice and data

¹⁴ BT Wholesale calls this facility an “Extension Path” that is available to CPs via its Multi Service Interconnect Link (MSIL) and/or via Openreach's CableLink product, “*Wholesale Broadband Connect – Operational Handbook version 4*”, paragraph 4.4, BT Wholesale.

¹⁵ Review of the wholesale broadband access markets, Statement on market definition, market power determinations and remedies, 3 December 2010, <http://stakeholders.ofcom.org.uk/binaries/consultations/wba/statement/wbastatement.pdf>.

services to be used simultaneously and provides data speeds greater than a dial up connection. This market includes both business and residential customers”.

2.17 We considered the extent to which different competitive conditions existed in different geographic locations. We concluded that the key determining factor in this assessment was the number of Principal Operators (POs) – operators which are large enough to impose a material competitive constraint. We did not define POs via rigid thresholds, but designated as POs those operators which were relatively large, with a substantial presence across the UK as a whole, on the basis of network coverage. We considered six operators to be POs. Also, in considering competitive conditions, we took account of BT’s share in the wholesale market.

2.18 Table 2.1 summarises the geographic markets identified¹⁶ and the relevant SMP findings in the 2010 WBA Statement¹⁷ and provides an overview of the remedies imposed on BT and KCOM.¹⁸

Table 2.1: Geographic markets identified, SMP findings and remedies in the 2010 WBA Statement

Geographic Market	SMP finding	Remedy
The Hull Area: (0.7 per cent of UK premises).	KCOM held a position of SMP in the provision of WBA services in the Hull Area.	<ul style="list-style-type: none"> • Requirement to provide network access on reasonable request • Requirement not to unduly discriminate • Requirement to publish a reference offer • Requirement to notify charges, terms and conditions • Transparency as to quality of service • Requirement to publish technical information • Requirement to account separately
Market 1: exchanges where only BT was present or forecast to be present (11.7 per cent of premises). ¹⁹	BT held a position of SMP in the provision of WBA services in Market 1.	<p>Same remedies as in the Hull Area and:</p> <ul style="list-style-type: none"> • Basis of charges (cost orientation) • Cost accounting • Charge control
Market 2: exchanges where two POs were present or forecast <u>and</u> exchanges where three POs were present or forecast but where BT’s market share was greater than or equal to 50 per cent (10.0 per cent of premises).	BT held a position of SMP in the provision of WBA services in Market 2.	<p>Same remedies as in the Hull Area and:</p> <ul style="list-style-type: none"> • Basis of charges (cost orientation) • Cost accounting

¹⁶ See Section 3 of the 2010 WBA Statement for further details.

¹⁷ See Section 4 of the 2010 WBA Statement.

¹⁸ See Section 5 of the 2010 WBA Statement.

¹⁹ Forecasts for the market definitions in the 2010 WBA Statement were based on information gathered in June 2010.

Market 3: exchanges where four or more POs were present or forecast and exchanges where three POs were present or forecast but where BT's share was less than 50 per cent (77.6 per cent of premises).	No operator held a position of SMP in Market 3.	No remedies
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- 2.19 In July 2011, following a further consultation on the design of the proposed charge control, we published a further statement setting out our conclusions on the charge control imposed on BT for WBA services in Market 1 areas (the 2011 WBA Charge Control Statement).²⁰ TalkTalk Telecom Group plc (TalkTalk) appealed against the 2011 WBA Charge Control Statement on the basis that there had been a material change between the date of the prior SMP finding and the subsequent imposition of the SMP charge control condition. TalkTalk's appeal was rejected by the Competition Appeal Tribunal on 10 January 2012.²¹ A further appeal was dismissed by the Court of Appeal on 30 October 2013.²²

Developments since the last WBA market review

Investments in fixed broadband networks

- 2.20 Since the 2010 WBA Statement, we have seen an increase in the average speeds of fixed access connections and increased availability of SFBB. These improvements reflect the private and public investment being made in these networks.²³

Investments in current generation access (CGA) broadband²⁴

- 2.21 Since the 2010 WBA Statement, broadband availability via LLU has increased from 80% of households in 2007 to 95% of households at the end of 2013.²⁵ Recently, however, the rate of LLU roll-out has slowed down considerably as CPs are reaching the less profitable exchanges (this can be seen in Figure 4.9, which shows how the number of new LLU deployments has fallen substantially over the past three years). We consider that few additional exchanges are likely to be unbundled over the next

²⁰ WBA Charge Control - Charge control framework for WBA Market 1 services, 20 July 2011 <http://stakeholders.ofcom.org.uk/binaries/consultations/823069/statement/statement.pdf>.

²¹ Competition Appeal Tribunal, Case No: 1186/3/3/11 *TalkTalk Telecom Group plc v Office of Communications (Wholesale Broadband Access Charge Control)*, judgment of 10 January 2012, [2012] CAT 1, <http://www.catribunal.org.uk/238-7436/Judgment.html>.

²² Court of Appeal Case No: C3/2012/0785 *TalkTalk Telecom Group v Office of Communications and British Sky Broadcasting*, judgment of 30 October 2013, [2013] EWCA Civ 1318, <http://www.bailii.org/ew/cases/EWCA/Civ/2013/1318.html>, on appeal from the Competition Appeal Tribunal judgment of 10 January 2012, [2012] CAT 1, <http://www.catribunal.org.uk/238-7436/Judgment.html>.

²³ Ofcom, Infrastructure Report: 2013 update, 24 October 2013, http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/infrastructure-report/IRU_2013.pdf.

²⁴ Current generation access (CGA) network is a copper-based access network that can support a maximum download speed of 24 Mbit/s.

²⁵ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013.

few years. This can also be seen by planned roll-out data which shows that there are currently only plans for an additional 100-150 LLU deployments.²⁶

- 2.22 BT has continued to roll out its ADSL2+ based services, which, according to BT Group's 2013 Annual Report, is now in exchanges serving more than 90% of UK premises.²⁷

Development of SFBB²⁸

BT

- 2.23 In 2008, BT announced its intention to build its own NGA²⁹ network by investing £2.5bn in implementing a mixture of FTTC and FTTP.
- 2.24 Both these approaches provide higher speed broadband connections than is possible over the CGA network. FTTC deployments use VDSL technology over the copper connection between the cabinet and the customer. This approach allows headline downstream speeds of around 80Mbit/s to be achieved.
- 2.25 BT is also deploying FTTP by using a Gigabit Passive Optical Network (GPON) network. A GPON network is shared between a number of end premises. Currently, headline downstream speeds of up to 330Mbit/s are available.
- 2.26 In April 2013, BT said that it was on course to pass 19 million premises (66% of all UK premises) by the end of spring 2014.³⁰ In October 2013 it announced that its fibre network had passed more than 17m premises in the UK.³¹ Figure 2.2 shows how the number of FTTC-enabled BT local exchanges has risen since June 2011, with over 500 additional exchanges having been FTTC-enabled in the year to June 2013.³²

²⁶ Since these are planned roll-outs, all of which are at the early stage of planning and are not yet committed, there is some uncertainty as to how many will be implemented.

²⁷ BT Group plc's Annual Report & Form 20-F 2013,

http://www.btplc.com/Sharesandperformance/Annualreportandreview/pdf/2013_BT_Annual_Report.pdf.

²⁸ SFBB is a broadband connection that can support a maximum download speed of 30Mbps or greater. In the 2010 WBA Statement we defined CGA as services offered at up to 24Mbit/s, which was the maximum speed of services provided using ADSL2+. We are not aware of any services offering speeds above 24Mbit/s but less than 30Mbit/s and so our definition in this review is substantively the same as in the 2010 WBA Statement.

²⁹ According to the European Commission's Recommendation on regulated access to Next Generation Access Networks (the NGA Recommendation) "*Next generation access (NGA) networks (NGAs) means wired access networks which consist wholly or in part of optical elements and which are capable of delivering broadband access services with enhanced characteristics (such as higher throughput) as compared to those provided over already existing copper networks. In most cases NGAs are the result of an upgrade of an already existing copper or co-axial access network*". Commission recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) OJ L251/35, 20 September 2010, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:251:0035:0048:EN:PDF>.

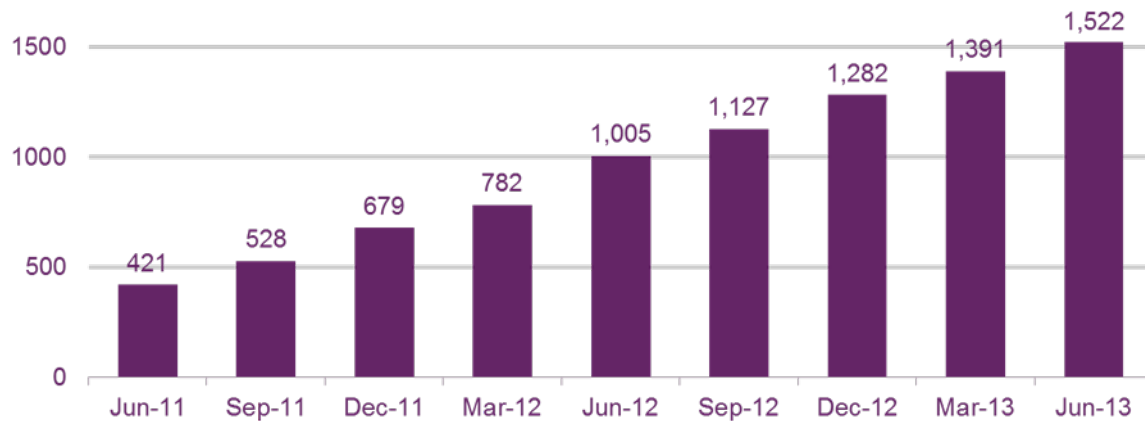
³⁰ <http://www.btplc.com/news/articles/showarticle.cfm?articleid=%7b0b783057-2416-4a4d-8c8c-82a779f1c807%7d>.

³¹ BT Group plc, Results for the second quarter and half year to 30 September 2013, 31 October 2013, http://www.btplc.com/News/ResultsPDF/q213_release.pdf.

³² https://www.btwholesale.com/pages/static/Library/Network_Information/21CN_Broadband_Availability/index.htm

Figure 2.2: Number of BT exchanges that are fibre-to-the-cabinet enabled

FTTC-enabled BT exchanges



Source: Ofcom, *Communications Market Report (CMR) 2013*, Figure 5.10, p 319.³³

2.27 While these deployments change the access network and result in retail customers being able to receive much faster speeds, the characteristics of WBA products provided on CGA or NGA networks are essentially the same (although some of the upstream inputs are different). This is because WBA products provide aggregated access to many customers, and offer less scope for innovation than direct access to the more upstream infrastructure.

Other CPs

2.28 Virgin's cable network passed just under half of UK premises by June 2013. In early 2012 it initiated an upgrade programme which doubled the speeds of most of its cable broadband connections at no extra cost to the customer. Virgin now offers speeds of 'up to' 152Mbit/s.³⁴ It only offers SFBB services to new cable customers with its lowest-tier cable broadband service offering speeds of 'up to' 30Mbit/s.³⁵

2.29 In the Hull Area, KCOM has announced plans for a fibre access network deployment. The first phase has now been completed with a total of 15,000 premises having been passed and the next phase has been announced with a target to pass a further 30,000 homes and businesses by March 2015. Also, in the Hull Area, MS3 Communications is currently deploying a fibre network with an initial investment of £4.5m.³⁶

BDUK

2.30 The UK government is investing £530m to ensure that SFBB is available to communities which may not be served by purely commercial deployments. In June 2013 the government announced a target that 95% of UK premises would have SFBB availability by 2017.³⁷ Broadband Delivery UK (BDUK), a team within the Department for Culture, Media and Sport has a role to set up, operate, monitor and

³³ Ofcom, *Communications Market Report (CMR) 2013*, Figure 5.10, p 319, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr13/2013_UK_CM.pdf.

³⁴ <http://store.virginmedia.com/broadband/speeds-explained/index.html>

³⁵ Ofcom, *CMR 2013*, p 319.

³⁶ <http://stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-broadband/responses/KCOM.pdf>

³⁷ <https://www.gov.uk/government/policies/transforming-uk-broadband/supporting-pages/rural-broadband-programme>

act as the national competence centre for the UK-wide broadband state-aid scheme, as this has been approved by the European Commission with the State Aid Decision SA.33671 (2012/N).³⁸ Because network operators who receive this funding must provide wholesale access to other CPs, the additional premises served by these deployments could also have access to a range of providers of SFBB services through this process.

- 2.31 Currently 44 local broadband projects are under the BDUK umbrella scheme.³⁹ The two bidders for the projects, as per the framework contract that was signed on 29 June 2012, were BT (Openreach) and Fujitsu.⁴⁰ Following Fujitsu's withdrawal in March 2013, only BT remains in the tendering process.⁴¹ All local projects are now in delivery.⁴²
- 2.32 On 25 February 2014, the Government announced that local broadband projects around the UK will receive additional funding of £250m, with the hardest to reach locations amongst those that stand to benefit most.⁴³
- 2.33 Furthermore, £100m has been allocated for SFBB to create 'superconnected' cities.⁴⁴ A total of 1.9m homes and businesses in these cities will receive broadband connections of at least 80Mbit/s downstream, and there will also be funding for public outdoor wireless connectivity in these areas. The cities are: Belfast, Birmingham, Bristol, Cardiff, Edinburgh, Leeds and Bradford, London, Manchester and Newcastle. The government has since announced an additional £50m of SFBB broadband funding for a second wave of 'superconnected' cities.⁴⁵ They are: Aberdeen, Brighton and Hove, Cambridge, Coventry, Derby, Derry/Londonderry, Newport, Oxford, Perth, Portsmouth, Salford and York.

Take-up of SFBB services

- 2.34 In 2013, SFBB services were available to 73% of UK premises, up from 65% in 2012.⁴⁶
- 2.35 The number of SFBB connections doubled from 1.9 million to 3.8 million in the nine months to Q1 2013 as shown in Figure 2.3.⁴⁷ By Q4 2013, the proportion of all fixed broadband connections that were classed as being superfast had increased to 25%.⁴⁸

³⁸ <https://www.gov.uk/broadband-delivery-uk>

³⁹ Table of local broadband projects with BDUK Funding, <https://docs.google.com/spreadsheet/ccc?key=0Ah3sVRjT82kKdEltX0IJNjNVWWWhNbJBnNGwxeHhgMHc#gid=0>.

⁴⁰ <https://www.gov.uk/broadband-delivery-uk>

⁴¹ Ofcom, CMR 2013, p 320.

⁴² <https://docs.google.com/spreadsheet/ccc?key=0Ah3sVRjT82kKdEltX0IJNjNVWWWhNbJBnNGwxeHhgMHc&usp=sharing#gid=0>

⁴³ £250m boost taking Superfast Broadband further and faster, <https://www.gov.uk/government/news/250m-boost-taking-superfast-broadband-further-and-faster--251>.

⁴⁴ Ten super-connected cities announced: http://www.culture.gov.uk/news/news_stories/8931.aspx.

⁴⁵ Ofcom, CMR 2012, p. 285 and also <https://www.gov.uk/government/policies/transforming-uk-broadband/supporting-pages/investing-in-super-connected-cities>.

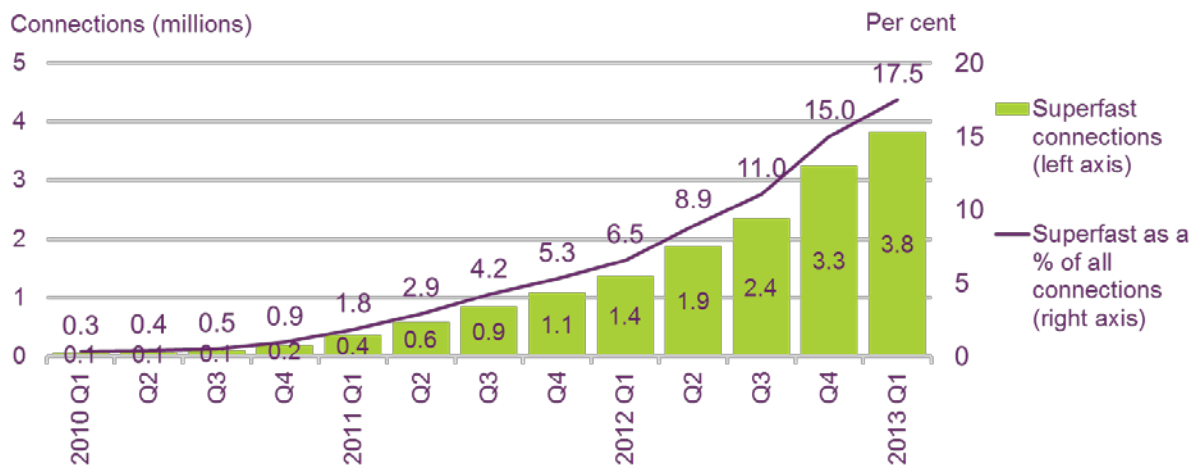
⁴⁶ Ofcom, Infrastructure Report: 2013 update, 24 October 2013, p. 2.

⁴⁷ Ofcom, CMR 2013, p 322 and Figure 5.13, p 323.

⁴⁸ http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/november2013/Fixed_bb_speeds_Nov_2013.pdf

- 2.36 The main driver of this increase was Virgin's 'double-speeds' upgrade programme, which doubled the speeds provided by most of its cable broadband connections at no extra charge to the customer. However, consumers are also choosing to migrate to faster packages, and over the course of the 2012/13 financial year the number of BT FTTC and FTTP broadband connections increased from around 550,000⁴⁹ to over 1.3 million.⁵⁰ In October 2013 BT announced that more than 2m homes and businesses were using fibre-based services.⁵¹

Figure 2.3: Take-up of SFBB services



Source: Ofcom, CMR 2013, Figure 5.13, p 323.⁵²

Evolution in consumer usage

Internet take-up by, by platform

- 2.37 Household internet access overall is increasing, though the rate of increase is slowing down (see Figure 2.4 below). A high percentage of internet users have access to fixed broadband (out of 80% of the adults that access the internet, 72% have fixed broadband). However, accessing the internet from mobile devices is increasing (by 10% between Q1 2012 and Q1 2013).⁵³

⁴⁹ BT's 2012 annual report, <http://www.btplc.com/Sharesandperformance/Annualreportandreview/pdf/BTAnnualReport2012.pdf>.

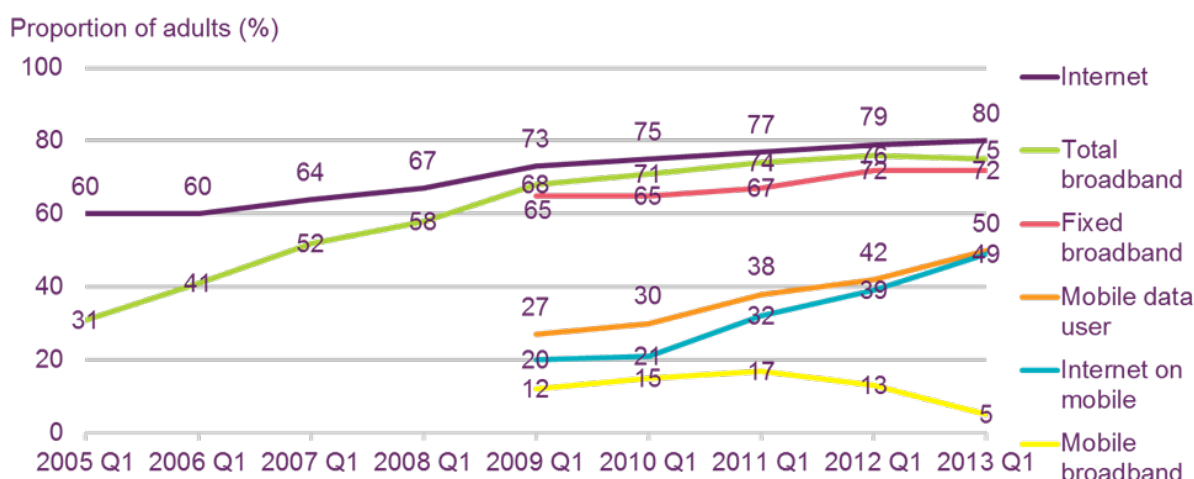
⁵⁰ BT's 2013 annual report, http://www.btplc.com/Sharesandperformance/Annualreportandreview/pdf/2013_BT_Annual_Report_smart.pdf.

⁵¹ BT Group plc, Results for the second quarter and half year to 30 September 2013, 31 October 2013, http://www.btplc.com/News/ResultsPDF/q213_release.pdf.

⁵² Ofcom, CMR 2013, Figure 5.13, p 323.

⁵³ Ofcom, CMR 2013, Figure 4.16, p 272, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr13/2013_UK_CMR.pdf.

Figure 2.4: Household internet access: 2005-2013



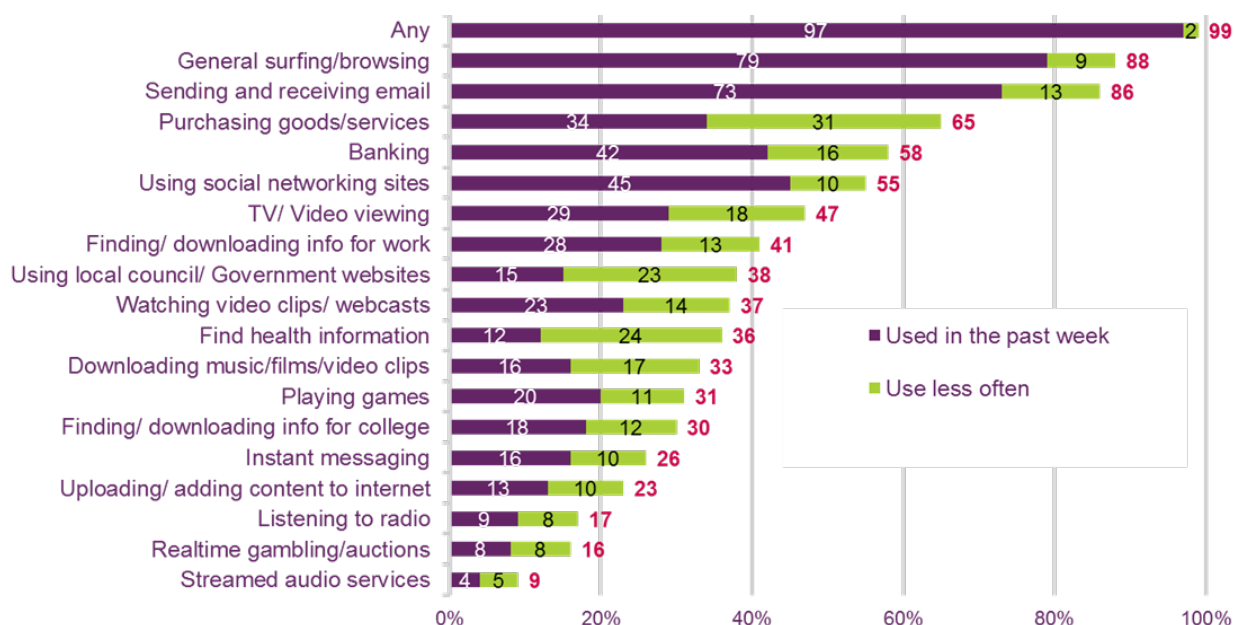
Source: Ofcom, CMR 2013, Figure 4.16.⁵⁴

Increased bandwidth requirements of residential consumers

- 2.38 Residential consumers use the internet for a range of activities, the most common of which include general surfing and browsing, sending and receiving email, purchasing goods or services over the internet and using social networking sites, as shown in Figure 2.5. While these require relatively low bandwidths, applications that require higher speeds are also used by many broadband users, such as TV/video viewing, watching video clips/webcasts, and downloading music and films.⁵⁵

⁵⁴ Ofcom, CMR 2013, Figure 4.16, p 272.

⁵⁵ Ofcom, CMR 2013, Figure 4.34, p 291.

Figure 2.5: Claimed use of the internet for selected activities

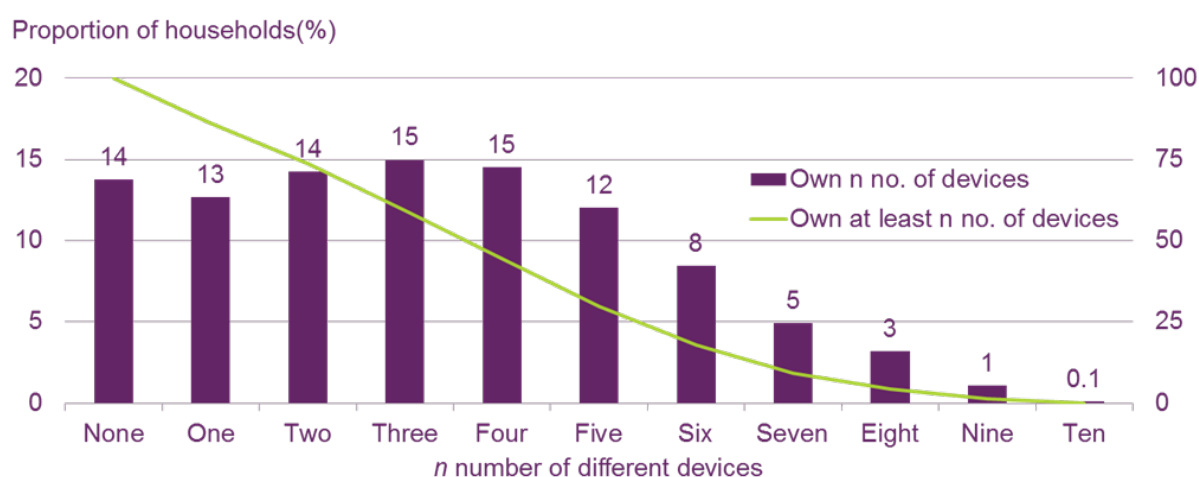
Source: Ofcom, CMR 2013, Figure 4.34.⁵⁶

Use of multiple internet-enabled devices

- 2.39 In addition, there has been a change in the way that consumers are accessing the internet, which may also affect bandwidth requirements in future. In particular, where once a household might have had a single computer to access the internet, there is an increasing array of new internet-enabled devices, such as tablets and Smart TVs.
- 2.40 In Q1 2013, each household in the UK owned, on average, three different types of internet-enabled devices and 74% of households owned at least two.⁵⁷ The higher number of internet-enabled devices in a household may translate into multiple simultaneous users of a single broadband connection. This could drive increased bandwidth demand (and potentially have implications for the quality of user experience), particularly where there are multiple simultaneous users of bandwidth-heavy applications.

⁵⁶ Ofcom, CMR 2013, Figure 4.34, p 291.

⁵⁷ Ofcom, CMR 2013, p 280 and Figure 4.25, p 281.

Figure 2.6: Number of different internet-enabled devices per household

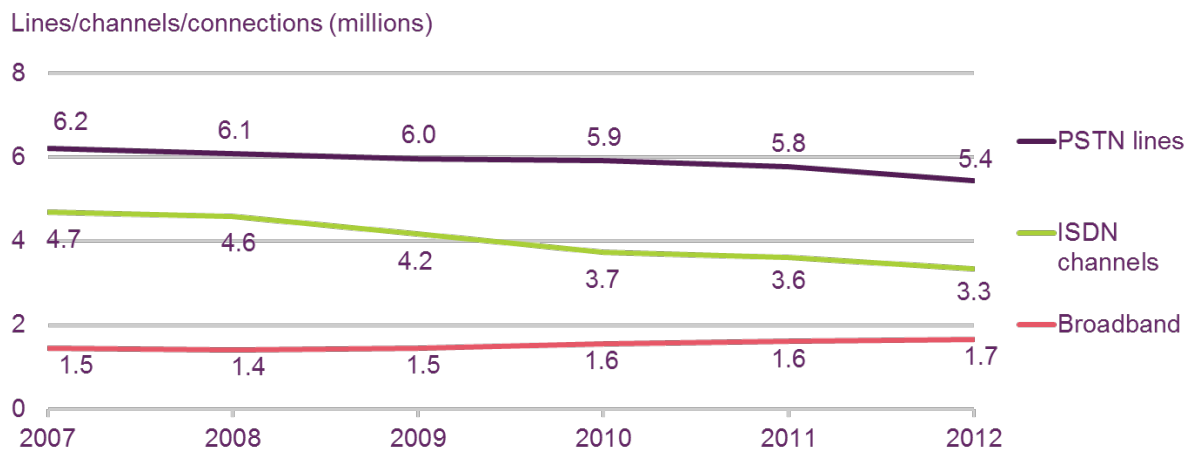
Source: Ofcom, CMR 2013, Figure 4.25.⁵⁸

Businesses consumers

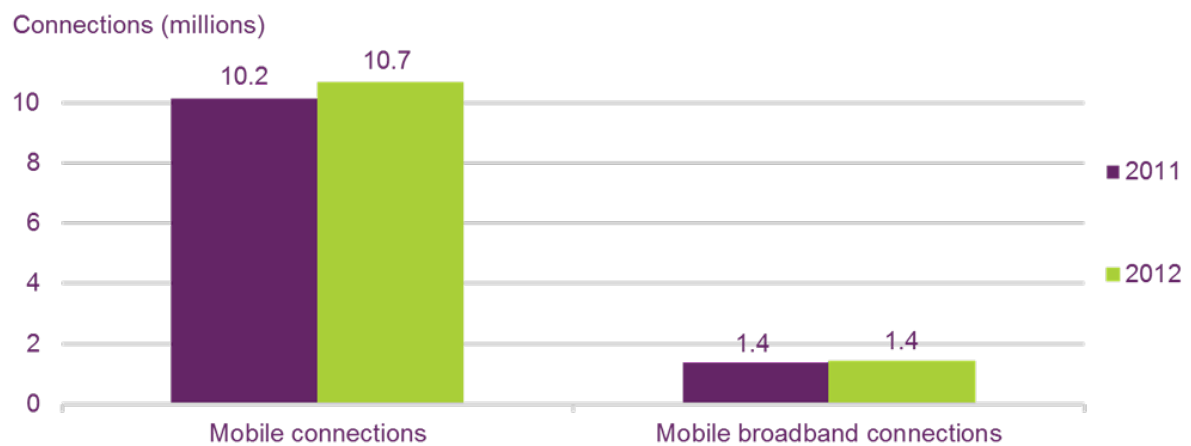
- 2.41 Businesses are also likely to demand increasing bandwidth in the future, for example as a result of increasing usage of centralised file hosting and file sharing, accessed via virtual private networks (VPNs). VPNs have become increasingly popular amongst many companies to accommodate the needs of remote employees and distant offices. Instead of using a dedicated connection such as a leased line, a VPN uses "virtual" connections, generally routed through the internet from the company's private network to the remote site or employee. The widespread take-up of broadband at home has meant that employees are able to work together without being restricted by their physical locations. Similarly, businesses are able to extend their geographic connectivity, provide additional networking opportunities and reduce operational costs compared to traditional wide area networks ("WANs") using leased lines.
- 2.42 Other factors that increase business bandwidth requirements are:
- video conferencing between offices;
 - remote monitoring and surveillance; and
 - increased online presence.
- 2.43 Businesses increased their take-up of both fixed and mobile broadband services in 2012, when the number of fixed broadband connections increased by 2% and the number of data-only mobile broadband connections by 3% (in contrast to consumer mobile broadband connections, which decreased). Business use accounted for 18% of PSTN lines and 8% of fixed broadband lines, 13% of mobile phone subscriptions and 29% of data-only mobile broadband subscribers at the end of 2012.⁵⁹
- 2.44 Figure 2.7 shows that, whilst business fixed voice lines (PSTN and ISDN) have been falling, business fixed broadband lines have increased slightly since 2007. Meanwhile, the number of business mobile subscriptions increased by 515,000, or 5.1%, to 10.7 million in 2012 (Figure 2.8).

⁵⁸ Ofcom, CMR 2013, Figure 4.25, p 281.

⁵⁹ Ofcom, CMR 2013, p 347. Note that the fixed broadband figures exclude corporate connections.

Figure 2.7: Business fixed voice and fixed broadband connections: 2007-2012

Source: Ofcom, CMR 2013, Figure 5.44.⁶⁰

Figure 2.8: Business mobile and mobile broadband connections: 2011 and 2012

Source: Ofcom, CMR 2013, Figure 5.45.⁶¹

Mobile services, including the launch of 4G services

Take-up of mobile internet

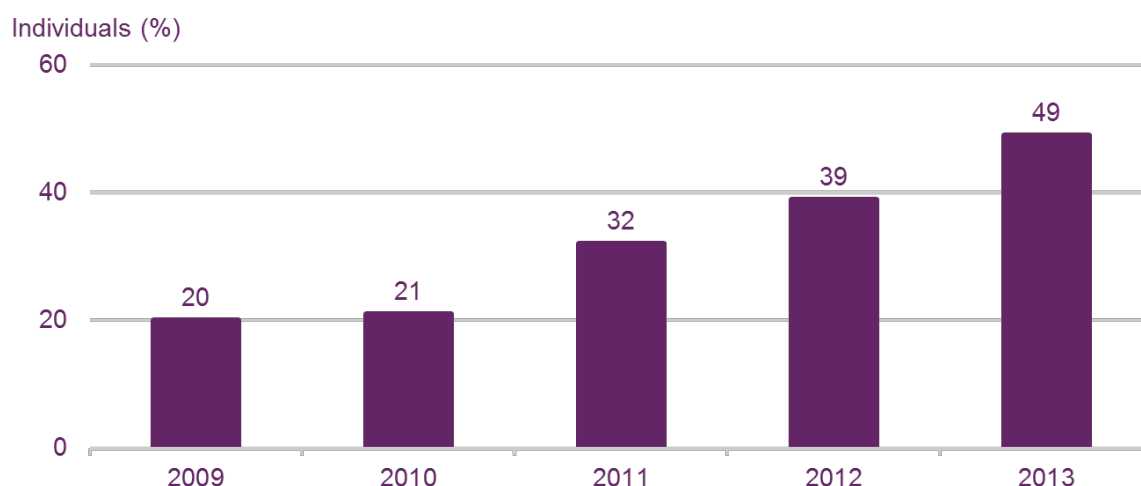
- 2.45 In Q1 2013, the proportion of UK adults who used their mobile phone to access the internet rose from 39% in Q1 2012 to 49%. Take-up of the mobile internet has risen consistently since 2010, when just a fifth of UK adults used their handset to access the internet (see Figure 2.9).⁶²

⁶⁰ Ofcom, CMR 2013, Figure 5.44, p 347.

⁶¹ Ofcom, CMR 2013, Figure 5.45, p 347.

⁶² Ofcom, CMR 2013, p 260.

Figure 2.9: Take-up of mobile phone internet access

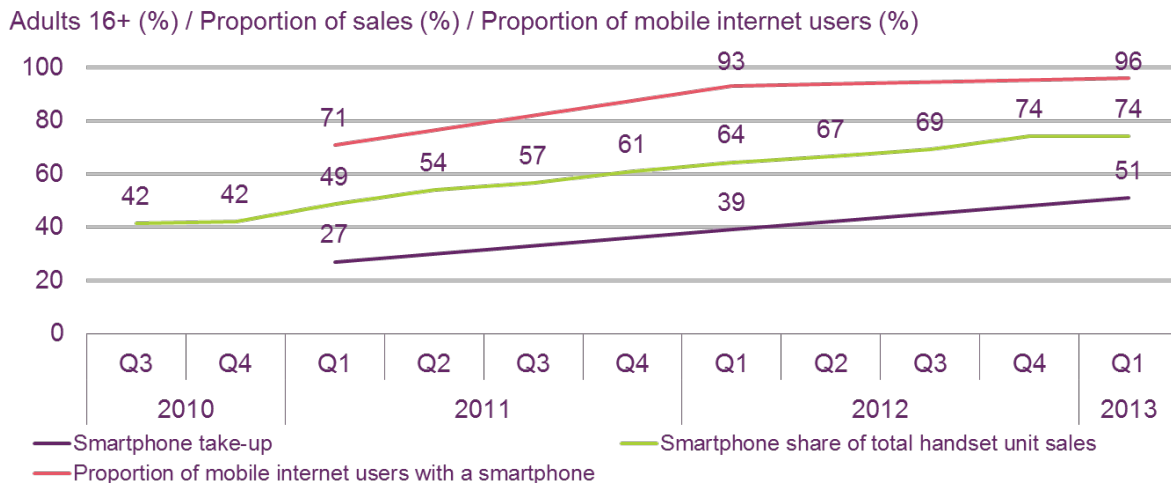


Source: Ofcom, CMR 2013, Figure 4.2.⁶³

2.46 A likely driver of mobile internet access is the take-up of smartphones. Larger screens, optimised browser software, 3G connections, and the ability to run applications that connect to the internet are features of smartphones that make using the internet on a phone easier, and may have encouraged take-up. In recent years smartphones have been the most popular type of handset sold, rising to almost three-quarters (74%) of the handsets sold in Q1 2013, up from half (49%) in Q1 2011. During this time, smartphone take-up grew in line with mobile internet access, and stood at 51% in Q1 2013. Furthermore, ownership of smartphones has increased among mobile internet users, and has grown from 71% of mobile internet users to 96% over the same period (see Figure 2.10).⁶⁴

⁶³ Ofcom, CMR 2013, Figure 4.2, p 260.

⁶⁴ Ofcom, CMR 2013, Figure 4.4, p 262.

Figure 2.10: Smartphones: take-up, share of handset sales and mobile internet use

Source: Ofcom, CMR 2013, Figure 4.4.⁶⁵

Industry developments

- 2.47 The next stage of development in the mobile sector is the fourth generation of mobile networks (4G). 4G uses the Long Term Evolution (LTE) technology to offer subscribers faster data downloads and uploads.
- 2.48 In August 2012, Ofcom approved an application by the mobile phone operator Everything Everywhere (EE) to use its existing 1800 MHz spectrum to deliver 4G services. In October 2012, EE launched a commercial 4G service in some areas of the UK.⁶⁶
- 2.49 In February 2013, Ofcom announced the winners of the 4G mobile spectrum auction: EE, Hutchison 3G UK Ltd, Niche Spectrum Ventures Ltd (a subsidiary of BT Group plc), Telefónica UK Ltd and Vodafone Ltd. Following EE, Vodafone and O2 launched their 4G services at the end of August 2013 and Three in the beginning of December 2013.⁶⁷ It is expected that by the end of 2017 almost the whole UK population will be able to receive 4G mobile services.⁶⁸
- 2.50 In August 2013, EE reported that average download speed on its 4G network was above 16Mbit/s,⁶⁹ and in July 2013 it announced that it had launched double-speed

⁶⁵ Ofcom, CMR 2013, Figure 4.4, p 262.

⁶⁶ <http://media.ofcom.org.uk/2013/02/20/ofcom-announces-winners-of-the-4g-mobile-auction/>

⁶⁷ Ofcom, Infrastructure Report: 2013 update, p 45.

⁶⁸ Ofcom has attached a coverage obligation to one of the 800 MHz lots of spectrum. The winner of this lot is Telefónica UK Ltd. This operator is obliged to provide a mobile broadband service for indoor reception to at least 98% of the UK population (expected to cover at least 99% when outdoors) and at least 95% of the population of each of the UK nations – England, Northern Ireland, Scotland and Wales – by the end of 2017 at the latest, <http://media.ofcom.org.uk/2013/02/20/ofcom-announces-winners-of-the-4g-mobile-auction/>.

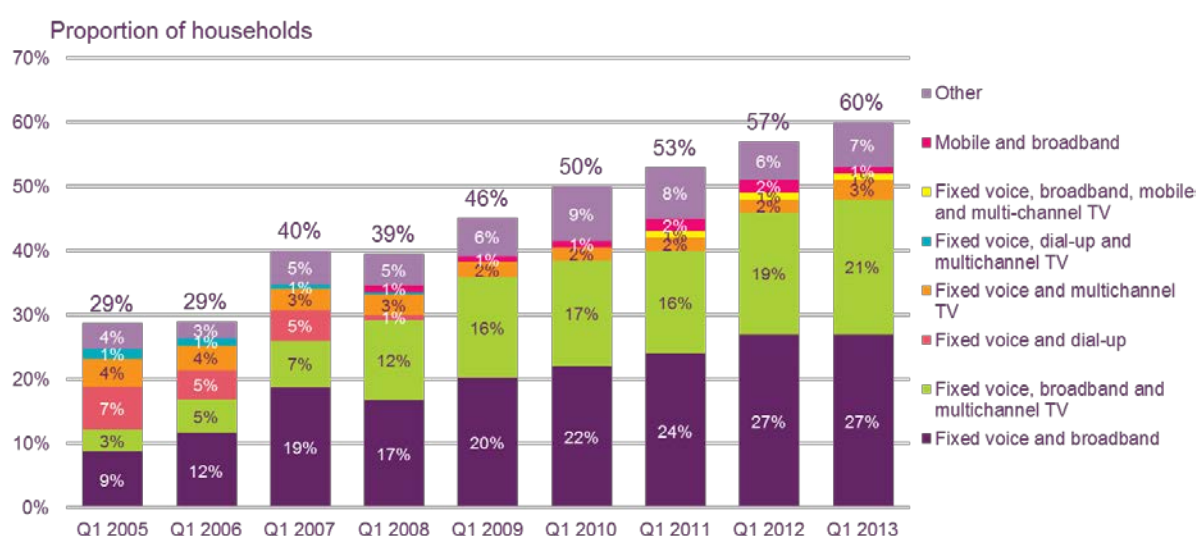
⁶⁹ <https://explore-orange-live-orangedigital.s3.amazonaws.com/2013/08/19/4GEEMobileLivingIndexFINALFINAL.pdf>

4G services in 12 UK cities.⁷⁰ For a typical user, initial 4G download speeds may be around six times those they would experience on existing 3G networks.⁷¹

Increase in bundling

2.51 There has been an increase in households that purchase communications services in a bundle. Figure 2.11 illustrates the trend in take-up of bundled services. Overall, the number of consumers with bundled services rose from 57% in 2012 to 60% in 2013. Dual-play fixed voice and broadband, and triple-play fixed voice, broadband and multichannel TV bundles remain the most popular packages among consumers. Although dual-play fixed voice and broadband bundles remained the same since 2012 (27%), triple-play fixed voice, broadband and multichannel TV have increased (21% up from 19%).⁷²

Figure 2.11: Take-up of bundled services



Source: Ofcom, CMR 2013, Figure 1.10.⁷³

2.52 With the trend towards bundling, the proportion of broadband services purchased in a bundle has increased from 67% in Q1 2011 to 95% in Q4 2013.⁷⁴

The regulatory framework

2.53 The regulatory framework for electronic communications is based on a suite of EU Directives, which have been implemented into national legislation.⁷⁵ It imposes a number of obligations on the relevant national regulatory authorities (NRAs), such as

⁷⁰ <https://explore.ee.co.uk/our-company/newsroom/ee-launches-next-generation-services-on-world-s-fastest-network>

⁷¹ Ofcom, CMR 2013, p 312.

⁷² Ofcom, CMR 2013, p 30.

⁷³ Ofcom, CMR 2013, Figure 1.10, p 30.

⁷⁴ 2013 data from Ofcom, Switching Tracker 2013 data tables, November 2013, Table 4,

<http://www.ofcom.org.uk/static/stats/OfcomSwitchingTracker2013.pdf>.

2011 data from Ofcom, Consumer Experience of 2012, January 2013, Figure 82,

http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-12/Consumer_Experience_Research1.pdf.

⁷⁵ The harmonised EU regulatory framework for electronic communications was amended in 2009. Those amendments to the Directives were transposed into national legislation and came into effect from 26 May 2011.

Ofcom. One of these obligations is to carry out periodic reviews of certain markets. We set out the market review process, and the regulatory framework, in more detail in Annex 3. In this section we have set out, in summary, what the market review process involves.

The market review process

2.54 The review is carried out in three stages:

- i) we identify and define the relevant markets;
- ii) we assess whether the relevant markets are effectively competitive, which involves assessing whether any operator has SMP in any of the relevant markets; and
- iii) we assess the appropriate remedies which should be imposed, where there has been a finding of SMP, based on the nature of the competition problem identified in the relevant markets.

2.55 In carrying out the review, we are obliged to define relevant markets appropriate to national circumstances, in particular relevant geographic markets within the UK, in accordance with the principles of competition law.⁷⁶ In so doing, we are also obliged to take utmost account of the European Commission's Recommendation on relevant product and service markets (the 2007 Recommendation on Markets)⁷⁷ and the Commission's guidelines on market analysis and the assessment of SMP (the SMP Guidelines).⁷⁸ In assessing appropriate remedies, we are obliged to take utmost account of the European Commission's Recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment (the Costing and Non-Discrimination Recommendation).⁷⁹ Where we decide not to follow these recommendations, we must notify the EC of that decision and the reasons for it.

2.56 We are also required to take utmost account of any opinion, recommendation, guidelines, advice or regulatory best practice adopted by the Body of European Regulators for Electronic Communications (BEREC).⁸⁰

⁷⁶ See Article 15(3) of the Framework Directive (Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, as amended).

⁷⁷ 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 (Second Edition) (C(2007)5406 rev1), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:344:0065:0069:en:PDF>.

⁷⁸ 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), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>.

⁷⁹ Commission Recommendation of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013H0466&from=EN>.

⁸⁰ Regulation (EC) No 1211/2009 establishing the Body of European Regulators of Electronic Communications (BEREC) and the Office (2009 L 337/1), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0001:0010:EN:PDF>.

The 2007 Recommendation on Markets and its application to this review⁸¹

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

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

2.58 The WBA market is identified in the Annex to the 2007 Recommendation on Markets as a relevant market for the purpose of carrying out market reviews in accordance with Article 15 of the Framework Directive.

The SMP Guidelines and their application to this review

2.59 The SMP Guidelines include guidance on market definition, assessment of SMP and SMP designation. In assessing whether an undertaking has SMP, we have taken due account of the SMP Guidelines as required by Section 79 of the Communications Act 2003 (the 2003 Act). Where relevant, we have also had regard to the application of the equivalent Oftel Guidelines⁸² and the ERG's revised working paper on SMP⁸³ (ERG Revised SMP Paper).

The Costing and Non-Discrimination Recommendation and its application to this review

2.60 Since the publication of our 2013 WBA Consultation, the European Commission has adopted the Costing and Non-Discrimination Recommendation, which advocates the adoption of a bottom-up long run incremental costs-plus (BU LRIC+) costing methodology and states that NRAs should implement the recommended costing methodology by 31 December 2016.

2.61 While preparing this statement, we have taken due account of the Costing and Non-Discrimination Recommendation. In doing so, in light of the specific characteristics of this market in the UK, we have not adopted a BU LRIC+ costing methodology but have adopted an anchor pricing approach, under which we assume all BT's customers in Market A are supplied via existing ADSL technology. We set out our reasons for doing so in paragraphs 7.128 to 7.152. One key factor is the lack of data on which to base a Modern Equivalent Asset cost model for the SMP market. Market A covers less than 10% of the country in what are generally rural exchange areas that are not necessarily contiguous. Our decision to adopt an anchor pricing

⁸¹ The 2007 Recommendation on Markets is currently under review. The EC is expected to publish a revised recommendation in due course.

⁸² Oftel's market review guidelines: criteria for the assessment of significant market power, http://www.ofcom.org.uk/static/archive/oftel/publications/about_oftel/2002/smpg0802.htm.

⁸³ ERG, *Revised working paper on the SMP concept for the new regulatory framework*, September 2005, http://berec.europa.eu/doc/publications/public_hearing_concept_smp/erg_03_09rev3_smp_common_concept.pdf.

approach is designed to minimise regulatory error and therefore uncertainty and provide a clear framework for investment over the next few years. This is analogous to the objective in the Costing and Non-Discrimination Recommendation of *“the need to ensure stability without significant fluctuations when setting cost orientated prices”*.⁸⁴ We have considered whether this position is still appropriate in light of our duty to take utmost account of the Costing and Non-Discrimination Recommendation and consider that it is.

- 2.62 Our conclusions also take utmost account of the Costing and Non-Discrimination Recommendation in that they are consistent with the aims of the Recommendation in that we deal appropriately and consistently with the impact of declining volumes caused by the transition from copper to NGA networks. In particular, we have considered the impact of potential declining volumes due to the roll-out of BDUK funded fibre over the market review period. Further our prices are based on CCA FAC costs, which is a form of LRIC+.

The BEREC Common Position on best practice in remedies on the market for WBA

- 2.63 In December 2012, BEREC adopted a revised Common Position on best practice in remedies on the market for WBA.⁸⁵ BEREC Common Positions are intended to assist national regulatory authorities in designing the most effective remedies to address the competition problems identified in their respective national markets, in pursuit of the objectives of the regulatory framework for electronic communications and services.

Forward look

- 2.64 Rather than just looking at the current position, market reviews look ahead to how competitive conditions may change in future. For this review we have taken a forward look of three years, reflecting the characteristics of the retail and wholesale markets and the factors likely to influence their competitive development over the intended period of this market review (1 April 2014 to 31 March 2017). The forward look period also reflects the requirement in the Directives that ordinarily market reviews should be conducted within three years of the previous review.
- 2.65 This does not preclude us from reviewing any of the markets earlier but, absent unforeseen developments, we anticipate that we would time the next market review to conclude three years after completion of the current review.

The current market review

- 2.66 We started this market review by publishing the 2012 WBA Call for Inputs⁸⁶ on 9 November 2012 to gather stakeholders' views on the key issues. In this review we consider both the retail and the wholesale broadband access markets because,

⁸⁴ See point 38 of the Costing and Non-Discrimination Recommendation.

⁸⁵ BEREC, *Revised BEREC common position on best practice in remedies on the market for wholesale broadband access (including bitstream access) imposed as a consequence of a position of significant market power in the relevant market*, December 2012, http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/comm_on_approaches_positions/1126-revised-berec-common-position-on-best-practice-in-remedies-on-the-market-for-wholesale-broadband-access-including-bitstream-access-imposed-as-a-consequence-of-a-position-of-significant-market-power-in-the-relevant-market.

⁸⁶ Ofcom, *Review of the wholesale broadband access markets – call for inputs*, 9 November 2012, <http://stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-broadband/summary/reviewL.pdf>.

whilst this review focuses on the wholesale market, the aim of regulation is to promote and support competition in the retail market. These are well-established markets that have been the subject of a number of market reviews. As explained above, since the last review, further roll-out of LLU has occurred, although the rate of that roll-out is slowing. There has been investment in deployment of networks to support SFBB services by Virgin and BT, particularly in areas found to be competitive in the last review, though these deployments are now beginning to extend into more rural areas. Take-up of SFBB services by consumers is increasing, though the majority of UK consumers currently still rely on standard broadband services.

- 2.67 Over the period covered by this review, we expect further LLU roll-out to be much more limited. We also expect continued deployment of SFBB services, particularly in more rural areas, predominantly supported by funding under the BDUK scheme. We also foresee roll-out of fourth generation (4G) mobile networks, offering higher broadband speeds than current mobile networks. 4G roll-out will also increase consumer choice and may enable some consumers to reduce dependence on fixed broadband, providing an additional constraint in the WBA market. We consider these developments are a continuation of the general evolution of the market and, as such, our approach to analysing the markets is similar to the approach taken in previous reviews.

The 2013 WBA Consultation

- 2.68 On 11 July 2013, we published a consultation on our market review proposals ‘(the 2013 WBA Consultation)’.⁸⁷
- 2.69 In that document we proposed to identify three distinct geographic markets, to reflect the geographical differences in competition and supply conditions:
- The Hull Area: 0.7% of UK premises;
 - Market A: exchanges where there were no more than two POs⁸⁸ present or forecast to be present, which accounted for 9.6% of UK premises; and
 - Market B: exchanges where there were three or more POs present or forecast to be present, which accounted for 89.7% of UK premises.
- 2.70 We analysed the conditions of competition in the three markets we had identified, and our proposed findings on market power were that:
- KCOM has SMP in the provision of WBA services in the Hull Area;
 - BT has SMP in the provision of WBA services in Market A; and
 - no operator has SMP in the provision of WBA services in Market B.
- 2.71 We proposed to place general access and non-discrimination obligations on BT in Market A to ensure that other CPs have the opportunity to use wholesale products supplied by BT to compete effectively at the retail level. We also proposed to impose obligations requiring BT to publish information that provides transparency of the services it provides in Market A. We proposed that BT should be subject to an

⁸⁷ Ofcom, *Review of the wholesale broadband access markets*, 11 July 2013, <http://stakeholders.ofcom.org.uk/consultations/review-wba-markets/>.

⁸⁸ We explain what we mean by ‘Principal Operators’ (POs) in Section 4.

accounting separation obligation to provide transparency as to the services it provides to external CPs and to its own retail divisions, and a cost accounting obligation to provide transparent cost data.

- 2.72 We also proposed that BT's services in Market A should be subject to a charge control in order to ensure that BT does not set excessive prices for wholesale broadband services which would ultimately be passed on to consumers. We proposed to use a CPI-X charge control and that the value of X should be within a possible range of -7% to -1%, with a central case of CPI-4%.
- 2.73 In the Hull Area, we proposed broadly to continue with the same set of regulatory obligations as we imposed in 2010 – i.e. general access, non-discrimination and transparency remedies.
- 2.74 We received seven responses to the 2013 WBA Consultation. All non-confidential responses are available on our website.⁸⁹

The 2014 WBA Consultation

- 2.75 On 27 January 2014, we published a second WBA Consultation ('the 2014 WBA Consultation').⁹⁰
- 2.76 In this consultation we revised and amended our charge control proposals, taking into account relevant stakeholder responses to the 2013 WBA Consultation and the following updated proposals:
- use 2012/13 as the base year for cost modelling purposes but to exclude all BT's new allocation methodologies set out in BT's 2013 Regulatory Financial Statements ('the 2013 RFS');⁹¹
 - make some adjustments to the costs of SG&A Broadband and ATM Network Interface, Switching and Transmission, as set out in the 'October 2013 RFS Report';⁹²
 - update our one-off non-recurring cost adjustments;
 - update our market size adjustment;
 - accept BT's 2013 RFS DSLAM cost allocation data;

⁸⁹ Available on our website at: <http://stakeholders.ofcom.org.uk/consultations/review-wba-markets/?showResponses=true>. One of the seven respondents to the 2013 WBA Consultation wishes its response to remain anonymous.

⁹⁰ Ofcom, *Review of the wholesale broadband access markets, Update on the impact of fibre roll-out and further consultation on the proposed charge control, Consultation*, 27 January 2014, <http://stakeholders.ofcom.org.uk/binaries/consultations/wba-review-update/summary/wba-review-update.pdf>.

⁹¹ BT Group plc, *Regulatory financial statements 2013*, <http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2013/index.htm>.

⁹² Report requested by Ofcom describing certain changes to the Accounting Documents for the year ended 31 March 2013 and illustrating the resulting differences to the Current Cost Financial Statements had those changes not applied, <http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2013/ReportrequestedybyOfcomfortheyearended31March2013.pdf>.

- make a similar hypothetical on-going network (HON) adjustment to that which we made in the 2013 WBA Consultation, but with proposed new asset lives;
 - only include costs relevant to the 20CN technology we are modelling;
 - make changes to the compliance formulae to reflect relevant Equivalence of Input (EOI) charges;
 - include a carry-over provision within the legal instrument;
 - change the definition of cease charges that are to be set to £0;
 - retain our 2013 WBA Consultation proposals in relation to migration and connection charges;
 - amend a pricing error identified in the charge control model; and
 - review further data from BT on efficiency improvements.
- 2.77 Based on these updated proposals, we proposed a revised range of X of -8.7% to -15.2% with a central case of -12.3% (based on our medium volume forecasts and an efficiency target of 5%).
- 2.78 We also explained why we did not consider it appropriate to change our proposals in the 2013 WBA Consultation in relation to market definition, SMP or remedies following the receipt of new information on fibre roll-out and take-up.
- 2.79 We received four responses to the 2014 WBA Consultation. All non-confidential responses are available on our website.⁹³
- 2.80 We discuss in detail the responses to the 2013 WBA Consultation and the 2014 WBA Consultation at appropriate points throughout this statement.

Impact assessment and equality impact assessment

- 2.81 Section 7 of the 2003 Act requires Ofcom to carry out impact assessments where its proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. Impact assessments form part of best practice policy-making as they provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. Ofcom is committed to carrying out and publishing impact assessments in relation to the majority of its policy decisions. For further information about our approach to impact assessments, see the guidelines, *Better policy-making: Ofcom's approach to impact assessment*, which are on our website.⁹⁴
- 2.82 We set out our impact assessment in the 2013 WBA Consultation and the 2014 WBA Consultation. In this document we take into account relevant responses and set out our conclusions on the impact of the changes.
- 2.83 Ofcom is also required to assess the potential impact of all our functions, policies, projects and practices on the equality of individuals to whom those policies will apply. Annex 7 sets out our Equality Impact Assessment for this market review.

⁹³ <http://stakeholders.ofcom.org.uk/consultations/wba-review-update/?showResponses=true>

⁹⁴ http://stakeholders.ofcom.org.uk/binaries/consultations/ia_guidelines/summary/condoc.pdf

Structure of this document

2.84 The rest of this document is structured as follows:

- Sections 3 and 4 set out our conclusions on the two dimensions of the wholesale market definition – product market definition and geographic market definition;
- Section 5 sets out our assessment of SMP in each of the identified markets;
- Section 6 sets out the remedies we are imposing in markets where we have found a provider holds a position of SMP; and
- Section 7 sets out the detail of the charge control remedy we are imposing in the market in which we have found BT has SMP.

2.85 There are also a number of annexes, covering the following:

- Annex 1 provides a list of respondents to the 2013 WBA Consultation and the 2014 WBA Consultation;
- Annex 2 sets out the legal notifications of the SMP conditions we are imposing;
- Annex 3 summarises the process we have followed in this market review;
- Annex 4 explains our approach to market definition;
- Annex 5 provides information on retail broadband pricing used to inform our analysis;
- Annex 6 discusses our analysis of the coverage of different operators by geographic area;
- Annex 7 sets out our approach to the charge control;
- Annex 8 sets out our Equality Impact Assessment;
- Annex 9 lists the main sources of evidence we have relied on in undertaking this market review; and
- Annex 10 provides a glossary of terms used in this document.

Section 3

Product market definition

Introduction

- 3.1 In this section we set out our assessment of the product market definition for WBA services.
- 3.2 Since 2010 there have been a number of developments that are potentially relevant to the product market definition. These include: the increased availability and take-up of SFBB services; the continued growth of retail bundling in the form of dual and triple play services; and the launch of 4G mobile services capable of supporting faster broadband speeds. We have analysed the WBA product market taking these developments into account.
- 3.3 In summary, our conclusion is that the product market definition we adopted in our 2010 WBA Statement is still appropriate for the period of this review. We therefore define the product market as:
- “Asymmetric broadband access and any backhaul as necessary to allow interconnection with other communications providers, which provides an always on capability, allows both voice and data services to be used simultaneously and provides data at speeds greater than a dial-up connection. This market includes both business and residential customers”.
- 3.4 This means that broadband services provided to business and residential customers via copper, cable and fibre access networks at all speeds are within the same market, including SFBB services (30Mbit/s or faster). Broadband access provided via mobile, wireless and satellite networks are outside the market.
- 3.5 Although our market definition concerns WBA, we consider the constraints that exist at the retail level in order to inform this analysis.

Summary of the 2013 WBA Consultation

- 3.6 In Section 3 of the 2013 WBA Consultation we proposed that the definition we adopted in our 2010 WBA Statement remained appropriate for the next market review period.
- 3.7 We proposed that broadband services provided to business and residential customers via copper, cable and fibre access networks at all speeds were within the same market, including SFBB services. We proposed that broadband access provided via mobile, wireless and satellite networks were outside the market.

Summary of responses to the 2013 WBA Consultation

- 3.8 The six respondents to the 2013 WBA Consultation largely supported (or did not express significant concerns about) many aspects of our product market definition.
- 3.9 We discuss stakeholder comments on our product market definition in more detail below, but in summary stakeholders made the following points:

- TalkTalk agreed with our market definition overall, but believed that there could be a case for a separate SFBB market by the end of the review period. It also had some concerns regarding our assessment of indirect constraints;
- BT thought that there was scope for mobile broadband to exert a significant constraint on fixed broadband over the lifetime of the review;
- [3<] considered that there could be a case for separate business and residential broadband markets; and
- KCOM noted that we should recognise the constraints that fixed wireless broadband is likely to impose, particularly in the Hull Area.

Structure of the remainder of this section

3.10 The remainder of this section is structured as follows:

- approach to product market definition;
- retail product market definition;
- wholesale product market definition; and
- conclusion on product market definition.

Approach to product market definition

3.11 The purpose of market definition in this review is to structure and inform our forward looking assessment of whether SMP exists in the supply of WBA. Therefore, market definition is not an end in itself, but is carried out with the aim of understanding whether, during the course of the review period, broadband customers will be protected by effective competition, or whether ex ante regulation is required.

Consultation Proposals

3.12 In the 2013 WBA Consultation, we set out our approach to product market definition. We noted that market definition is informed by a forward looking assessment of the likely strength of competitive constraints from demand- and supply-side substitution. We further noted that, under the Modified Greenfield approach, we should assume regulated WBA products are not available on regulated terms. Finally, we explained that our assessment is informed in particular by an analysis of demand and supply at the retail level as demand for wholesale products is a derived demand. This was in addition to our assessment of demand and supply-side constraints at the wholesale level.

Consultation responses

3.13 TalkTalk was the only respondent that commented on our approach to product market definition. While it thought that our market definition was correct overall, it raised some concerns over our product market definition approach. It noted that we had correctly identified that a sufficiently high level of retail substitution can lead to products imposing competitive constraints on each other at the wholesale level (i.e. 'indirect constraints'). It submitted, however, that we had failed to assess the degree

of substitution required at the retail level to lead to competitive constraints at the wholesale level.

- 3.14 TalkTalk noted that the degree of retail substitution, whereby retail consumers react to a price increase on WBA, will depend on:
- the degree of pass-through of wholesale price changes into retail prices, which depends upon the form of competition between different retail providers of consumer broadband; and
 - the profit margins which are made by suppliers of wholesale broadband products.
- 3.15 TalkTalk submitted that nowhere in the consultation had we assessed these points. It said we had made the implicit assumption that consumer substitution at the retail level is sufficient to lead to a single product market at the wholesale level. It believed that this is of limited importance in this review, as it considered we had reached “the correct outcome”. It considered, however, that it would be difficult to rely on the conclusions of this WBA market definition exercise in future reviews. This was because there is no way of using our analysis to ascertain how likely the conclusions are to change in the light of market developments.

Our conclusions

- 3.16 Ofcom’s general approach to market definition is set out in Annex 4. In formulating this approach, we have taken account of the 2007 Recommendation on Markets, the accompanying explanatory memorandum (the “Explanatory Memorandum”)⁹⁵, as well as the Commission’s SMP Guidelines.⁹⁶ In this review, we have, where appropriate, also considered the Commission’s Recommendation on regulated access to Next Generation Access Networks (the NGA Recommendation).⁹⁷
- 3.17 WBA is defined in the 2007 Recommendation on Markets as follows:
- “This market comprises non-physical or virtual network access including ‘bitstream’ access at a fixed location. This market is situated downstream from the physical access covered by market 4 listed above, in that wholesale broadband access can be constructed using this input combined with other elements.”⁹⁸
- 3.18 As in previous reviews, we have sought to inform our assessment of the market boundaries by considering the likely strength of competitive constraints from demand- and supply-side substitution. The hypothetical monopolist test is a useful tool in assessing such substitution possibilities. This approach considers whether a hypothetical monopolist could profitably impose a small but significant, non-transitory increase in price (a SSNIP) in a candidate market. If demand- or supply-side

⁹⁵ 2007 Recommendation on Markets, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:344:0065:0069:en:PDF>.

⁹⁶ EC, *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), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>.

⁹⁷ Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) (2010/572/EU), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:251:0035:0048:EN:PDF>.

⁹⁸ 2007 Recommendation on Markets, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:344:0065:0069:en:PDF>.

substitution to an alternative service is sufficient to render the price increase unprofitable on a forward looking basis then the market should be widened to include this service. Products which do not constrain each other directly may be linked by a chain of substitution. For example, price increases in product A may not be constrained by product C directly, but if product A is constrained by product B and product B is constrained by product C, it may be appropriate to include products A, B and C in the same market.

- 3.19 In order to define the relevant markets on a forward looking basis we have considered existing market conditions, taking into account past performance and data, and expected or foreseeable market developments over the review period.
- 3.20 As in the 2010 WBA Statement, we apply the Modified Greenfield Approach when carrying out the market definition exercise. This means that the market definition exercise is conducted in relation to a hypothetical scenario in which there are no ex ante SMP remedies in the WBA market, but ex ante SMP remedies exist in the upstream WLA market in relation to LLU, VULA, SLU and PIA.
- 3.21 There may be some voluntary provision of WBA services to third parties in the absence of ex ante regulation in the WBA market. This may be in the operators' interest if there are firms which can add value at the retail level, for example from the strength of their brand or a greater ability to provide bundled services. For example, at present BT supplies WBA services in Market 3 (as defined in the 2010 WBA Statement), even though regulation does not require it to do so. Several LLU operators also supply WBA services to third parties.⁹⁹ However, the extent of wholesaling activities is likely to be more limited without regulation. In particular BT may be more reluctant to supply CPs with which it competes directly at the retail level.
- 3.22 Nonetheless, in the absence of SMP remedies in the WBA market, BT, Virgin, and LLU and VULA operators would each supply retail broadband services. If these products compete at the retail level, they will form a constraint at the wholesale level. This suggests that products which are included in the market at the retail level impose an indirect constraint on prices at the wholesale level. Thus products which are included at the retail level are generally included in the market at the wholesale level. This has been the case for all previous WBA reviews. Wholesale markets can be widened if there are direct constraints at the wholesale level that are not included at the retail level. However, we did not find reason to widen the wholesale market definition in our 2013 WBA Consultation and so the wholesale market definition reflected the retail market definition.
- 3.23 TalkTalk expressed concern that we had not sufficiently examined whether retail substitution is sufficient to result in an effective indirect constraint. In the current context, this could in theory result in an overly broad wholesale product market definition and potentially to an erroneous SMP finding. However, TalkTalk states that, notwithstanding its concern relating to the analysis of indirect constraints, Ofcom has reached the right outcome in its market analysis. Given this, we consider that it is not necessary to revisit here our assessment of indirect constraints, noting that market definition is not an end in itself, but is carried out for the purpose of informing the competition assessment.

⁹⁹ TalkTalk, CWW and Sky's responses to Ofcom's s.135 formal information request, November 2012.

Retail product market definition

Introduction

3.24 At the retail level, BT's WBA products are used to supply asymmetric broadband internet access services over copper and fibre connections. Asymmetric broadband internet access provides, at a minimum, an always-on capability that allows both voice and data services to be used simultaneously and provides speeds greater than dial-up connections. In this section, we assess the scope of the product market into which these services are supplied. Using asymmetric broadband internet access as our starting point, we consider whether or not the following should be included in a single market:

- Broadband services provided over copper, cable and fibre networks;
- Broadband services of different speeds;
- Residential and business products;
- Bundled and non-bundled products;
- Mobile broadband;
- Symmetric services;
- Fixed wireless access;
- Satellite access; and
- Narrowband dial-up internet access.

3.25 We consider each of these issues in turn.

Copper, cable and fibre

3.26 This subsection considers whether retail broadband services provided over copper, fibre and cable are part of the same market.

Consultation proposals

3.27 In the 2013 WBA Consultation, we noted that broadband services provided over copper, fibre and cable all have the same intended use with the main difference being the speed of the service. We argued that any assessment of whether copper, cable and fibre are in the same market should be informed by whether products of different speeds should be in the same market. As our provisional conclusion was that different speeds are in the same market, it followed that fibre, cable and copper are in the same market.

Consultation responses

3.28 No respondents specifically commented or disagreed with our proposed assessment of copper, fibre and cable at the retail level.

Our conclusions

- 3.29 As per the 2013 WBA Consultation, we note that broadband services provided over copper, fibre and cable all have the same intended use. It is clear from the marketing of these services that they are positioned as alternative methods of delivering the same retail service, with the main difference being the speed of the service. The issue of whether or not services provided over copper, cable and fibre are in the same market is therefore covered under our discussion below of whether products of different speeds should be in the same market. As we conclude there that different speeds are in the same market, it follows that fibre, cable and copper are in the same market.

Differing broadband speeds

Introduction

- 3.30 This subsection considers whether retail broadband packages offering different speeds should be included within the same product market and, in particular, whether SFBB services are in the same market as SBB services. We conclude there is a single retail product market covering all speeds.
- 3.31 The majority of broadband services provided by the main ISPs offer headline speeds ranging from 16Mbit/s to 76Mbit/s, although offers based on ADSL have lower speeds. ADSL based services are increasingly being replaced by offers based on ADSL2+. Where this has happened the lower speed offers are being withdrawn but in areas where this change has not been made headline speeds lower than 16Mbit/s are still offered.¹⁰⁰ For fibre-based technologies, speeds of 100Mbit/s or higher are now being made available. The information provided to us by retail providers indicated that these may only be available to a very small number of customers (and this will probably remain so during the course of the review),¹⁰¹ although we note that Virgin is now offering 100Mbit/s or higher across most of its network.¹⁰²
- 3.32 SBB services with headline speeds under 30Mbit/s are usually delivered by CGA technology,¹⁰³ while SFBB services with speeds equal to or above 30Mbit/s are delivered using NGA or cable technology. However, while fibre based services generally offer faster speeds, this is not always the case. For example, due to line length limitations, it is possible in some cases that CGA technologies such as ADSL will deliver faster speeds than NGA technologies meaning there will be an overlap in the speeds actually delivered. Therefore, the technology used to deliver a retail broadband service cannot necessarily be used to inform a clear break by available speed.

Consultation proposals

- 3.33 We proposed to define a single retail product market including both fibre- and copper-based products. We saw no clear break at present in the “chain of substitution” between different service speeds. This meant that for a product providing asymmetric broadband internet access of any speed, there were lower or

¹⁰⁰ BT, Sky, TalkTalk and Virgin responses to Ofcom’s s.135 formal information request, November 2013.

¹⁰¹ BT, Sky, TalkTalk and Virgin responses to Ofcom’s s.135 formal information request, November 2013.

¹⁰² <http://store.virginmedia.com/broadband/speeds-explained/index.html>

¹⁰³ In this statement, unless stated otherwise, “speed” refers to headline speeds.

higher speed products (the next links in the chain) which were sufficiently close substitutes.

3.34 We considered future market developments in order to ensure a forward looking view. We acknowledged that there are factors pointing to a separate market emerging at the retail level for fibre-based products at some point in the future. However, there was not sufficient evidence for a separate market emerging during the next market review period.

3.35 We therefore proposed to define a single retail product market including all speeds.

Consultation responses

3.36 KCOM, BT, EE, TalkTalk and Virgin agreed with our proposals to include SFBB and SBB in the same market. BT, TalkTalk and Virgin made specific comments. BT noted that the roll-out of fibre-based broadband products is at an early stage. It said there was insufficient evidence to support distinct markets before the end of the review, and that our proposals were consistent with the NGA Recommendation. Virgin viewed ADSL services as imposing a pricing constraint on, at the least its 30Mbit/s service, due to a chain of substitution.

3.37 Sky did not formally respond to the WBA consultation but referred to its response to our July 2013 FAMR Consultation.¹⁰⁴ Sky's main comment was that as take up of SFBB increases in the UK, it will likely become appropriate for Ofcom to re-assess the suite of NGA regulatory remedies, as the constraint on SFBB by current generation access ("CGA") broadband may diminish. However, it did not suggest that SFBB would not be constrained over the current period of this market review.

3.38 TalkTalk considered there will be a separate SFBB market before the end of the next regulatory control period. However, it noted that *"it did not have specific evidence to contradict Ofcom's conclusion that there is insufficient evidence to support separate markets."*

3.39 TalkTalk did not consider that the pricing evidence presented in our consultation document was consistent with a gradual shift in prices. We address this point in paragraphs 3.51 to 3.55 below.

Our conclusions

3.40 To inform our product definition, we first note recent developments in broadband speeds including the deployment of SFBB. We then reconsider and update the analysis we presented in the 2013 WBA Consultation to consider how retail prices vary with broadband headline speed. We then consider other evidence on the substitutability of SFBB and SBB, and in particular the extent to which SFBB is a "must have". Finally we consider how the market might develop in the future, in order to ensure a forward looking view.

Increased deployment and take-up of broadband based on NGA technologies

3.41 As set out in Section 2, the deployment of NGA networks and take-up of SFBB services is increasing and it is likely to account for significant volumes during the

¹⁰⁴ <http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-reviews/responses/Sky.pdf>

period of this review. Take-up of SFBB stood at 25% of all broadband connections by Q4 2013.¹⁰⁵

- 3.42 This spread of fibre is increasing broadband speeds available to consumers. We estimate that over 86% of current FTTC/VDSL connections have modem sync speeds of 30Mbit/s or more.¹⁰⁶ Virgin now offers 50Mbit/s as its entry-level speed to new customers (up from 30Mbit/s) and as set out above also offers packages with headline speeds of 100Mbit/s or higher. According to the Infrastructure Report 2013, from 2012 to 2013 the average modem sync speed (as opposed to the advertised headline speed which is typically higher than the sync speed) across the UK increased from 12.7Mbit/s to 17.6Mbit/s,¹⁰⁷ although nearly half of households still had sync speeds of 10Mbit/s or less.

Pricing seems indicative of a chain of substitution

- 3.43 We analyse below both residential and business broadband tariffs to see how prices change with headline speeds. Our analysis does not identify a clear break in the chain of substitution between different service speeds.
- 3.44 In the 2013 WBA Consultation, we noted TalkTalk had alleged that BT had engaged in an abusive margin squeeze in the supply of SFBB services. Ofcom opened an investigation into this, which is still ongoing.¹⁰⁸ TalkTalk's response to the 2013 WBA Consultation argued that this would distort any assessment of the differences in the prices of SFBB versus SBB.
- 3.45 We consider in our analysis both the average retail prices and the range of prices offered for each of the main speeds offered in residential and business packages.¹⁰⁹ For the 2013 WBA Consultation we collected information on broadband tariffs for the most popular ISPs (Be, BT, EE, Plus.net, Sky, TalkTalk, Virgin) in February 2013. For this statement we updated this analysis based on data in March 2014. For each speed, a range of prices are available depending on, for example, length of contract, data allowance, discounts given to existing customers, and the identity of the provider. We calculated the average monthly costs by headline speed over a 24 month contract duration, including line-rental as well as installation and connection fees, and promotional discounts.¹¹⁰ The results for residential customers are shown in Figure 3.1. We include in Figure 3.1 data from the 2013 WBA Consultation (i.e. the data gathered in February 2013) as this was the data TalkTalk commented upon.

¹⁰⁵ http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/november2013/Fixed_bb_speeds_Nov_2013.pdf

¹⁰⁶ Ofcom, Infrastructure Report 2013, Paragraph 3.20, page 23.

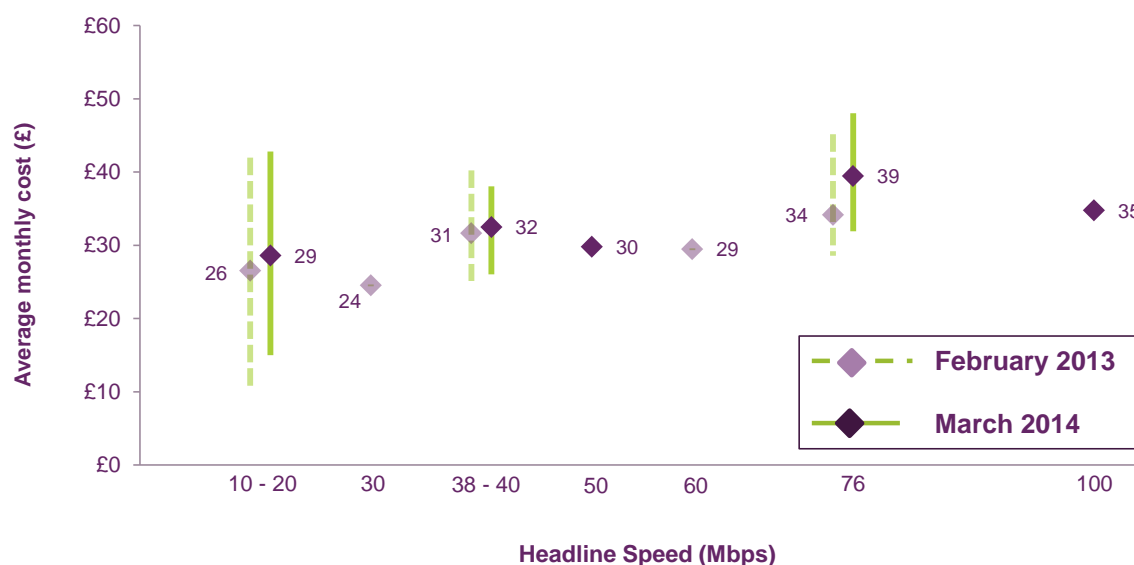
¹⁰⁷ Ofcom, Infrastructure Report 2013, Paragraph 3.34, page 27.

¹⁰⁸ http://stakeholders.ofcom.org.uk/enforcement/competition-bulletins/open-cases/all-open-cases/cw_01103/

¹⁰⁹ Headline speeds for broadband packages range from 8Mbit/s to 160Mbit/s. Virgin and BT are the only providers providing speeds above 76Mbit/s (i.e. 100Mbit/s and 160Mbit/s), and these account for a small number of contracts. Packages with speeds below 16Mbit/s are usually ADSL-based packages and are also small in numbers.

¹¹⁰ The way we calculated these averages was explained was detailed in Annex 8 of the 2013 WBA Consultation.

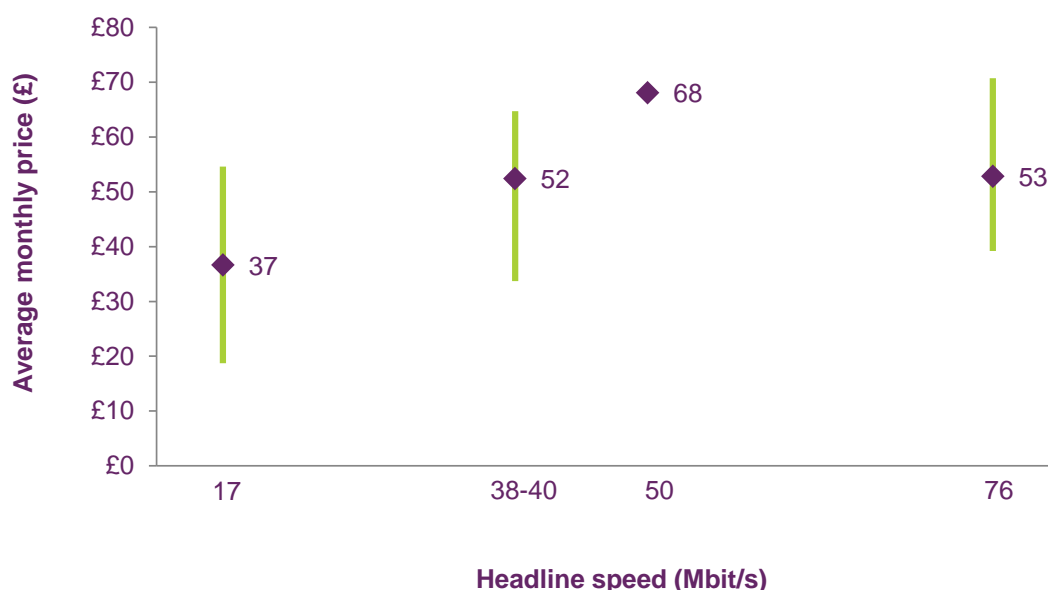
Figure 3.1: Retail price range and average retail price per month for residential broadband by headline speed (February 2013 and March 2014)



Source: Ofcom's analysis based on ISPs' websites, March 2014 and February 2013.

- 3.46 Figure 3.1 shows a general trend for prices to increase with headline speed, but the increase in price is very gradual.
- 3.47 With the March 2014 data, average prices increase by just over 10% when moving from SBB speeds (10-20 Mbit/s) to SFBB speeds of 38-40Mbit/s. The average price increase of moving from SBB speeds to 50Mbit/s (which now represents the entry-level cable offering) is only marginal. So, according to these data, there is not a significant price gap between SBB and SFBB speeds.
- 3.48 At SFBB speeds, on average, there is a bigger price increase (22%) when doubling speed from 38-40 Mbit/s to 76Mbit/s. However, the price difference between 38-40Mbit/s and 100Mbit/s (which represents a cable offering) is less than 10%.
- 3.49 Figure 3.2 shows our analysis of the price of business broadband products. It shows both average prices and the range of prices for each headline speed. Similar to residential broadband there is a generally positive relationship between speed and prices, although the rate of increase in the average prices is more marked than in the residential data. However, comparisons of business services are more complicated. Business services can be more differentiated than residential services and often include a greater variety of add-on services and features. This can result in a wide range of prices for business broadband at a given headline speed, and make it difficult to compare services on a like for like basis. Further evidence on the business market is shown in paragraphs 3.94 to 3.103. This suggests there is a chain of substitution across different business offerings, including different speeds. Furthermore, as we conclude that business and residential services are in the same market (see paragraph 3.114 below), we should not consider business prices in Figure 3.2 in isolation. We have therefore considered the evidence on SBB and SFBB prices across both residential and business in the round.

Figure 3.2: Retail price range and average retail price per month for business broadband by headline speed (March 2014)



Source: Ofcom's analysis based on ISPs' websites, March 2014.

- 3.50 In the 2013 WBA Consultation we said that a gradual increase in price with speeds, as seen in the residential products, suggests that if the price of one speed increased by a small but significant amount, a significant number of consumers would switch to an alternative service with a different headline speed.
- 3.51 TalkTalk disagreed with our analysis on several grounds. First, it believed our analysis should focus primarily on the price of speeds available on copper and fibre and should exclude cable services. In the comparison of residential products above cable services correspond to the services offered at 30Mbit/s and 60Mbit/s in February 2013 and 50Mbit/s and 100Mbit/s in March 2014. TalkTalk argued that cable's coverage is considerably less than national and, under the Modified Greenfield approach, it should only be included in just under half of the UK. TalkTalk further noted that there is a clear ability for providers of WBA to engage in geographic price discrimination. It submitted that Virgin's pricing reflects there being no meaningful cost differences in supplying broadband at 30Mbit/s or 60 Mbit/s, which is very different to copper/fibre based providers who face GEA charges. TalkTalk argued that once cable is excluded, on the basis of the data shown in the 2013 WBA Consultation, a consumer moving from SBB to SFBB would pay around 24% more. It did not see this as a gradual shift in prices.
- 3.52 Even if we exclude cable, when we compare average prices shown in Figure 3.1, as TalkTalk did in its response, a consumer would only have to pay a premium of just over 10% for SFBB relative to SBB. However, we believe it is appropriate to include cable. CPs do not appear to price discriminate between cable and non-cable areas. Further, we do not consider that the availability of cable only in some parts of the country impacts our product market definition. It is important that we consider how all major CPs (including cable providers) set their tariffs in response to consumer demand for different speeds. We account for the more limited availability of cable services in the geographic market definition and SMP assessment.
- 3.53 TalkTalk also argued Virgin does not face big differences in the costs of supplying different speeds, which is reflected in its retail broadband prices. However, if there

were a separate market for SFBB, then we might expect Virgin's prices to vary more significantly with speed, even if its costs do not, to reflect the different demand conditions. We believe the fact that Virgin offers SFBB services by default to all of its customers and does not vary its price significantly by speed suggests that there is not a separate market for SBB and SFBB.

- 3.54 We explained in the 2013 WBA Consultation that prices that include some sort of premium for higher quality (i.e. SBB versus SFBB) are consistent with a chain of substitution. TalkTalk argued that charging a premium for SFBB is also "*not inconsistent*" with a chain of substitution. We accept that the pricing analysis is not conclusive – as long as the price difference between speeds is greater than 5-10% it is not possible to say whether an increase in the price of a particular speed of 5-10% will cause significant switching to make that price rise unprofitable. That will depend on the value consumers place on increased speed, which will influence the degree of switching. Nevertheless, the smaller that price increase is, the more likely it is that consumers will choose to pay the incremental cost for a higher speed after the 5-10% price rise, which means it is more likely that the price rise will be unprofitable.
- 3.55 Given that the most recent price evidence suggests that the average price increases between SBB speeds relative to SFBB in the residential market are only marginally above 10% (and less in the case of entry level cable services relative to SBB),¹¹¹ and it seems likely that some positive value is attributed to a faster speed, we remain of the view that the evidence is consistent with a single market for different speeds.

SFBB is not "must have"

- 3.56 In recent years, average broadband speeds for residential customers have increased significantly, as has the demand for applications, like online TV services, that have relatively high bandwidth requirements. However, as in the 2010 WBA Statement, it remains the case that the majority of broadband uses do not require SFBB. The main advantage of a SFBB service is that it may give users a better experience in relation to some devices or applications.
- 3.57 The adoption of SFBB appears to result in users spending more time on applications already used with CGA, rather than new applications, suggesting the take-up of SFBB is not driven by specific uses.¹¹² This is reflected in the research conducted for the CMR which suggests that in 2013 the top activities were general browsing, sending and receiving emails, online shopping, banking and using social networking sites. None of these require SFBB.
- 3.58 About 29% of adults had used the internet to watch TV or video in the past week, 18% of adults had done this less often, but the majority (53%) of home internet users did not use their internet connection for TV/video viewing.¹¹³ Although watching TV or video online requires more bandwidth than other activities, it does not appear to require SFBB. TalkTalk has indicated that consumers require broadband speeds of only 3Mbit/s to use its basic 'YouView' TV service, and 5Mbit/s to use all additional functionality.¹¹⁴ Openreach estimates, shown in Table 3.1 below, suggest that CGA speeds are sufficient to access common TV services, such as video on demand

¹¹¹ Based on comparisons of residential services at 10-20Mbit/s to SFBB at 38-40Mbit/s and 50Mbit/s.

¹¹² Figure 5.13 of the 2013 Communications Market Report: <http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr11/>.

¹¹³ TV/video viewing included at least one of the following activities: watching live TV programmes, watching catch-up TV (such as BBC iPlayer, Sky Player, ITV Player); downloading films (Video on Demand); watching video clips/webcasts (e.g. YouTube or X Factor).

¹¹⁴ TalkTalk, "How does YouView work?", <https://sales.talktalk.co.uk/info/tv/youview-tv>

(VoD) in standard definition (SD) and high definition (HD) or linear TV in standard definition. Viewing of linear HD online may be somewhat constrained on CGA. Services such as ultra HD or linear 3D do require SFBB speeds, but are not commonly used at present.

Table 3.1: Throughputs required for TV over IP

Definition	Type	Throughput required
SD	Video on Demand (Time Shifted via Catch Up Services)	2.3 Mbit/s
HD	Video on Demand (Time Shifted via Catch Up Services)	3.7Mbit/s
3D	Video on Demand (Time Shifted via Catch Up Services)	~10Mbit/s
Ultra HD	Video on Demand (Time Shifted via Catch Up Services)	~60Mbit/s
SD	Linear (Time Shifted via PVRs)	5.7Mbit/s
HD	Linear (Time Shifted via PVRs)	13.7Mbit/s
3D	Linear (Time Shifted via PVRs)	~30Mbit/s
Ultra HD	Linear (Time Shifted via PVRs)	~250Mbit/s

Source: Openreach Developers' Working Groups, presentation, 25th January 2012.¹¹⁵

- 3.59 Even though there are very few applications which individually require SFBB speeds, several internet-enabled devices served by the same broadband connection may be constrained by slower speeds if used simultaneously. According to the CMR 2013, the average UK household owns three different types of internet-enabled device, and 74% have at least two.¹¹⁶ If multiple people in a household were using high bandwidth applications, in particular for watching IPTV, SBB speeds may not provide an acceptable service for all.
- 3.60 There is a potential for some households to have a number of users seek access to internet services simultaneously with relatively high bandwidth requirements such as catch-up TV. However, access to services such as catch-up TV and VOD with the highest bandwidth requirements does not seem to be a significant concern at the moment. Overall, catch-up TV only represents a minority of TV consumption (around 10% of average minutes viewed per day in 2012).¹¹⁷ Furthermore, not all catch-up TV is accessed via the internet, for example households can view via personal video recorders.¹¹⁸

¹¹⁵ <http://www.openreach-communications.co.uk/our-network/docs/Developers-Working-Group-250112.pptx>

¹¹⁶ Ofcom, CMR 2013, Figure 4.25.

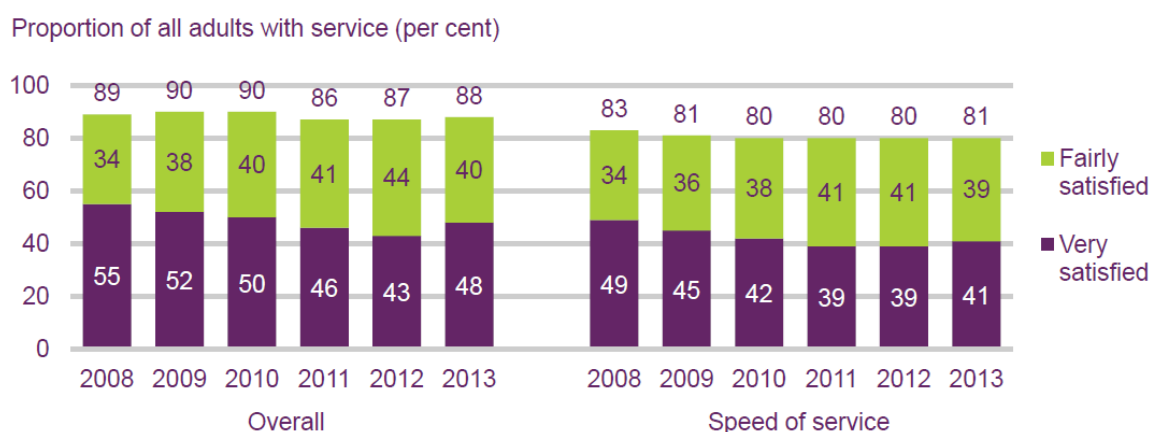
¹¹⁷ Ofcom, CMR 2013, Figure 2.79 for all homes.

¹¹⁸ Ofcom, CMR 2013, we estimated that around 67% of households had a personal video recorder (page 202), but even here the majority of TV viewing was live.

- 3.61 Evidence from surveys of residential customers seems to suggest that their needs are broadly being met by current services. As shown in Figure 3.3, the vast majority (80%) of residential consumers were either “highly satisfied” or “very satisfied” with their overall broadband connection and the speed of their service in Q1 2013. This reflects predominantly non-SFBB speeds since 22% of connections were superfast in early (Q2) 2013.¹¹⁹

Figure 3.3: Residential consumer satisfaction with aspects of fixed broadband service, Q1 2013

Satisfaction with aspects of fixed broadband service



Source: Ofcom research, data as at Q1 of each year
 Base: All adults aged 16+ with a fixed broadband connection
 Note: Includes only those who expressed an opinion

Source: Figure 5.71, Ofcom CMR 2013.

- 3.62 We have also considered uptake of SFBB. This has increased quite rapidly in recent periods, although from a very low base. For example, in Q2 2012, 8% of UK premises had SFBB, but this had more than doubled to 16% by Q2 2013. Nearly three quarters of premises were covered by NGA at that time,¹²⁰ and by Q2 2013 take-up in areas with availability stood at approximately 22%.¹²¹ However, much of this uptake seems to have been driven by pricing. Until early 2013, BT’s pricing policy left very little difference in the overall cost of BT’s fibre and ADSL broadband offerings.¹²² Virgin also adopted a policy of upgrading service speeds to its customers to SFBB for free.¹²³ Thus take-up to date does not clearly indicate a need to move to SFBB or a lack of constraint from CGA.

¹¹⁹ Ofcom, Infrastructure Report: 2013, Figure 13, p. 27.

¹²⁰ Ofcom, Infrastructure Report: 2013, Figure 9, p. 23.

¹²¹ The latest available data for Q4 2013 suggests that around 25% of fixed broadband connections are now superfast. See: http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/november2013/Fixed_bb_speeds_Nov_2013.pdf.

¹²² As discussed in paragraph 3.37 of the 2013 WBA Consultation, prior to February 2013, BT’s retail prices for SBB and SFBB services were very similar.

¹²³ Starting in March 2012, its 10Mbit/s customers were upgraded to either 20Mbit/s or 30Mbit/s for no extra charge, while existing 20Mbit/s and 30Mbit/s customers were upgraded to 60Mbit/s. Those that

- 3.63 In the 2013 WBA Consultation, we noted that CPs' internal documents suggest that SFBB services are still not a must have. For example, [3<].¹²⁴ Similarly, a July 2012 internal TalkTalk presentation states "*Fibre product is in it's [sic] infancy, early adopters are not mass consumers just yet*".¹²⁵ Elsewhere, TalkTalk stated that overall fibre demand among its customer base remains modest, although it noted that there were certain segments of its customer base that could derive clear value today from upgrading to fibre, for example those who are interested in taking TV from them but who currently do not receive sufficient speed to do so.¹²⁶ More recent documents confirm that CPs continue not to regard SFBB as an "essential" feature for most consumers. For example, [3<].¹²⁷
- 3.64 Enders Analysis reports also suggest that although there has been recent growth in the take-up of SFBB, it is not yet a mass market phenomenon, although it is likely to become so in future. For example, Enders stated in a February 2013 report that "the adoption rate [of SFBB] is accelerating even though penetration is quite high already, suggesting that it is receiving good word-of-mouth and that it is far from niche interest, with eventual adoption likely to be well over 50% [within the BT subscriber base]. [...] We continue to believe that the current high speed standard (30Mbit/s) will become the new normal over the next few years, but this is not yet happening outside BT and Virgin".¹²⁸ Enders more recently assessed broadband trends in December 2013 and noted some increases in SFBB take-up, but considered: "The absolute number of fibre customers outside of BT and Virgin is however still low, and we do not believe that the tipping point into mass market has yet been reached."¹²⁹
- 3.65 In April 2013, Enders stated that "[EE] was quite positive on consumer demand for high speed, stating that resistance to paying a premium has come down significantly over the last year, and that it would be marketing fibre products more aggressively in the rest of the year".¹³⁰ This again suggests an increasing differentiation between CGA and NGA in the eyes of retail consumers, although it is not clear that it is sufficient to define a separate market.
- 3.66 TalkTalk argued that our market definition should be concerned about marginal consumers rather than the average needs of consumers. We believe that under a hypothetical monopolist test we want to test if a sufficient number of consumers would switch speed e.g. from SFBB to SBB in response to a SSNIP to make that price rise unprofitable. We recognise that there may be some customers that require superfast speeds who would not switch to SBB in response to a SSNIP in SFBB. However, our evidence suggests that there appear to be few consumers for whom SFBB is really necessary, which suggests they may still be willing to switch down to SBB in response to an increase in the price of SFBB. Furthermore, most consumers do not consider SFBB "must have", and this suggests that CPs investing in SFBB have an incentive to price SFBB competitively relative to SBB in order to drive take-

had a Superhub were upgraded to 30 Mbit/s and those did not were put onto the 20Mbit/s service but will be sent a Superhub and put onto 30Mbit/s when they renew their contract,

<http://mediacentre.virginmedia.com/Stories/Virgin-Media-s-speed-doubling-starts-2380.aspx>.

¹²⁴ Sky response to question 1.d of s.135 notice, 26 November 2012.

¹²⁵ TalkTalk response to question 2.1 of s.135 notice, 26 November 2012.

¹²⁶ P3, TalkTalk Telecom Group PLC Interim Management Statement Third Quarter FY 2012/13, <http://www.talktalkgroup.com/~media/Files/T/TalkTalk/pdfs/results/q3-results-2013.pdf>.

¹²⁷ Sky response to question 1.d of s.135 notice, 19 November 2013.

¹²⁸ Enders Analysis, *BT Q3 2012/13 results: Fibre take-up accelerates, but sports costs loom*, 5 February 2013 p. 2-3.

¹²⁹ Enders Analysis, *UK broadband, telephony and pay TV trends Q3 2013– Revenue growth strong, cost growth stronger*, 2 December 2013, p. 9.

¹³⁰ Enders Analysis, *EE Q1 2013 results: 4G progress*, 24 April 2013 p. 2.

up. If the price of SFBB were too high (due to a SSNIP on SFBB) then we would expect most customers would continue to use SBB.

Future developments

- 3.67 We recognise that consumer requirements for broadband speeds may increase in the future, and that this could potentially result in a lessening in the substitutability of SFBB and SBB services for consumers. For example, overall increases in the penetration of internet-enabled TVs, tablets and computers is likely to continue.¹³¹ This could increase simultaneous viewing of catch-up TV, meaning faster broadband could be required by more households in order to satisfy their increased needs.
- 3.68 We recognise that more consumers may regard SFBB services as necessary in future. Indeed, there may be an 'endowment effect' that means that consumers are reluctant to trade down once they have experienced SFBB. However, the speed and extent of transition to SFBB over the period of this review is subject to significant uncertainty at this point.
- 3.69 We note that the expectation appears to be that a significant number of consumers will continue to be served by CGA-based broadband services. This is supported by CPs' estimates of the take-up of SFBB in the 2014 FAMR Draft Statement as summarised in Table 3.2 below. The consensus view from these forecasts is that a significant proportion of connections are likely to be superfast by 2017, materially higher than today. Nevertheless, on average, CPs expect that the proportion of households served by CGA-based broadband services will remain in the majority. Only [X] forecasts suggest that SFBB might account for a significant majority of connections by 2017.

Table 3.2: CPs' estimates of SFBB subscribers in 2017

2017 (m)	BT *	Sky	TalkTalk*	EE*	Virgin*
Fibre subscribers	[X]	-	[X]	[X]	-
Cable subscribers	-	-	-	-	[X]
Superfast subscribers*	[X]	[X]	[X]	[X]	[X]
% of all broadband	[X]	[X]	[X]	[X]	[X]

*In the 2014 FAMR Draft Statement, where operator forecasts excluded cable we combined them with Virgin's forecasts. Similarly, for Virgin's forecast we combine it with BT's fibre forecast.

Source: Ofcom calculations based on: BT response to 13th WLA s.135 notice, 12 February 2014; Sky response to 5th WLA s.135 notice, 21 February 2014; TalkTalk response to 5th WLA s.135 notice, 21 February 2014; EE response to 4th WLA s.135 notice, 12 February 2014; Virgin response to WLA s.135 notice, 26 November 2013. '% of all broadband' calculation is based on Analysys Mason forecasts of total SFBB subscribers.¹³²

¹³¹ See for example, Figure 4.26, page 282 of the CMR 2013, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr13/2013_UK_CMR.pdf.

¹³² Analysys Mason, *Fixed voice and broadband in Europe: forecasts 2013-2018*, 10 February 2014.

- 3.70 Thus, even if consumers are reluctant to trade down once they have experienced SFBB, prices for SFBB are likely to remain low in order to make it attractive for the large number of consumers still on CGA to migrate to SFBB. To the extent that prices for SFBB could increase because of the premium some consumers are willing to pay for SFBB rises, it is not clear that this means we should define a separate market. As discussed above, charging a premium for SFBB is consistent with a chain of substitution.

Conclusion

- 3.71 On balance, the evidence suggests that it is appropriate to define a single market for broadband services at all speeds. We acknowledge that there are factors pointing to a separate market potentially emerging at the retail level for SFBB products at some point in the future. However, there is insufficient evidence to conclude that this is likely to occur during the three-year forward look period of this market review. Therefore, we define a single retail product market including fibre, cable and copper-based products at all speeds. This is consistent with the NGA Recommendation, which states that WBA over VDSL¹³³ should be considered a chain substitute to existing WBA over copper loops. The EC's latest draft Recommendation on Markets also notes that it remains likely there is a chain of substitution between copper and fibre-based broadband services in the near to medium-term.¹³⁴

Bundles

Introduction

- 3.72 The current telecommunications and media retail markets are characterised by double-, triple- and quadruple-play suppliers. That is, broadband access can be bundled with different combinations of fixed voice telephony, mobile telephony and pay TV services.
- 3.73 In its Explanatory Memorandum to the 2007 Recommendation on Markets, the Commission included a discussion of individual services in a bundle.¹³⁵ It explained that in most cases individual services in a bundle are not good demand-side substitutes for each other. But they may still be considered to be part of the same retail market if there is no independent demand for individual parts of the bundle.
- 3.74 The Explanatory Memorandum explained that services sold in a bundle could be separate markets in their own right. However, this would require evidence that a sufficient number of consumers would respond to a SSNIP and would “unpick” the bundle and obtain the service elements of the bundle separately. Therefore, where sufficient consumers would do this, the service elements constitute the relevant markets in their own right and not the bundle.

Consultation proposals

- 3.75 In the 2013 WBA Consultation, we recognised the trends towards more bundling. We said there is no strong case to include pay TV or mobile in the market, as there is significant demand for broadband sold separately from these services. It was less

¹³³ Very-high-bit-rate digital subscriber line.

¹³⁴ Explanatory Note on EC draft Recommendation on Markets, pages 34-50.

¹³⁵ Explanatory Note on 2007 Recommendation on Markets, https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/sec_2007_1483_2_0.pdf.

clear whether there is demand for broadband independent from fixed line voice services.

- 3.76 We also considered whether unbundled and bundled services are seen as substitutes. In particular, whether in the presence of a SSNIP there is evidence that a sufficient number of customers would “unpick” the bundle and purchase the service elements of the bundle separately. If so, it can be concluded that broadband sold in bundles is in the same market as standalone products. It seemed likely that consumers would unpick TV and mobile services from broadband bundles, but it was less clear that they would unpick fixed line voice services.
- 3.77 We did not conclude on these issues. This was because, as explained in Section 4 of the 2013 WBA Consultation, we did not believe the retail definition would make a difference to the wholesale product definition. Even if retail consumers were not willing to “unpick” a fixed and broadband bundle, at the wholesale level there is clear substitutability between bundled and unbundled offers, regardless of the situation at the retail level.

Consultation responses

- 3.78 There were limited stakeholder comments on bundling. Only TalkTalk explicitly agreed with our position on bundling. It noted that most providers no longer market broadband without voice and that the majority of consumers now purchase voice calls and broadband together. It considered that voice calls and broadband services purchased separately would not impose a competitive constraint on bundled services. It further noted that even if there is a legacy base of customers taking broadband independently of voice this should not be placed in the relevant market. It explained that this is because there is limited ability for customers to shift away from a bundle to a disaggregated service.

Our conclusions

- 3.79 No stakeholders objected to our position on bundling and our reasoning in the 2013 WBA Consultation stands.
- 3.80 We have checked the analysis presented in the 2013 WBA Consultation against more recent information to ensure no significant changes have occurred. The latest evidence confirms the trend towards broadband being sold as part of a bundle, with sales of broadband-only packages declining.^{136, 137} There is not, however, a strong case to include pay TV or mobile in the market, as TV and mobile are still bought in bundled packages with broadband much less frequently.¹³⁸

¹³⁶ The proportion of broadband purchased in a bundle has increased to 95% in Q4 2013 from 67% in 2011. 2013 data from Ofcom, Switching Tracker 2013 data tables, November 2013, Table 4, <http://www.ofcom.org.uk/static/stats/OfcomSwitchingTracker2013.pdf>; and 2011 data from Ofcom, Consumer Experience of 2012, January 2013, Figure 82, http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-12/Consumer_Experience_Research1.pdf.

¹³⁷ In addition, in response to our 2013 WBA CFI, BT provided research which showed that the proportion of all subscribers that are single-play (broadband without voice or voice only) has fallen significantly over the past few years, as many subscribers move to dual and triple-play packages.

¹³⁸ Based on our survey evidence, by Q4 2013, TV was included in 46% of broadband bundles. Mobile telephony was only included in 8% of broadband bundles. Switching Tracker 2013 data tables, Ofcom, November 2013, Table 4, <http://www.ofcom.org.uk/static/stats/OfcomSwitchingTracker2013.pdf>.

- 3.81 It is less clear whether there is demand for broadband independent from fixed line voice services. In almost all cases of broadband services purchased as a bundle (93%) include fixed voice services.¹³⁹ In Q4 2013, only 5% of consumers surveyed bought broadband on a stand-alone basis.
- 3.82 However, as we explain in the subsection on wholesale market definition below, we do not need to conclude on this issue. This is because, regardless of the situation at the retail level, there is independent demand for broadband at the wholesale level. Even if retail consumers were not willing to “unpick” a fixed and broadband bundle, at the wholesale level there is clear substitutability between bundled and unbundled offers, regardless of the situation at the retail level.

Conclusions

- 3.83 We do not conclude on whether there is independent demand for broadband at the retail level, or whether bundles are substitutable for independent products. It seems likely that there is demand for broadband independent from TV and mobile services, and consumers are likely to be willing to unpick these services from a bundle. However, the evidence with regard to fixed line voice services is less clear. As explained in the section on wholesale market definition, we do not believe these issues make a difference to our findings.

Residential and business

Introduction

- 3.84 In this subsection we consider whether retail broadband services sold to residential and business customers are in separate markets. We remain of the view that residential and business services are in the same market, as we proposed in the 2013 WBA Consultation.

Consultation proposals

- 3.85 In the 2013 WBA Consultation we proposed that residential and business were in the same market (as in the 2010 WBA Statement). This was because some business customers purchasing broadband, such as small-office home-office (SOHO) and small and medium enterprise (SME) users, may find that services targeted primarily at residential customers are sufficient for their needs, and so can substitute between them. We considered that a chain of substitution between lower and higher grade offerings was apparent. We also considered that supply-side substitution was a relevant constraint, i.e. a hypothetical monopolist in the business market would be prevented from imposing price increases above the competitive level in one segment by the threat of supply-side substitution from the residential market. In practice, we found that many operators already supply both residential and business packages.

¹³⁹ Switching Tracker 2013 data tables, Ofcom, November 2013, Table 4, <http://www.ofcom.org.uk/static/stats/OfcomSwitchingTracker2013.pdf>.

Consultation responses

- 3.86 [X] disagreed with what it called the homogenous treatment of business and residential services by Ofcom. It suggested that two markets could be defined – one for residential and one for business services.¹⁴⁰
- 3.87 [X] disagreed with our view that SOHO and SME users might find residential products suitable for their needs. It recognised there may be a degree of overlap between residential and SOHO broadband, but overall it considered that there was very clear demand for business grade services including from SMEs. [X] noted that it [X] and finds extensive demand for business grade products from small businesses.
- 3.88 [X] highlighted a number of differences between residential and business grade services. It suggested a separate market for business broadband incorporating the following standards:
- more symmetric (than residential) bandwidth, i.e. at least some guarantees of a reliable minimum upload speed;¹⁴¹
 - no usage caps;
 - unblocked ports;¹⁴²
 - static IP addresses;¹⁴³
 - prioritisation services;
 - credibility (in terms of availability of the service);¹⁴⁴
 - low latency and jitter; and
 - support and helpdesk availability (24/7 support).
- 3.89 On the supply-side, [X] argued that only BT was providing a fully featured ‘business grade’ broadband service. It did not consider operators could enter quickly to begin supplying a business broadband service.

¹⁴⁰ It also argued that there may be other ways in which we might address differences in competitive constraints associated with business and residential segments (these are discussed in Sections 4 and 5).

¹⁴¹ [X] considered “[a]n ADSL Annex M product would be a step in the right direction, which allows a boost to upstream speeds (such as those required by voice over IP applications) at the expense of some downstream speed. Likewise a VDSL profile that delivers near symmetrical bandwidth would meet many a business need and also drive competition at the lower end of the Ethernet local access market.”

¹⁴² Blocked ports are often used by ISPs as a means to prevent unwanted traffic such as spam emails, viruses etc. However, some businesses may wish unblocked ports where for example a business wants a dedicated email address with its business name e.g. employeename@firm.org.uk.

¹⁴³ A static IP is generally needed if businesses want to forward certain packets from the Internet to certain computers or devices on their network.

¹⁴⁴ [X] noted that it is one thing to complain about a poor experience one evening for a residential consumer, it is another thing to have a business suffering a poor experience because of connectivity issues.

Our conclusions

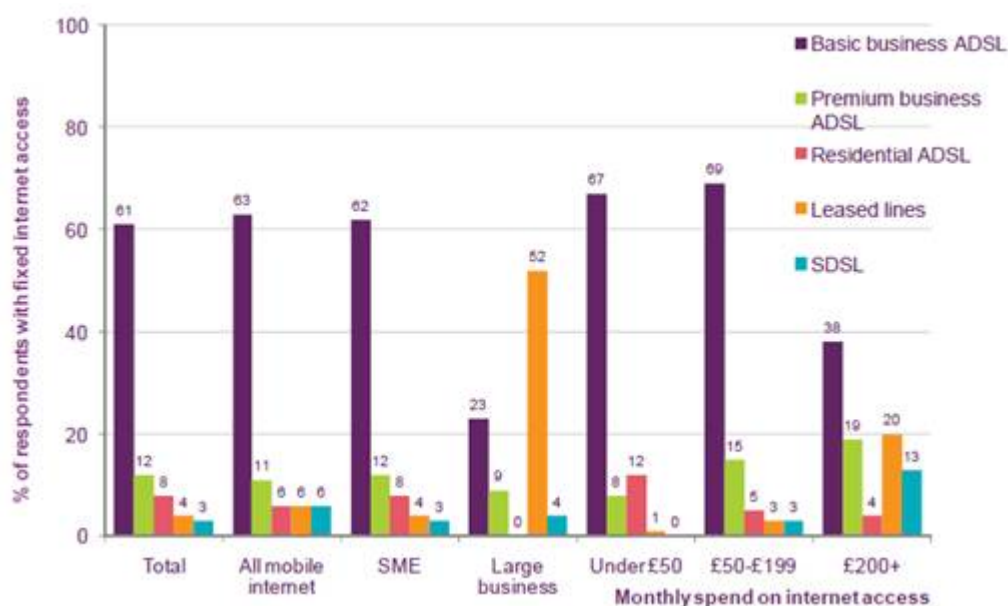
3.90 We continue to believe that residential and business broadband products are in the same product market, for the following reasons:

- some businesses substitute between residential and business products;
- the evidence on product pricing suggests there is a chain of substitution across all broadband products; and
- supply-side substitution between different types of residential and business products is feasible.

Some businesses substitute between residential and business products

3.91 In the 2013 WBA Consultation, we referred to analysis reproduced in Figure 3.4 below. Figure 3.4 shows that the majority of businesses (73%) purchased business ADSL services, most of which were basic business broadband services.¹⁴⁵ Many business customers purchasing such packages, such as small-office home-office (SOHO) and small and medium enterprise (SME) users may find that services targeted primarily at residential customers are sufficient for their needs, particularly given the improvements to residential products. We noted that some businesses already purchase residential ADSL services (8% in 2010).

Figure 3.4: Methods of internet access by businesses



Source: Ofcom. *Consumer research into use of fixed and mobile internet*, 23 March 2010, Figure 4.1.¹⁴⁶

¹⁴⁵ A “premium” business package might include enhanced or managed IT solutions such as engineer visits, web hosting, resilient back-up options or managed internet access. For businesses needing even greater functionality than those services delivered using ADSL technology, there is a further range of business-specific, higher specification communications packages available, such as SDSL or leased lines. The market for these services was reviewed in the 2013 BCMR Statement.

¹⁴⁶ http://stakeholders.ofcom.org.uk/binaries/consultations/wba/annexes/consumer_research.pdf

- 3.92 [3<] argued that while there was some demand for residential broadband from small business customers, there was very clear demand in this segment for business grade services. However, it did not provide specific evidence to contradict the analysis we presented. Indeed, [3<] view seems consistent with ours, i.e. that there is some demand for residential broadband from small business, but other businesses buy business products.
- 3.93 This view is also confirmed by a recent study of business' ICT requirements by Value Partners¹⁴⁷ which noted that business customers perceived there to be relatively small differences between consumer products and entry-level business broadband. The main differences between consumer products and entry-level business products listed were "response times" and SLAs and some differences in bandwidth. Value Partners found that business grade connectivity products are required when connectivity is critical to the operation of the business (i.e. the business needs to ensure continuity of supply). The report confirmed that SMEs do use residential products, although these tended to be very small businesses with fewer than four employees. We note, however, that enterprises with four or fewer employees represent around two-thirds of all UK businesses.¹⁴⁸ Therefore, it seems likely that there is a fairly significant base of business customers who consider residential and business products as substitutes. Indeed, the analysis of pricing of broadband products (discussed further below) suggests that there is not a significant difference in the highest specification residential products and entry-level business broadband.

Product pricing suggests a chain of substitution across all broadband products

- 3.94 In Figure 3.5 we compare the range and average prices for residential and business broadband at comparable speeds for the main broadband operators (BT, Plus.net, TalkTalk and Virgin). Figure 3.5 suggests that the entry level business packages are in line with the price of a residential service. This is consistent with the price that CPs can charge to business customers being constrained by the price of residential offerings.

¹⁴⁷ "Study of business ICT requirements", Value Partners, Final Report to Ofcom, April 2013 (report not published).

¹⁴⁸ According to ONS data, more than two-thirds of UK businesses employ four employees or fewer.

Figure 3.5: Range and average price for residential and business broadband at 10-20 Mbit/s and 38-40Mbit/s



Source: Ofcom analysis for 2014 WBA Statement based on published prices on CPs' websites.

- 3.95 This is confirmed by looking at packages of individual operators. For example, TalkTalk's basic residential broadband service including line rental is nearly £18.50 per month compared to nearly £21.50 for its entry level business broadband package.¹⁴⁹ In Table 3.3 we present BT's pricing of its retail business products, as a further example of retail prices for business service and residential broadband.
- 3.96 Table 3.3 shows that BT's entry-level business product is £28-31 per month for a 24 month contract.¹⁵⁰ This is only slightly more expensive than BT's entry-level residential broadband service, which is £26-28 for a 18 month contract, and has additional service features such as BT prompt care and provision of email addresses.
- 3.97 BT's headline tariff for unlimited business broadband ranges £33 - £36 per month for a 24 month contract. Again, this pricing is close to BT's residential unlimited broadband options of £32 available on an 18 month contract, or £37 for the Unlimited Broadband Extra product with Net Protect Plus. Unlimited retail SFBB services are between £39 - 42 per month. BT's Infinity for business service starts from £45 (with a 100GB data cap) with an additional charge of £5 per month for unlimited data.¹⁵¹ Again, BT's business services includes additional features such as a technical helpline ("BT Tech Heads").
- 3.98 Clearly with various upfront charges, introductory offers and different contract lengths the comparisons are more complicated. Nevertheless, in the last row of Table 3.3 we have we have calculated the effective monthly charge for retail and business

¹⁴⁹ <https://sales.talktalk.co.uk/product/broadband/simplybb>
<http://www.talktalkbusiness.co.uk/>

¹⁵⁰ The headline rate for a 12 month contract is £35-38 per month.

¹⁵¹ Additional charges for unlimited data are typically £5 per month for a 24 month contract (based on Table 1.2 in BT's charging schedule),
http://www2.bt.com/static/i/btetail/panretail/terms/pdfs/bt1130a_charges.pdf.

customers assuming that they use the BT service over a 24 month period. This takes into account relevant upfront charges and introductory offers and term discounts for BT's business service. According to these calculations, there are differences between residential and business packages, albeit fairly limited. For example, BT's unlimited business broadband service would be between £40-43 (when including phone line installation charges)¹⁵², whereas a residential unlimited broadband service would be £30-35.

¹⁵² A phone installation charge of £105 applied to BT's broadband and line packages accounts for £4.38 per month of this difference and, according to BT, would not apply on much longer term contracts.

Table 3.3: BT business and residential broadband specifications and prices

	Residential Broadband (18 month) (Note i)					Business Broadband (24 month) (Note ii)		
	Basic Broadband (+ Extra)	Unlimited Broadband (+ Extra)	BT Infinity 1 (+ Extra)	Unlimited BT Infinity 1	Unlimited BT Infinity 2	Basic Broadband	Unlimited Broadband	BT Infinity for Business - Option 1 (+ Unlimited)
Headline tariff including line rental (retail Extra option and business unlimited options in brackets)	£26 (£28)	£32 (£37)	£31 (£32)	£39	£42	£28 - £31	£33 - £36	£45 (£50)
Introductory price (retail Extra option in brackets)	£8 (£6)	£8 (£11)	£10 (£8)	£16	£20	n/a		
Headline speed (Mbit/s)	16		38	38	76	17		38
Usage (Note iii)	10GB	Unlimited	20GB (40GB with Extra)	Unlimited		10GB	Unlimited	100GB or Unlimited (additional charge applies)
Connection	No charge		£30 activation fee		No charge	No charge		
Support	n/a					BT Prompt care		BT Prompt care (BT Tech Heads including in Unlimited packages)
Email address	n/a					10		
BT Router	Inclusive (£6.95 delivery charge)					£59 (£8 delivery charge)	Inclusive (£8 delivery charge)	
Phone line installation charge (Note iv)	n/a					£105		
1 Static IP	n/a					£5.50		
5 Static IP						£10.50	£5.50	
BT PC Security	Net Protect Plus Option for Extra			Net Protect Plus		£4.99		
£/month over a 24 month period (retail extra option in brackets) (Note v)	£26 (£27)	£30 (£35)	£31 (£32)	£40	£43	£35 - £38	£40 - £43	£50 (£55)

(i) Retail tariffs are shown including line rental £15.99 per month. Figures in brackets relate to BT's Extra option which provides net security software and higher data caps for its Infinity 1 service. It excludes introductory offers.

(ii) Business tariffs are shown as a range as BT varies charges depending on whether service is purchased in Markets 1, 2 or 3. Line rental and broadband tariffs based on broadband and phone line packages.

(iii) BT Infinity for business packages include 100GB and Unlimited usage options. The latter is available for an additional £5 per month with Unlimited data and BT's 'Tech Heads' service.

(iv) According to BT, the phone line installation charge of £105 will be applied to most business broadband and phone line packages for 24 month contracts (£120 for 12 month contracts) and free on longer term contracts.

(vi) Shows the effective average monthly tariffs if a consumer were to use the service over a 24 month period. It includes any connection and activation charges and discount rates available over the life of the minimum term.

Source: BT website April 2014. ¹⁵³

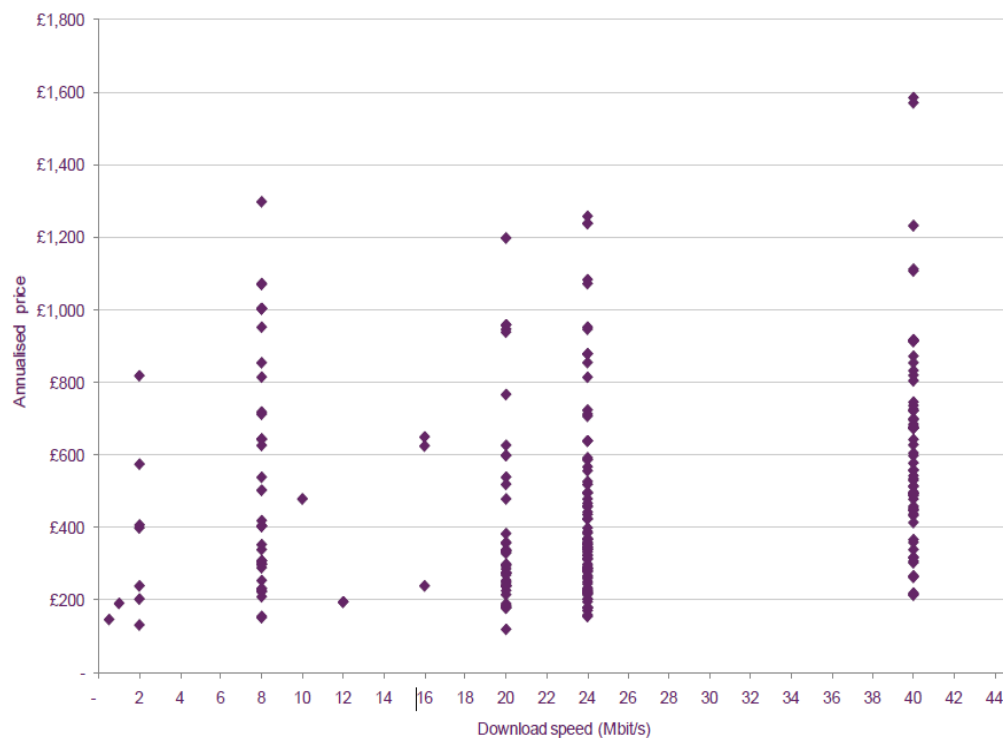
¹⁵³ <http://business.bt.com/broadband-and-internet/business-broadband/> and http://www2.bt.com/static/i/btretail/panretail/terms/pdfs/bt1130a_charges.pdf

- 3.99 Overall, if we consider in the round the available price evidence on business and residential services it does not obviously suggest a separate market. The relatively small price gap between the most comparable business and residential products is consistent with the price of business services being constrained by residential products. In contrast, if, as [X] suggests, business services were not constrained by residential services and BT were the only operator that is able to provide a fit for purpose business products (which we discuss in paragraph 3.110 to 3.113 below), we might expect BT's prices of business products to be considerably higher, reflecting [X] view that BT is a monopoly provider.
- 3.100 The analysis of BT's structure of retail broadband prices is also revealing as it shows that some other service features (e.g. static IP addresses and security) are presented as incremental add-ons. This is supportive of the view that there is a fairly wide range of requirements for business users, rather than a fixed set of "business requirements". In other words, there is a continuum of service features none of which can uniquely (or in combination) be identified as a common set of business specific requirements. The list of business requirements that [X] identified might be relevant for some businesses but not others. For example, a business grade service for a firm using the internet for basic video conferencing might need lower latency connections, whereas other firms may simply require sufficient bandwidth to back-up data to remote servers overnight.
- 3.101 As such, businesses will select from a menu of service options, and this is supportive of a chain of substitution from low to high-grade business broadband products. In other words, similar to a chain of substitution across all broadband speeds, there is a chain of substitution linking services with different features (such as differences in data allowance and the ability to prioritise traffic). Consumers may not view an 'entry-level' broadband product with a small number of service features as a direct substitute for one with many service features. However, they may be willing to substitute with an intermediate product, suggesting all products could be in the same relevant market via a chain of substitution.
- 3.102 Further evidence that businesses buy a range of products is shown in Figure 3.20 in the 2013 BCMR Statement, reproduced below at Figure 3.6 which shows business broadband prices on an annualised basis across all bandwidths. Figure 3.6 suggests that there was a considerable range in broadband prices and businesses can expect to pay from as little as £120 per year, comparable with residential prices, to up to £1,300 per year¹⁵⁴ (services at around £1,600 per year in Figure 3.6 have now been withdrawn).¹⁵⁵ Across the packages and bandwidths the (unweighted) average price for business broadband is approximately £500 per year or just over £40 per month.

¹⁵⁴ Some operators are offering business broadband packages up to £105 per month (equivalent to around £1300 per annum). See for example:

<http://www.goscomb.net/connectivity/broadband/business>.

¹⁵⁵ Figure 3.5 shows some broadband offers up to £1,600. We understand that these offers no longer exist for new supply. The operator (Vivaciti) that was offering packages at £1,600 now offers significantly cheaper packages, <http://vivaciti.net/packages/office-internet>.

Figure 3.6: BCMR 2012 broadband price comparison by download bandwidth

Source: 2013 BCMR Statement.¹⁵⁶

3.103 Overall, we conclude that the evidence on product pricing is consistent with residential broadband providing a constraint on entry-level/lower-end business broadband. We also do not see any obvious evidence of a break in the market between entry-level business broadband and higher-end services. The available evidence shows that a wide spectrum of service features are offered to business.

Supply-side substitution

3.104 Supply-side substitution considers whether there are operators not currently present in, say, a business grade segment – which are able to readily offer this service in response to a SSNIP within a short timeframe.¹⁵⁷

3.105 Supply-side substitution could be relevant in two main scenarios. First, in relation to providers focused on residential customers. Second, in relation to operators that are currently providing some business services but do not provide every single ‘business grade’ function as identified by [X].

3.106 We believe such supply side substitution is a relevant constraint. The wholesale inputs that are used to support business users and residential users are basically the same. If we consider an ADSL provider, for example, then the same ADSL line card

¹⁵⁶ Figure 3.20, <http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity/statement/Sections1-4.pdf>.

¹⁵⁷ We generally take supply-side substitution into account in market definition to the extent that it provides additional constraints above those identified on the demand side. This restricts it to operators who are not already materially present in the market. However, whether suppliers are treated as supply-side substitutes or as already having entered the market, there do not appear to be any significant barriers to entry or expansion (the ability of such operators to expand could be taken into account in the market power assessment).

is used to support both residential and business services. Further, the DSLAM that the ADSL line card is plugged into is capable of supporting both residential and business services. The same applies for backhaul connections where traffic can be managed to offer different service quality. Therefore, on the supply-side, an ADSL provider is equally able to provide the whole range of retail residential and business asymmetric broadband access services. The same would also apply for NGA-based services.

- 3.107 Indeed, basic business grade products and residential products are often very similar - this was a point made by a respondent to the Value Partners' review on business markets (discussed in paragraph 3.93 above).
- 3.108 The main differentiator between these basic products and higher grade business broadband services appears to be the higher levels of support and repair times that the latter sometimes offer. A supplier not currently offering higher grade (business targeted) services would likely need to develop some new processes and systems. However, as we argued in the 2010 WBA Statement, a provider who already has a network that can be configured to offer higher quality services should be able to develop the necessary processes and systems within 12 months, either by developing them in-house, buying them in or contracting support out to a third party. The ability of providers to supply higher grade products in a relatively short space of time was confirmed in responses from CPs to formal information requests.¹⁵⁸
- 3.109 Accordingly, if, current high-end business services offered by, for example, TalkTalk and Virgin do not fulfil all the service features that [3<] identified, they should be able to configure their network to support additional features in the business segment within less than a year. This suggests that a hypothetical monopolist would be prevented from imposing price increases above the competitive level in one segment (i.e. a defined 'business grade' service) by the threat of supply-side substitution from providers of a lower grade service.
- 3.110 The view that there are low barriers to upgrading basic services is consistent with the view expressed in the 2013 WBA Consultation that many operators already supply both residential products and at least some business broadband services. In contrast, [3<] claimed that while a number of operators do offer business broadband services, only BT's service offering was 'fit for purpose'. It provided a table showing for BT, Sky, TalkTalk, Virgin and Vodafone the service features these providers offer to business consumers. It argued that only BT was providing a fully featured 'business grade' broadband service.
- 3.111 Our assessment is that there are a number of CPs already providing the broadband features [3<] identified. For example:
- TalkTalk appears to have business broadband packages that match the broadband offerings of BT by service feature, including: access technologies include VDSL¹⁵⁹, ADSL2+, Annex M¹⁶⁰ and EFM; bandwidth profiles include

¹⁵⁸ Ofcom's s.135 formal information request, November 2013.

¹⁵⁹ <http://www.talktalkbusiness.co.uk/products-and-services/connectivity-networking/superfast-broadband/>

¹⁶⁰ <http://www.talktalkbusiness.co.uk/news-events/news-ttb-listing/video-news/partner-bb--annex-m/>

2Mbit/s upstream option¹⁶¹ and uncapped usage; technical features include traffic prioritisation¹⁶² and fully open IP ports; and equivalent support and repair.¹⁶³

- Virgin's business broadband relies on different cable-based technologies.¹⁶⁴ However, Virgin supports the key service features [3<] identified including fast upload,¹⁶⁵ optional static IPs, traffic management and support and repair.¹⁶⁶ Virgin does not support on its cable network technologies such as EFM or Annex M¹⁶⁷, but its services offer retail business customers equivalent functionality to other CPs.
- Information from Vodafone indicates it also supports business services based on asymmetric broadband connections. It does not currently market 'off-the-shelf' business broadband products in same way as TalkTalk, Virgin and BT, but its website suggests that it supports the key 'business grade' services.¹⁶⁸

3.112 Sky does not actively market broadband to business customers given its focus on multi-play residential services. However, Sky still has wholesale arrangements in place with Easynet (but currently it does not provide any other wholesale services to other CPs). Easynet currently uses part of Sky's LLU footprint to provide business grade broadband to compete with BT in the business segment. [3<] services provide all of the key services features capable of supporting all of the key functionalities identified by [3<].¹⁶⁹ This suggests that Sky, too, could move from targeting residential customers to also serving business segments, in light of evidence that Sky would not face significant barriers in supplying business broadband.

3.113 Therefore, it is reasonable to assume that a retail provider who is only supplying residential services could readily (i.e. within 12 months) start offering business services in response to a SSNIP, and that a supplier of basic broadband packages could provide higher quality products within the same timeframe.

Our conclusions

3.114 In conclusion, we remain of the view that residential and business services are in the same retail broadband market. At the retail level, the evidence suggests that there is a chain of substitution linking residential broadband and entry level business products through to higher-end business broadband. Moreover, we consider that supply-side substitution could impose an additional constraint. The same underlying equipment used to provide residential broadband is used to provide entry-level

¹⁶¹ Ibid

¹⁶² http://www.talktalkbusiness.co.uk/elqNow/elqRedir.htm?ref=http://www.talktalkbusiness.co.uk/Global/Final-Assets/Collateral/Datasheets/2/data_sheet_superpowered_broadband_direct_2.pdf

¹⁶³ Enterprise level customers get 24x7 support, see

http://www.talktalkbusiness.co.uk/elqNow/elqRedir.htm?ref=http://www.talktalkbusiness.co.uk/Global/Final-Assets/Collateral/presentations/superfast_broadband_presentation_direct.pdf.

¹⁶⁴ <http://www.virginmediabusiness.co.uk/Products-and-solutions/Broadband-and-Internet-Services/Business-Broadband/>

¹⁶⁵ On Virgin's website it notes that "our superfast business broadband has download speeds up to 50Mbit/s and upload speeds up to 5Mbit/s", <http://www.virginmediabusiness.co.uk/Products-and-solutions/Broadband-and-Internet-Services/Business-Broadband-and-Phone/>.

¹⁶⁶ <http://www.virginmediabusiness.co.uk/Products-and-solutions/Broadband-and-Internet-Services/Business-Broadband/>

¹⁶⁷ EFM relies on use of bonded copper-lines and Annex M is an ADSL standard to deliver reliable upload speeds.

¹⁶⁸ <http://sme.vodafone.co.uk/products/networking/mpls-vpn/>

¹⁶⁹ [3<]

business broadband and can be readily configured to provide high grade business broadband services.

Mobile

Introduction

3.115 In this subsection we consider whether the retail broadband market should be widened to include mobile broadband services.

Consultation proposals

3.116 In the 2013 WBA Consultation we proposed that neither mobile broadband access nor access to the internet via a smartphone constrain fixed broadband access. We considered that for a given price, speeds are lower on mobile than fixed broadband and that data allowances are much more restrictive. Consequently, people often use WiFi to offload data where possible.

3.117 We noted that in the future, faster 4G services may change the mobile landscape. Within the timescale of the current market review period, we thought it appropriate to continue to consider that mobile broadband access is not in the same relevant market as fixed broadband access. Although 4G mobile broadband access is likely to increase significantly over the period of the market review, we considered that most consumers will continue to require fixed broadband and will regard mobile broadband as a complementary service. This was because it is likely that capacity constraints in the mobile network mean that data allowance or speed are much more limited than fixed broadband services.

Consultation responses

3.118 TalkTalk agreed that mobile broadband does not act as a competitive constraint on fixed line broadband and the roll-out of 4G will not change this. TalkTalk submitted that 4G would not be able to sustain a reasonable speed while providing sufficient bandwidth to substitute for a meaningful proportion of fixed line usage.

3.119 BT did not object to our assessment of 3G mobile broadband, but considered it important that we recognise that mobile broadband services are likely to exert a significant constraint in Market A during the lifetime of this review due to 4G roll-out. BT considered that 4G/LTE must be actively considered as possible constraint either this time around or in the next review. It submitted a number of arguments and evidence in support of this view which we address below.

Our conclusions

3.120 In our assessment below, we first analyse the access technologies predominantly used by most mobile users today e.g. via 3G mobile broadband devices or internet on a smartphone. We then look at the impact of faster speed mobile services such as 4G that have now been launched by the big four mobile operators.

3.121 Our assessment is that the data allowances and speeds available on a mobile device at a price equivalent to fixed broadband are not sufficient to act as a competitive constraint on fixed broadband.

Mobile broadband access over 3G is not a sufficient constraint on fixed access

- 3.122 We conclude that mobile broadband access e.g. via a dongle, built-in 3G connectivity, or mobile data card is not a constraint on fixed broadband at present.
- 3.123 At prices which are broadly comparable, the actual speed users receive for 3G mobile broadband are likely to be significantly lower than they can receive on fixed broadband¹⁷⁰. Speeds can be particularly constrained indoors due to the difficulties mobile signals have in penetrating buildings effectively.
- 3.124 Inclusive data allowances in mobile broadband tariffs are also usually capped at levels that are well below fixed broadband. Most mobile broadband retail offers cap data allowance between 1GB and 15GB a month.¹⁷¹ Fixed broadband tariffs usually include at least 10GB data allowance with the majority including 'unlimited' (subject to fair usage policy) data allowance. Moreover, these mobile broadband data allowances are far lower than the average monthly data requirements for a fixed broadband residential connection. The latest data suggests that an average household consumes around 30GB per month in June 2013 having risen from 23GB in June 2012.^{172, 173} This suggests that most households could not in general use mobile broadband for all of their data requirements, but would have to use it alongside a fixed connection.
- 3.125 The popularity of mobile broadband connectivity as a proportion of broadband connection methods saw a significant decline in 2012/13.¹⁷⁴ The proportion of homes that accessed the internet using a mobile broadband connection fell by more than half, from 13% to 5% in the year to Q1 2013, while the number of households solely reliant on mobile broadband fell from 7% to 3%. Over the same period, total broadband penetration (for mobile and fixed broadband) remained relatively stable. The decreasing demand for mobile and resilience of demand for fixed broadband does not suggest mobile broadband is a strong substitute for fixed.

Internet access over 3G smartphones is not a sufficient constraint on fixed access today

- 3.126 We conclude that internet access over smartphones is not a significant constraint on fixed line. No stakeholders contested this view.
- 3.127 In the CMR 2013, we reported that the number of adults that claimed to own a smartphone stood at 51% and that 49% of adults in Q1 2013 used their smartphone

¹⁷⁰ In our 2011 report on mobile broadband speeds, we estimated average download speeds of 2.1Mbit/s for 3G connections (<http://consumers.ofcom.org.uk/2011/05/mobile-broadband-speeds-revealed/>). Since then, average speeds will have increased with the roll-out of enhanced 3G technologies such as DC-HSDPA, but on average remain significantly below fixed broadband (see Ofcom, Infrastructure 2013 Report, paragraph 4.32, page 51).

¹⁷¹ EE now offers mobile broadband packages of up to 50GB package for 4G USB/MIFI, but as set out in Figure 3.7 there is a significant premium for such data.

¹⁷² Ofcom, Infrastructure Report 2013, Figure 18, p.31.

¹⁷³ We are aware that in Austria, the regulator has found that fixed wholesale broadband for residential consumers is constrained by mobile but the European Commission concluded that fixed and mobile retail broadband services do not normally belong to the same market and the situation in the Austrian market led to a temporary substitutability of the two. The Commission also recommended the Austrian regulator closely monitor future market developments and change the market definition if its forecasts prove to be incorrect. We notice that the mobile broadband penetration rate in Austria reached 13.8% in July 2009 in contrast to 4.9% in the UK, http://europa.eu/rapid/press-release_IP-09-1888_en.htm?locale=en.

¹⁷⁴ Ofcom, Communications Market Report 2013, Figure 5.51, page 355.

device to access the internet (up from 39% in 2012).¹⁷⁵ In addition to connecting the smartphone itself, mobile operators allow users to tether other devices to a smartphone. However, only 10% of mobile broadband users use their handset as a modem to connect other devices.¹⁷⁶

3.128 In the 2013 WBA Consultation we reported that monthly allowances on smartphones are usually capped at levels well below those of fixed broadband. However, the latest market data suggests that unlimited data packages are now available from more than one of the major mobile operators. Three and T-Mobile as well as some MVNOs now offer unlimited data plans.¹⁷⁷ Some of these unlimited deals offer a comparable amount of data for a similar price to fixed broadband.

3.129 Although tariffs and data allowances for smartphones may be similar to fixed broadband, as we noted in the 2013 WBA Consultation, there is nonetheless evidence to suggest that the two are not substitutes. Specifically:

- Ofcom research on mobile broadband indicates that download speeds via smartphones exceed 3Mbit/s less than 10 percent of the time. This is well below the average speeds that fixed broadband delivers.¹⁷⁸
- The differences in quality of mobile connectivity may be reflected in consumers' preference to use WiFi instead of the mobile network. Ofcom research suggests that it is likely that smartphone users adopted WiFi to save on mobile data and to increase speed.¹⁷⁹ Other survey data, suggests that 73% of smartphone users accessing the internet use WiFi to offload data and, of these, 54% use WiFi offload every day.¹⁸⁰
- Broadband access over smartphones is used alongside (rather than in place of) fixed broadband access. Only 2% of UK adults rely solely on their mobile phone for home internet access.¹⁸¹

4G as a constraint

3.130 In the 2013 WBA Consultation, we noted that a key development was the roll-out of 4G mobile services. 4G mobile offers, among other things, much faster mobile data connections.

3.131 On the basis of operators' current plans, the vast majority of the UK population will have access to a 4G network from at least one service provider by the end of the next market review period. Our expectation is that all mobile operators should have coverage of 4G of 98 percent of UK premises by 2015.¹⁸² EE, the first mobile operator to launch a 4G service, has stated that its aim is to meet this target by the

¹⁷⁵ Ofcom, Communications Market Report 2013, page 4.

¹⁷⁶ YouGov, Dongle Tracker, Wave 20, April 2013.

¹⁷⁷ The data allowances sampled are for "pay monthly" plans, both for sim only and phone plans.

¹⁷⁸ Ofcom, Measuring Mobile Broadband in the UK, Figure 6.2

http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/bbspeeds2010/Mobile_BB_performance.pdf. The results may not be fully representative of all speeds since they were sampled from a 'drive test', but seem nonetheless indicative that speeds on mobile are lower than fixed.

¹⁷⁹ Ofcom, CMR 2012, p.293.

¹⁸⁰ YouGov SMIX Wave 10, March 2012. See also: www.informatandm.com/wp-content/uploads/2012/02/Mobidia_final.pdf.

¹⁸¹ Ofcom, CMR 2012, p.293, Figure 5.12.

¹⁸² Ofcom, Infrastructure Report 2013, paragraphs 1.25 to 1.26.

end of 2014 and claimed that its network already covered 60% of the UK population in September 2013.¹⁸³

- 3.132 In the 2013 WBA Consultation we considered that these developments would increase the quality of mobile products. However, we also considered that there are ongoing developments in fixed line services, specifically the development of fibre, which are increasing broadband speeds. Thus the developments in mobile do not necessarily imply it is appropriate to define a single market for mobile and fixed line services. Indeed, we presented evidence (as discussed below) that suggested that even on a forward looking basis, mobile is likely to remain in a separate market at least over the timeframe of this review.
- 3.133 We discuss 4G developments both in terms of internet access using a smartphone and mobile broadband devices, but focus on mobile internet on smartphones given the decline in mobile broadband. Our discussion is structured as follows:
- We first consider why, in general, based on the current offerings 4G is not a close substitute for fixed line customers, given the price premium charged for comparable offerings.
 - We then look at how this may change over the review period.
 - We next consider whether there are specific subgroups for whom it may be a substitute. In particular, we consider BT's arguments that consumers who are either a) getting much less than 8Mbit/s or b) have low usage requirements may "cut the cord" from a fixed broadband service.
 - We then consider the survey evidence BT presented to us on the overall numbers of consumers that may substitute from mobile to fixed.
 - We then consider BT's arguments over potential future trends in mobile broadband and smartphones.

Mobile is at a significant price premium to fixed for a comparable speed and data allowance

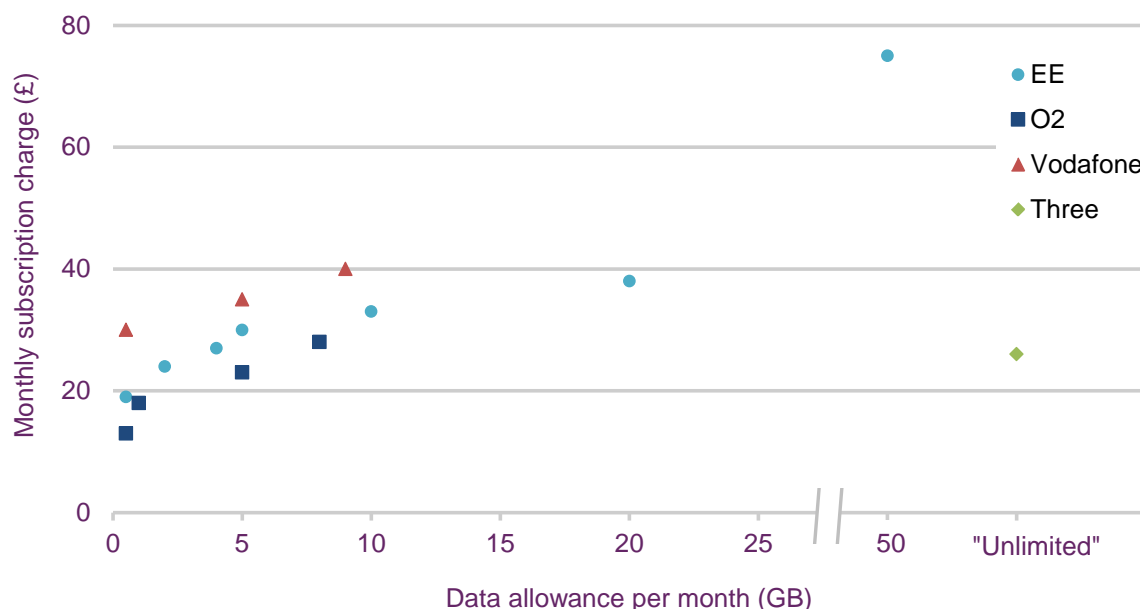
- 3.134 The 'real world' broadband speeds achieved on 4G devices nearly match average fixed broadband speeds. Our Infrastructure Report noted that EE has reported a typical average speed for 4G services above 16Mbit/s.¹⁸⁴ EE also reported that it has achieved peak speeds of 100Mbit/s in some areas.
- 3.135 However, 4G connections are still priced at a significant premium relative to fixed broadband offers offering comparable data allowances. Figure 3.7 below provides information on 4G mobile broadband services offered by the four largest mobile operators (Telefónica's charges relate only to the 'airtime' contract, as its customers sign a separate repayment contract for the cost of the handset). It shows that 4G smartphone tariffs are considerably more expensive than fixed line tariffs for equivalent amounts of data. For example, Tesco's unlimited fixed broadband bundles with a headline speeds of 16Mbit/s can be as low as £17.40 per month including line rental, whereas a similarly priced 4G contract provided only 500KB of data per

¹⁸³ EE press release, "EE continues 4G roll-out with 17 new towns and cities to be switched on by March 2013", 13 December 2012, page 3.

¹⁸⁴ Ofcom, Infrastructure Report 2013, paragraph 4.54, page 57.

month.¹⁸⁵ For larger data allowances, monthly charges are up to £75 for 50GB of data a month. Three is able to offer more generous 4G allowances as a national operator with fewer subscribers and hence more network capacity. It offers an 'all you can eat' data package for £26 per month that includes access to 4G services where available, but for new customers tethering is now limited to 2GB per month.¹⁸⁶

Figure 3.7: Main mobile operators' 4G post-pay monthly charges by data allowance¹⁸⁷



Source: Pure Pricing UK Mobile Monthly Pricing Database, March 2014.

3.136 Mobile broadband contracts are cheaper than smartphone contracts for example EE offers monthly deals of £13 per month for 1GB and £26 for 8GB, which are still more expensive than fixed broadband contracts offering similar speeds for equivalent data allowances.

3.137 We highlighted in the 2013 WBA Consultation that these limitations on mobile service are likely to make them inappropriate for use with applications that use up a lot of data (e.g. HD Smart TVs) which will be used increasingly over the review period. The latest Infrastructure Report estimates that average usage of fixed broadband households has increased to 30GB per month (an increase of 30% over the previous year). This growth does not show any sign of slowing in the next few years.¹⁸⁸ Indeed, a recent report by Analysys Mason suggests that average monthly usage will be close to 80GB by 2015.¹⁸⁹

3.138 In the CMR 2013, we referred to YouGov's SixthSense survey that supports the view that consumers are concerned about the price of 4G mobile data.¹⁹⁰ This survey asked respondents who stated they were unlikely to switch to 4G why this was the

¹⁸⁵ Based on first year costs of Tesco Broadband offer as at March 2014.

¹⁸⁶ http://www.tescobroadband.com/tesco-broadband?icid=TBB_mainnav_broadband

¹⁸⁷ <http://blog.three.co.uk/2014/03/18/three-make-0800-numbers-free-on-new-pay-monthly-plans/>

¹⁸⁸ Data based on 24 month contracts. Data for each operator shows the minimum prices available. Rates will change depending on the 4G smartphone associated with the contract.

¹⁸⁹ The Infrastructure Report 2013 notes that there is a clear correlation between a households connection speed and data usage. Hence, as households upgrade to SFBB the average monthly usage across all broadband connections is likely to increase.

¹⁹⁰ <http://www.analysismason.com/About-Us/News/Insight/FTTx-investment-case-Aug2013/>

¹⁹⁰ Ofcom, Communications Market Report 2013, Figure 5.9.

case. 46% of those asked cited data charges as a reason, while 37% said handset cost was a reason, and 29% named lack of interest in faster speeds as a reason. The same survey asked consumers directly about the price of 4G services. Provided with the statement: "It will be too expensive for me", 55% of respondents agreed or strongly agreed, while just 6% disagreed or strongly disagreed.

Will 4G prices fall in future?

- 3.139 In response to our concerns about the overall price of mobile data, BT argued that costs were forecast to decline significantly. BT noted a report from Plum Consulting¹⁹¹ which predicted the cost per GB for mobile broadband might fall to less than £1/GB and potentially to around £0.20/GB. BT argued that at these prices, a consumer could buy significant amounts of mobile data for the cost of a fixed line contract.
- 3.140 We accept that it is likely that the cost, per GB, of mobile data will decline in the future.¹⁹² However, the scale of any reductions in mobile network costs (and hence the price per GB for retail services) is still relatively uncertain. In the 2013 WBA Consultation, we considered that continued investment in 4G is likely to increase bandwidth capacity. However, as more consumers obtain 4G devices, the contention between users will increase in 'macro' cells. This will tend to reduce the capacity. This may mean that tight caps on data allowance remain and average data speeds achieved on 4G may decline compared to what is being achieved initially when there are few users. TalkTalk made a similar point, suggesting that there will be challenges in maintaining high average speeds, as more users subscribe to 4G connections.
- 3.141 Importantly, we note that industry commentators suggest, material price differentials are likely to persist between fixed and mobile broadband as "*the incremental cost of data transport on LTE is much higher than on fixed.*"¹⁹³

Consumers on low speed fixed broadband connections

- 3.142 BT argued that there was the potential for 4G to compete against and exceed the comparable speeds of IPstream and ADSL technology (up to 8Mbit/s). BT recognised that one argument against 4G substitution is the likelihood of network congestion which would follow its success. We note for example, that this may be particularly likely in rural areas where the low population density may not justify further investment.
- 3.143 However, to counter this view, BT referred to an Analysys Mason report that predicted the speeds that 4G might attain in rural exchanges. In the report, Analysys Mason estimated for a rural area a maximum of 126 customers could be supported at 5Mbit/s by 2017.¹⁹⁴ BT argued that even with a large number of users per cell, 4G could still support reasonable speeds.

¹⁹¹ http://www.plumconsulting.co.uk/pdfs/Plum_Sept2013_Future_evolution_of_fibre_regulation.pdf

¹⁹² Equipment and backhaul costs are decreasing; operators have entered network sharing arrangements; 4G technology will likely see improvements; and there are expected economies of scale generated from further increases in traffic volumes.

¹⁹³ The ongoing cost of mobile data versus fixed broadband was recognised in a recent Analysys Mason presentation: <http://www.ispreview.co.uk/index.php/2013/10/fixed-wireless-4g-lte-broadband-networks-face-challenges-rural-areas.html>.

¹⁹⁴ Analysys Mason estimated this for a 20MHz cell site covering a 10km cell radius.

- 3.144 BT also suggested that new technologies could mean that cells could support ten times more customers than this.¹⁹⁵ Based on assumptions on the number of customers that 4G could theoretically support, BT attempted to estimate what proportion of the base of broadband customers might substitute to 4G (this relied on assumptions about broadband penetration and the number of inhabitants per km). Depending on the view taken of technology developments, BT suggested that anywhere between [∞] % of customers could substitute fixed broadband with 4G.¹⁹⁶
- 3.145 At a national level, the trends in the number of homes that are mobile-only do not suggest that households are “cutting the cord” for fixed broadband and relying solely on mobile for their data. According to analysis in the 2014 LLU WLR Statement, the number of homes only using mobile both for voice and data service has declined over the past few years. For example, the number of “mobile only” homes for voice and data peaked at 13% of households in 2009/10 and 2010/11, since then it has gradually declined to 11% of homes in 2012/13.¹⁹⁷ Over the same period the number of fixed broadband lines has increased and SFBB penetration is picking up.
- 3.146 We acknowledge there could be some households with low speed connections where 4G has the potential to offer significant speed improvements. Indeed, on 6 December 2013 EE launched a mobile broadband service marketed as a solution for consumers with lower speed fixed line services in rural areas.^{198 199}
- 3.147 However, there would be challenges too for the speeds 4G might achieve. Indeed, the speeds of 5Mbit/s by 2017 that Analysys Mason predicted for 4G (see paragraph 3.143 above) are slower than current rural consumers’ average speeds for a fixed broadband connection.²⁰⁰ This does not suggest that for the average customer in rural areas, 4G would have a significant speed advantage (sufficient to prompt a material level of switching).
- 3.148 Some rural consumers do get significantly lower speeds - around 8% of all broadband connections currently operate at speeds below 2Mbit/s. However, according to our Infrastructure Report 2013, only 3% of premises in the UK with speeds below 2Mbit/s do not have SFBB currently available in their area.²⁰¹ The number of households with access to SFBB will also likely increase further as BDUK fibre is rolled-out. It is not clear that consumers would upgrade to 4G in preference to SFBB in order to achieve faster speeds.

¹⁹⁵ BT referred to technology developments such as carrier aggregation, sectoring and MIMO.

¹⁹⁶ BT noted that an equipment vendor, Huawei, had suggested LTE advanced could support 30 times more customers per cell, suggesting up to 20% broadband substitution.

¹⁹⁷ In the 2012/13 LLU WLR Statement, we note that survey evidence we relied upon to estimate “mobile only” households in Ofcom’s CMR reports relates to households that claim only to use mobile services for voice. Therefore, in the 2013 CMR we estimated that 15% of households were mobile only (for voice). However, a number of these customers also had a fixed line for internet access. Therefore, in the 2014 FAMR Draft Statement we have adjusted the survey data we used for the 2013 CMR, and we found that 11% of homes are mobile only (both for voice and data).

¹⁹⁸ <http://www.ispreview.co.uk/index.php/2013/11/ee-uk-officially-launch-4g-lte-home-broadband-service-rural-cumbria.html>

¹⁹⁹ Mobile operators have also been in discussion with government over delivery of rural broadband as part of the BDUK programme.

²⁰⁰ According to data in the Infrastructure Report, rural connections are, on average, three times slower than in urban locations, the average speed of a fixed broadband connection in rural areas is around 7Mbit/s.

²⁰¹ In the Infrastructure Report 2013, we estimated that if postcodes are excluded where fixed SFBB is available then the number of consumers on speeds below 2Mbit/s drops to 3 percent of UK premises (paragraph 1.20).

- 3.149 BT further speculated that technology developments will mean that more customers can be supported per cell and this would allow anywhere between [x<] % broadband substitution. However, we consider that such estimates are largely speculative as they are reliant on views over technology developments.
- 3.150 Consumers on low speed fixed broadband and without the prospect of SFBB becoming available in the near future may already have taken the decision to move to alternatives such as mobile. In this context, it is interesting to note that in Figure 13 of BT's response [x<].²⁰² However, the migration of some consumers away from fixed broadband to mobile would not necessarily constrain a hypothetical monopolist – that depends on whether the volume of consumers lost outweighs the increase in margins gained on the remaining sales. It is likely that a significant proportion of the existing base of households that have retained a fixed connection (and for which the majority will have access to SFBB) would not have strong incentives to give up their fixed broadband connection and switch to 4G only. This is supported by the evidence from the 2014 FAMR Draft Statement that shows a trend decline in mobile only homes.
- 3.151 In addition, as we noted in our 2013 WBA Consultation, WiFi off load is expected to become more important as data volumes grow and smartphone penetration increases.^{203,204} Other forms of small cells which use 4G, such as femtocells, are also being launched in order to overcome capacity constraints and improve speed on the mobile network.²⁰⁵ Both WiFi and femtocells rely on a fixed connection to backhaul the data. The growth in the importance of small cells for delivering good mobile services weakens rather than strengthens the substitutability between mobile and fixed broadband connections. Therefore, some of the developments in 4G networks may generate a stronger complementary relationship between mobile and fixed (rather than making them strong substitutes).

Fixed broadband connections with light usage

- 3.152 As discussed above, an important reason why there are barriers for the average household to substitute from fixed broadband to mobile relates to data caps and the cost of mobile data. However, BT argued in its consultation response that a significant proportion of its customer base were 'light users'. BT noted that [x<] of its base used on average [x<] 6 per month. It said that even with a 30% year on year increase in their requirements, they would still consume less than [x<] GB per month by 2017. BT argued that if these users gave up their fixed line this would allow them to buy a significant amount of mobile broadband data.
- 3.153 BT compared the costs to a household of having separate fixed and mobile contracts relative to a mobile-only contract. For example, BT's data suggested that a household with relatively light usage choosing between having a mobile phone and fixed broadband or mobile only could face the following prices²⁰⁶:

²⁰² [x<]

²⁰³ An informa report suggests that 81% of UK smartphone originated traffic was over WiFi, http://www.informatandm.com/wp-content/uploads/2012/02/Mobidia_final.pdf.

²⁰⁴ See Ofcom's Mobile Auction Competition Assessment which contains evidence on the continued importance of Wifi as an alternative to mobile spectrum (paragraphs A2.41 to A2.44), <http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/statement/Annexes1-6.pdf>.

²⁰⁵ See Ofcom's Mobile Auction Competition Assessment which contains evidence on the growth of femto cells (paragraph A.245), <http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/statement/Annexes1-6.pdf>.

²⁰⁶ BT noted that these comparisons were based on August 2013 prices from BT, EE and 24 month contracts, but did not specify the applicable speeds of each package.

- £50 per month for a fixed and mobile household with 10GB fixed broadband (£60 if the fixed and mobile household had unlimited data on a fixed connection); or
- £45 per month for a mobile only (smartphone) contract (10GB) (£50 for 20GB of mobile data).

3.154 BT's observation that [X] of its users consume on average [X] ignores the fact that actual usage may fluctuate significantly from month to month, and light users still need to ensure sufficient 'headroom' to cover their peak requirements. Indeed, there is evidence that mobile consumers often pay a significant premium to avoid going over their data allowances.²⁰⁷ Once sufficient headroom is built into their mobile data allowances, the potential savings that 'light users' would perceive to exist from going 'mobile only' are likely to be relatively insignificant.

3.155 Moreover, our calculations suggest that the savings from moving to mobile only are more limited than BT suggests. For example, relative to an entry level 4G service of 500MB (from £18.99 per month on EE), consumers would have to pay £11 per month extra for 5GB of data, £14 for 10GB and £18 for 20GB. A 4G mobile broadband dongle is around £21 per month for 5GB and £26 for 10GB. For the cost of 10GB on a 4G smartphone (£33), a consumer could instead buy unlimited fixed broadband at around £17.40 per month and a smartphone contract.²⁰⁸

3.156 Overall, we do not consider that there is strong evidence to suggest that a significant number of 'light' users would switch to a mobile only contract in response to an SSNIP in respect of fixed broadband with low data allowances.

BT's survey evidence does not suggest mobile offers a significant competitive constraint

3.157 As part of its response to the 2013 WBA Consultation, BT submitted survey evidence based on 2,557 phone and online interviews in support of its arguments for fixed to mobile substitution.²⁰⁹ The survey asked whether consumers would adopt 4G and, if so, whether they give up their fixed broadband connection. These questions were asked based on five scenarios where 4G mobile speeds were either faster/slower/the same and prices either cheaper/the same price or more expensive than fixed.²¹⁰

3.158 BT suggested that this research implied between 3 and 10% of consumers with fixed connection would be likely to switch to mobile-only contracts (depending on the scenario). We note that the definition of mobile only used in the survey may overstate the extent to which households would be willing to give up their fixed line entirely for their voice and data needs.²¹¹

²⁰⁷ <http://blog.billmonitor.com/post/48771931362/the-billmonitor-smartphone-data-report>

²⁰⁸ Compared to the cost of 10GB 4G smartphone (from £32.99 per month on EE), for an additional £3.40 per month a consumer could afford an unlimited fixed broadband connection and a 4G smartphone with 500KB of data. Hence, the savings associated with going mobile only are fairly limited (Calculations based on pricing in Figure 3.7 above).

²⁰⁹ Sweeney Pinedo Research, August 2013.

²¹⁰ The scenarios presented included: (1) mobile the same speed, £5 more expensive; (2) mobile slower, but cheaper, (3) mobile faster, £5 more expensive; (4) same speed and same price; (5) faster but the same price.

²¹¹ On further examination of BT's survey we discovered that the definition of 'mobile only' related to respondents that stated they would not use their fixed line at all for voice services. Therefore, some of the respondents classed as mobile only (for voice) may still have a fixed line for their broadband connection.

3.159 In any case, our view is that this research does not strongly support the existence of a significant competitive constraint from mobile broadband. This is for the following reasons:

- Such levels of switching rates are not likely to be sufficient to make a SSNIP unprofitable. The level of switching is likely to be lower than a reasonable estimate of the critical loss²¹² for fixed broadband services. For example, for a SSNIP of 10% applied to fixed services, the lowest critical loss mathematically possible would be 9.1% (assuming zero marginal cost).²¹³ For four out of the five scenarios presented to respondents in the consumer survey the implied level of switching was well below this critical loss.
- Only in one out of the five scenarios presented to respondents (where mobile was faster and the price the same as fixed) was claimed switching (marginally) above the critical loss. In reality, however, we think that the critical loss is likely to be higher than this (i.e. marginal costs are likely to be non-zero as there would be some cost savings associated with consumers no longer using fixed broadband). In previous reviews, such as the 2010 WBA Statement, we have estimated that switching rates greater than 12% of the entire customer base would be needed to make a SSNIP unprofitable.²¹⁴ This critical loss exceeds the levels of switching across any of the above scenarios. So the implied levels of switching rates are not likely to be sufficient to make a SSNIP unprofitable.
- Moreover, BT appears to have made no attempt to assess the likelihood of the scenarios presented to consumers actually occurring. It is not clear that the scenarios presented are realistic or whether they are unlikely to actually happen – the scenario with the lowest propensity for consumers to switch involved a £5 price premium for 4G services, which may be smaller than the actual price premium in the forecast period. It is, in any case, common for respondents to overstate their likely actions in response to hypothetical scenarios.
- The respondents that indicated they might swap their home broadband for mobile broadband also agreed that there were a number of reasons for keeping a home broadband service. 73% agreed with the statement that the reliability of the mobile network/signal was a concern. 54% were concerned about additional high charges for data usage. 18% were concerned about lack of landline quality phone calls.

Smartphones and the move away from fixed broadband.

3.160 BT believed that the increase in the ubiquity of smartphones means that 4G networks could now be seen as a constraint on fixed broadband. To support this view, it submitted a number of arguments:

²¹² For a given SSNIP assumption, the critical loss measures the percentage reduction in demand that would leave profits unaffected. If the reduction in demand from a SSNIP is greater than the critical loss factor, then the SSNIP will be unprofitable. In the context of a hypothetical monopolist test this means that the market should not be defined more widely than the focal product under consideration.

²¹³ See Table A9.1 of the 2010 WBA Consultation:

<http://stakeholders.ofcom.org.uk/binaries/consultations/wba/summary/wbacondoc.pdf>.

²¹⁴ This is based on critical loss estimates, which we estimated to be in the range of 11 to 13 percent (see Table A9.5 of the 2010 WBA Consultation),

<http://stakeholders.ofcom.org.uk/binaries/consultations/wba/summary/wbacondoc.pdf>.

- BT noted a Total Telecom Plus article on the habits of customers adopting 4G mobile services, such as spending more time on the internet compared to 3G users; greater use of video streaming – these services comprise 26% of EE's total 4G network traffic. In addition, 43% of customers said they use fewer or no public WiFi hotspots since upgrading to 4G. Moreover, 23% use their home broadband less.
- Changes in the voice market (unlimited voice bundles, HD voice and VoLTE) should remove barriers to adoption of mobile only services due to concerns over the quality of mobile voice.
- BT referred to a report it commissioned by Plum Consulting. Among other things the report noted:
 - The ability to carry devices from place to place allows large downloads (e.g. content or software updates) to be managed without a home broadband connection and, outside of mobile data caps, (e.g. via public Wi-Fi or at work). The implication was that users would not necessarily have to rely on fixed home broadband.
 - Applications providers such as Google and Facebook are adopting a 'mobile first' strategies. This and the nature of mobile devices more generally suggests that the requirements for the speed and/or capacity needed to run applications may be lower than for similar applications delivered on fixed connections.
- Market data from Western European countries adopting 4G (Austria, Denmark, Finland, Germany and Sweden) all show an increased decline in fixed lines since 4G market introduction.

3.161 We have considered BT's arguments, but do not believe they provide sufficient reasons to change our market definition, as the evidence is largely speculative. In relation to international comparisons, we do not believe this is sufficient evidence for a single product market. Country-specific differences in Member States including regulation and historic and geographic reasons may mean these trends are not applicable to the UK.²¹⁵ Moreover, BT did not present any evidence for these countries on the extent of the substitution caused by the launch of 4G. As discussed in paragraph 3.150 above, the fact that we observe some migration by some consumers from one service to another does not necessarily imply the two technologies are in the same market. Indeed, the Ecorys study for the European Commission, which is being used to inform a new EC Recommendation on the new list of markets susceptible to ex-ante regulation, concluded (as a "cautious expectation") that mobile would not provide a relevant constraint on WBA over the period until 2020.²¹⁶ This is reflected in the latest draft EC Recommendation on Markets.

Our conclusions

3.162 In conclusion, we do not consider that the available evidence or BT's submissions to the 2013 WBA Consultation alter our view that mobile will not constrain fixed broadband over the timeframe of this review:

²¹⁵ See for example BEREC, 2011: Report on Impact of Fixed-Mobile Substitution on Market Definition, December 2011, http://berec.europa.eu/doc/berec/bor/bor11/54_FMS.pdf.

²¹⁶ http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

- While comparable speeds to fixed broadband have been seen on 4G services, the current price of mobile data and usage caps would be likely to deter many fixed households from switching to 'mobile only'.
- This applies even for fixed broadband customers that are 'light users' of data and those with slow connections that might be more likely to switch. Many of these fixed customers already have access to SFBB and have not switched and would not find the potential savings associated with going 'mobile only' worthwhile.
- In rural areas, as 4G usage increases there would also be challenges provide comparable average speeds to fixed broadband, particularly as SFBB is rolled-out.
- Given the extent of data on mobile devices off-loaded to WiFi networks, there will remain strong complementarity between mobile and fixed.
- BT's survey data, which is subject to a number of flaws, does not suggest significant levels of switching to mobile from fixed such that it would offer a strong competitive constraint.

3.163 More generally, there is limited evidence to date to suggest that 4G has had a significant impact on fixed broadband markets. Nevertheless, we recognise that developments in mobile broadband have the potential to impact some fixed broadband users. Even though we do not consider it appropriate to include mobile in the same market as fixed broadband in this review, this will clearly be an important factor to consider in the next WBA market review.

Symmetric broadband services

Introduction

3.164 Symmetric services are provided using leased lines, Symmetric Digital Subscriber Loop (SDSL) or Ethernet in the First Mile (EFM). They provide equal maximum upload and download speeds. In addition, they can be configured to deliver high quality broadband services for example with a bandwidth guarantee, lower latency and dedicated connectivity.

3.165 From customers' point of view, leased lines may be a substitute to asymmetric broadband access when the latter is used to access a virtual private network (VPN). In this subsection, we consider whether substitution to leased lines in response to a SSNIP on high end asymmetric broadband products would provide a competitive constraint on the price of high end asymmetric broadband products. If so, symmetric services could be included in the same market as high end asymmetric broadband services and, via a chain of substitution, all other asymmetric residential and business broadband services.

3.166 In the 2010 WBA Statement our product market definition also considered substitution to SDSL services, but these are being phased out. As noted in the 2013 BCMR Statement, BT has announced it will be retiring its SDSL products by the end of 2014.²¹⁷ While other LLU providers may continue to provide SDSL services, this announcement suggests that the product is coming to the end of its life. We therefore do not consider it in detail here.

²¹⁷ See 2013 BCMR Statement, paragraph 3.143.

- 3.167 SDSL is being replaced in part by services provided over EFM. These services are provided over the copper network using LLU. But given the low volumes we do not think it necessary to conclude on whether or not EFM should be included in the product market.

Consultation proposals

- 3.168 We proposed that symmetric and asymmetric services are not sufficiently close substitutes on the demand side to consider them in the same market. This is reflected in the significant premium associated with asymmetric services. On the supply-side we considered that switching supply from symmetric services to asymmetric would be unprofitable.

Consultation responses

- 3.169 There were limited comments on symmetric broadband services, though TalkTalk specifically agreed with our proposals not to include them in the market. [36] also noted businesses have a much greater need for symmetry in their connections as they upload far more than residential customers. This has the effect of bringing their needs closer to symmetrical broadband. [37] questioned whether Ofcom may have erred in including the word “asymmetric” alongside “business” in the market definition.

Our conclusions

- 3.170 Current internet access usage patterns may change over time, with more end-users demanding increasing upload speeds, e.g. putting user-generated content online and therefore needing higher upload speeds. However, the need for download speeds has also increased. This suggests that asymmetric services are still appropriate for most broadband users, and we have not seen a migration towards symmetric services. For example, in January 2012, Virgin announced it would be doubling bandwidths available to most end-users and that uploads would increase in proportion to the increase in downstream bandwidth.²¹⁸ This also appears to be true for business services – for example, the 2013 BCMR Statement noted that the trend appears to be towards asymmetric services and users of symmetric packages have switched to business broadband.²¹⁹
- 3.171 For some business customers, provided a business broadband services offers reliable upload and download capacity in each direction then this can be sufficient for their needs. But as noted in the 2013 BCMR Statement, leased line services provide many important service characteristics not supported by asymmetric services. These include differences in terms of contention, latency and jitter, the level of security, resilience options, SLAs/SLGs and synchronisation support.²²⁰ The services are also significantly more expensive than even higher bandwidth asymmetric services.
- 3.172 Table 3.4 below provides comparisons of annual wholesale charges for the main types of leased line services sold by BT, namely: Partial Private Circuits (PPCs) and

²¹⁸ Virgin, January 2012, Virgin boosts Britain's broadband speeds, <http://mediacentre.virginmedia.com/Stories/Virgin-Media-boosts-Britain-s-broadband-speeds-2322.aspx>.

²¹⁹ Ofcom, 2013 BCMR Statement, p.96, paragraph 3.198.

²²⁰ Ofcom, 2013 BCMR Statement, p.90, paragraph 3.177.

Ethernet Access Direct (EAD) circuits (including Local Access EADLA variants).²²¹ Prices are shown at different bandwidths and within the same exchange (these charges should be viewed as a minimum, as it was based on wholesale prices which set a floor for the retail price and does not account for the distance of the circuit).²²²

Table 3.4: Prices for main BT leased lines services

Bandwidth (Mbit/s)	Leased lines service		
	PPC	EAD	EADLA
2	2,014	3,921	2,694
10	10,068	3,921	2,694
20	12,967	4,756	2,842

Source: Ofcom. BCMR 2012 pricing analysis.

- 3.173 The cheapest available leased lines service would incur an annual wholesale charge of approximately £2,000.²²³ This price would only include the leased line; an additional charge for internet access would also be incurred. By contrast, on average a business can expect to pay £500 a year for a broadband service offering up to 16Mbit/s download bandwidth.
- 3.174 Even the cheapest available leased lines services (2Mbit/s PPCs) are twice the price of the equivalent speed broadband services in Table 3.4. Indeed, the most expensive business broadband services (£1,300 for 10Mbit/s) is significantly below the price of an equivalent speed leased line service.
- 3.175 The 2013 BCMR Statement further noted that broadband services are not positioned as a cheap alternative to symmetric services. Broadband is aimed at end-users who demand different service characteristics.²²⁴
- 3.176 It is therefore unlikely that leased lines constrain broadband offerings. Given the significant price difference and the different positioning of the products, it seems unlikely a small but significant price increase on high-end broadband products would result in significant numbers of customers switching to a leased line.
- 3.177 If anything, the trend has been towards some leased lines users (on lower bandwidths) migrating from leased lines to asymmetric broadband services. Given the trend is towards broadband, it is perhaps more likely that if prices of fibre-based broadband rose, it may dissuade customers that would otherwise have switched from leased lines. This may act as a constraint on fibre-based broadband pricing. It is, however, not clear this potential switching is a significant enough concern to constrain price rises of high end asymmetric products. The price difference between even high end broadband business products and leased lines is significant. A SSNIP is therefore unlikely to have a significant impact on the decision to switch from leased lines. No responses to the 2013 WBA Consultation suggest this to be the case.
- 3.178 On the supply side, suppliers of leased lines services could in theory move into the broadband market in response to a SSNIP by a hypothetical monopolist. However,

²²¹ PPCs use traditional interface technologies such as SDH, PDH and analogue. EAD is based on Ethernet technologies and accounts for most new supply.

²²² Ofcom, 2013 BCMR Statement, p.96, paragraph 3.196.

²²³ Ofcom, 2013 BCMR Statement, p.96, paragraph 3.196.

²²⁴ Ofcom, 2013 BCMR Statement, p.93, paragraph 3.189.

as we stated in 2010, their networks tend to be more highly specified to meet the demands of leased lines customers, which would put them at a cost disadvantage compared to ADSL providers. Such costs differences would translate into higher retail prices and therefore the threat of entry by CPs in the leased lines segment to offer a competitive constraint. We have no reason to suppose this position has changed – in particular no respondents to the 2013 WBA Consultation disagreed with our views.

- 3.179 The assessment of the demand-side and supply-side substitution possibilities suggest that symmetric broadband services are more appropriately considered as a separate market to asymmetric broadband internet access. Looking ahead, we see no evidence that this is likely to change.

Fixed wireless access

Introduction

- 3.180 Fixed wireless access is the use of wireless technology in the delivery of last mile access that enables subscribers to connect to the fixed line network without the need for cables.

Consultation proposals

- 3.181 Our view in the 2013 WBA Consultation was that fixed wireless access can be used as an in-fill technology, a complementary solution to broadband in urban areas or as an alternative to low bandwidth symmetrical business services. We proposed that in none of these cases can fixed wireless access be regarded as a close enough substitute to asymmetric broadband access to be included in the same market. Neither was there any possibility of supply side substitution. We therefore proposed that fixed wireless access should not be included in the wholesale WBA market definition.

Consultation responses

- 3.182 TalkTalk specifically agreed with our proposals not to include fixed wireless services in the market.
- 3.183 KCOM said there are a number of active fixed wireless providers, marketing their services as an alternative to KCOM's fixed broadband services. As such it considered these services cannot be said only to be an 'in-fill' or complementary solution or an alternative to low bandwidth symmetrical business services. KCOM considered that fixed wireless provides real competition to its fixed broadband services, which it is very mindful of when developing its retail propositions.

Our conclusions

- 3.184 We remain of the view that fixed wireless access cannot be regarded as a close enough substitute to asymmetric broadband access to be included in the same market.
- 3.185 Fixed wireless access services provided via LTE or WiMAX target both business and residential customers. Even though they have been available for several years, they have not become a real alternative to fixed broadband. It is more generally considered as an 'in-fill' technology that can be used to provide services in 'not-spots'

(areas where cable and ADSL technologies cannot provide satisfactory services due to technical and/or economic reasons).

- 3.186 Fixed wireless access services via WiFi are generally offered in urban areas. The quality of fixed wireless access is lower than that of fixed broadband. These products seem to be positioned as complementary to fixed broadband offerings, providing temporary internet access, for example for those who are only at an address for a short time, or in places other than at home or at work. For example, Boingo advertises that the “plan includes WiFi in airports, hotels, restaurants, and cafés”.²²⁵
- 3.187 Finally, some fixed wireless access providers offer business services in urban areas priced and positioned as a cheaper alternative to low bandwidth symmetrical business services, rather than ADSL. Metranet, for example, offers a 2Mbit/s package priced at £275 a month for a contention ratio of 10:1.²²⁶ However, low bandwidth symmetrical business services are not substitutable for broadband services, so fixed wireless used as an alternative does not seem likely to be regarded as effective demand-side substitute for asymmetric broadband access. Moreover, the products are significantly more expensive than fixed line services.
- 3.188 We do not think there is a significant possibility of these operators investing in the necessary infrastructure to provide fixed broadband services, in response to a SSNIP on fixed broadband services. Therefore we do not consider it appropriate to widen the market on the basis of supply side considerations.
- 3.189 With regard to the comments made by KCOM, we note that there are providers serving the Hull Area using fixed wireless broadband including Quickline,²²⁷ Yorkshire Broadband²²⁸, One Point,²²⁹ and Connexin.²³⁰ Most of these operators offer packages comparable in price to KCOM's entry level broadband of around £31 (for broadband and calls). However, each fixed wireless provider has fairly significant installation charges (in some cases up to £195 including VAT), which is likely to deter switching.²³¹ Once installation charges are included, we estimate that prices of a fixed wireless broadband (with calls) would be between £34-50 per month over a 12 period (or £30-£42 over 24 months). Therefore, these services would appear on average more expensive than a fixed line (although in some cases only marginally so).
- 3.190 In any case, we consider that our reasoning in paragraphs 3.184 to 3.188 is also relevant to the Hull Area. Further, even though KCOM submitted that it was mindful of fixed wireless competitors when developing its retail propositions, it did not disagree with our SMP designation.
- 3.191 As in other markets there may be developments in fixed wireless technologies over the review period that could increase the competitive constraint from these services. However, we do not consider we should change our market analysis as the evidence to date shows that fixed wireless broadband has had a small impact. It also remains uncertain how fixed wireless technologies might develop in future both in terms of technology and future deployments.

²²⁵ <http://www.boingo.com/wifi-plans/laptop/boingo-uk-ireland/?lang=en>

²²⁶ <http://metranet.co.uk/services.htm>

²²⁷ <http://www.quickline.co.uk/product/airfibre-home>

²²⁸ <http://www.yorkshirebroadband.org.uk>

²²⁹ <http://www.theonepointbroadband.co.uk/>

²³⁰ <http://hull.connexin.co.uk/>

²³¹ <http://www.quickline.co.uk/solution/connecting-homes-anywhere>

Conclusion

- 3.192 We conclude that fixed wireless access is not in the same market as broadband access because it is not a close substitute to broadband access in terms of quality and price.

Satellite

- 3.193 It is possible to get small business systems provided by satellite that closely emulate fixed broadband services, along with more dynamic low latency systems that support advanced broadband applications like VPN, VoIP and video conferencing. Coverage is available anywhere in the UK including the Channel Isles and the Scottish Islands. However, satellite broadband providers typically market their product as an alternative solution to fixed broadband where this is not available (or only at poor quality).²³²

Consultation proposals

- 3.194 In the 2010 WBA Statement, we argued that broadband access using satellite was marketed as a replacement solution that could not compare with the standard retail broadband packages in terms of price, quality and set up costs. Consequently, we concluded that too little switching to satellite would follow a price increase of asymmetric broadband to make the price rise unprofitable. Therefore, satellite broadband was found not to be part of the relevant market.

Consultation responses

- 3.195 No stakeholder objected to our proposals and TalkTalk explicitly agreed with us that satellite services should not be included in the market.

Our conclusions

- 3.196 It remains the case that satellite broadband products are generally more expensive and lower quality than fixed line services. Irrespective of the similarities in the service characteristics between fixed and satellite broadband services, the prices differentials mean that it is unlikely that a small but significant increase in the price of fixed broadband would result in a sufficient number of customers switching to satellite broadband to render that price increase unprofitable.

Conclusion

- 3.197 We have excluded satellite broadband from our retail market definition.

Narrowband

- 3.198 Developments in the internet access market over the last few years have meant that narrowband dial up internet access has declined significantly since 2005. In 2010, it accounted for only 2% of total internet access connections amongst UK households, and in 2013, only 1%.²³³

²³² See for example, PointTopic, 4 October 2011, *Satellite broadband: KA-band enters the UK*, p.8.

²³³ Figure 37, Ofcom, *Consumer Experience 2011*, 6 December 2011, http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-11/research_report_of511a.pdf and Ofcom, *Consumer Experience of 2013*, January 2014, p.43,

- 3.199 We excluded narrowband internet access from the product market in the 2010 WBA Statement. No stakeholders have suggested that we should now include narrowband. We therefore conclude that narrowband and broadband internet access markets will continue to be considered as separate product markets.

Conclusion on retail market definition

- 3.200 This section has discussed our approach in defining the relevant downstream retail market into which WBA products are supplied. We have discussed the extent to which different services should be included in a single market.
- 3.201 Based on the analysis above, we define the relevant retail market as asymmetric broadband internet access which as a minimum provides an always on capability, allows both voice and data services to be used simultaneously and provides data at speeds greater than a dial up connection. This market includes asymmetric broadband services of all speeds provided over copper, cable and fibre for business and residential customers. It excludes mobile broadband, symmetric services, fixed wireless access, and satellite broadband. We do not conclude on whether or not there is demand for broadband as a standalone product at the retail level, or whether standalone broadband products are substitutable for bundles.

Wholesale product market definition

Introduction

- 3.202 Having defined the relevant retail product market we now go on to define the relevant market at the wholesale level.
- 3.203 Demand for WBA is derived from demand for retail broadband services. This suggests that products which are included in the market at the retail level impose an indirect constraint on prices at the wholesale level. Thus products which are included at the retail level are generally included in the market at the wholesale level. This has been the case for all previous WBA reviews. Wholesale markets can be widened if there are direct constraints at the wholesale level that are not included at the retail level. However, previous WBA reviews did not find reason to widen the wholesale market definition. Therefore the wholesale market definition reflected the retail market definition.
- 3.204 As in the previous WBA reviews, we define the relevant WBA product market as:
- “Asymmetric broadband access and any backhaul as necessary to allow interconnection with other communications providers, which provides an always on capability, allows both voice and data services to be used simultaneously and provides data at speeds greater than a dial-up connection. This market includes both business and residential customers.”
- 3.205 This subsection is structured as follows:
- We first consider whether supply by LLU and VULA constrain BT’s WBA products. We conclude that they do.

- We then conclude that cable is included in the same market.
- We then consider whether different speeds should be included in the same market. We conclude that they are in the same market.
- We conclude that it is appropriate to define a single market for WBA used to supply residential and business customers in the retail market.
- We also consider bundling, and conclude that the market does not include products bundled with broadband but does include broadband bought as part of a bundle (e.g. based on MPF).
- We then look at mobile, fixed wireless and satellite, which we conclude do not fall within in the product market.

Constraint from LLU and VULA operators

- 3.206 LLU and VULA are remedies in the WLA market, upstream from the WBA market, designed to facilitate competition in the retail broadband market. Where they are effective in achieving this aim, there is no further need for regulation at the WBA level. Thus, we consider it appropriate to include supply via VULA and LLU in the wholesale market.
- 3.207 This is consistent with our previous treatment of LLU. We are not aware of any market developments that would mean we should change our approach. No respondents to the 2013 WBA Consultation identified such a development. Both TalkTalk and EE specifically commented that it was appropriate to include supply via VULA and LLU in the wholesale market.

Cable

- 3.208 As discussed in the subsection on the retail market, broadband services provided over cable have the same intended use as those provided over copper and fibre, and are positioned as alternative technologies providing the same retail service. Thus, because of derived demand, we believe they should be included in the wholesale market. TalkTalk specifically agreed with Ofcom's view that cable imposes an indirect competitive constraint on WBA provision.
- 3.209 The inclusion of cable in the WBA market is consistent with our approach in the 2008 and 2010 WBA Statements. For broadband services provided over cable now to be excluded from the market, the extent of substitutability at the retail level would need to have fallen. However, we are not aware of any market developments that would reduce the extent of substitutability. No respondents to the 2013 WBA Consultation identified any such developments. We recognise that the deployment of fibre allows for the widespread provision of SFBB broadband over BT's network. However, SFBB is also available over Virgin's network.
- 3.210 We therefore include cable in the same wholesale market due to indirect constraints from demand side substitution at the retail level.

Speed

Consultation proposals

- 3.211 In the 2013 WBA Consultation, we proposed that wholesale asymmetric broadband offerings of different speeds, including in particular copper-access and fibre-access products, are in the same market. This reflects the chain of substitution connecting products of different speeds in the retail market. We noted, as set out above, since demand at the wholesale level is derived from the retail level, products in the same market at the retail level generally form an indirect constraint at the wholesale level.
- 3.212 In addition, there may be direct constraints between different speeds. This is because for any given speed, a wholesale price increase is likely to encourage significant substitution to other speeds by CPs purchasing this product. CPs may feel it necessary to have a range of different speed options available but they have some flexibility on where to focus their offerings. If, for example, the price of a particular speed bracket increased, CPs could switch to marketing other speeds in the retail market instead. Furthermore, it would seem unlikely that a CP would enter the market to provide only one speed.

Consultation responses

- 3.213 TalkTalk accepted that we appropriately defined the relevant wholesale market based on the outcome of our retail market definition exercise. However, it repeated its arguments that Ofcom had not presented a sufficiently strong evidential base to demonstrate that a chain of substitution exists between different speeds of product. It also disagreed that direct substitution is of any meaningful relevance in this market, as the demand for fibre based wholesale access products is a derived demand.

Our conclusions

- 3.214 Consistent with our previous WBA market definition, and for the reasons set out in the 2013 WBA consultation, we conclude that it is appropriate to define a single wholesale market for WBA services at all speeds. We are not aware of any market developments that would mean we should change our approach. No respondents to the 2013 WBA Consultation identified such a development.
- 3.215 TalkTalk questioned our reasoning on there being a chain of substitution between different speeds, which we have considered in our retail assessment. As discussed in paragraphs 3.22 to 3.23, products in the same market at the retail level generally form an indirect constraint at the wholesale level. Given the findings of a single retail market based on speed suggests that suppliers at a particular speed increase their price, this is likely to encourage significant substitution to other speeds by CPs purchasing this product.
- 3.216 In addition, there may be direct constraints between different speeds. CPs may feel it necessary to have a range of different speed options available but they have some flexibility on where to focus their offerings. But it is unlikely that CPs focused on a particular speeds would limit their offerings particularly where a hypothetical monopolist (of a particular speed) attempted to raise the wholesale price. Hence, it is possible that for any given speed, a wholesale price increase is likely to encourage some substitution to other speeds by CPs purchasing this product. We note TalkTalk's view that such substitution is not meaningful, as the demand for WBA is derived demand. We believe that there is substitution between different speeds at

the retail level, which implies there may also be scope for substitution at the wholesale level.

Business versus residential

Consultation proposals

- 3.217 In the 2013 WBA Consultation, we proposed that business and residential asymmetric broadband internet access services are in the same relevant market at the retail level.
- 3.218 In the case of broadband internet access, we said there was unlikely to be a distinction between business and residential services at the wholesale level compared with the retail level, largely due to the following supply-side considerations at the wholesale level:
- the wholesale input to support the provision of asymmetric broadband internet access services to business customers is essentially the same as that used to support the provision of such services to residential customers.
 - the underlying costs of providing a WBA product for business end-use are the same as the costs for a product with the same features intended for residential end-use.
 - at the wholesale level there is less differentiation between services targeted at business and residential customers. As a result, there is extremely limited scope for a provider of WBA services to price discriminate between the provision of such services for business and residential end use. An ISP would be able to use the lower priced wholesale input to provide services to both residential and business customers.
 - while there may be a distinction in the “service wrap” around the business service, this additional service wrap is generally downstream of the WBA level. This includes the situation where WBA is used as part of a virtual private network VPN.

Consultation responses

- 3.219 [X] submitted that our assessment of “wholesale” markets relied on retail (residential) rather than wholesale competition in the market. In particular, it was concerned that just because an LLU operator (or Virgin) is present in an exchange it does not necessarily follow that there is substantial wholesale competition or that their products are fit for the purpose of serving the business segment. [X] suggestion was that even if an LLU operator did offer a retail business product, it may not offer an effective wholesale product that a third party provider could use to sell to retail business services. [X] noted, for example, that TalkTalk leverages its residential assets to provide business broadband – but it is not fit for purpose in terms of ‘contention and latency’.
- 3.220 [X] argued that no other operator would be able to offer a product sufficiently similar to BT’s WBA service within 12 months.²³⁴ It estimated that [X].

²³⁴ OFT indicate that supply-side substitution corresponds to entry that occurs quickly, e.g “less than one year” OFT, 2004, Market definition. Understanding competition law, paragraph 3.15.

Our conclusions

- 3.221 [X] comments appear focused on direct supply to the wholesale market and do not take into account the potential for indirect constraints provided by vertically integrated operators (i.e. LLU operators engaged in self-supply). In our view, if the price of the wholesale business broadband product rose, this would be reflected in an increase in retail prices. Supply-side substitution could then take the form of the vertically integrated operator focused on the residential market entering the retail business market and so also entering the wholesale market via self-supply. As we discussed above (paragraphs 3.104 to 3.113), we believe such supply-side substitution is possible, and indeed many of the LLU operators, including TalkTalk, already provide business grade services.
- 3.222 The timeframe for a vertically integrated operator (such as an LLU operator) to enter the business market is likely to be shorter than that required for a third party operator [X] to switch to a supplier not currently supplying business products to the wholesale market.
- 3.223 Moreover, to the extent the timeframe for supplying a new product is greater than a year, such supply would be considered as new entry, rather than supply-side substitution. Thus concerns about market power in the business market, would still be remedied by entry from residential suppliers, assuming that market segment is competitive.

Conclusion

- 3.224 On the basis of the above, we conclude that there is a broad market definition that includes both business and residential markets. This is consistent with the approach we adopted in the 2008 and 2010 WBA Statements.

Bundling

- 3.225 In our discussion of the retail market, we did not conclude on whether to widen the retail market definition to include products sold in a bundle with broadband services because there is no independent demand for broadband or on whether, if there were independent demand for broadband, it was substitutable with broadband sold in a bundle. While it seemed likely that there was demand for broadband services independent of mobile and TV services, and consumers were likely to unpick the mobile and TV elements of a bundle, the conclusions were less clear for fixed line voice services.
- 3.226 We said that a conclusion on retail product market definition would not affect the wholesale WBA market definition. Even where products are bundled at the retail level, they are not necessarily bundled at the wholesale level. In particular, NGA wholesale products must be combined with other services to supply the end-user with a dual play, or triple play, package. In addition, as discussed in the 2013 Narrowband Statement, for a variety of reasons, a significant proportion of all retail LLU lines are still Shared Metallic Path Facility (SMPF) lines.²³⁵ Thus there is independent demand for broadband at the wholesale level.
- 3.227 Moreover, bundled voice and broadband provided via MPF competes at the retail level and at the wholesale level with services provided via separate voice and

²³⁵ 2013 Narrowband Statement, paragraph 5.140,
http://stakeholders.ofcom.org.uk/binaries/consultations/nmr-2013/summary/NMR_Consultation.pdf.

broadband inputs (WLR and SMPF) since it provides the same service with the same quality for the end consumer.²³⁶ Thus we believe that bundled voice and broadband products constrain unbundled products at the wholesale level via indirect constraints from the retail level.

- 3.228 It is not clear that other products supplied in retail bundles (i.e. TV and mobile) are available in a bundle with broadband at the wholesale level to any significant extent. To the extent that they are, we believe they would be substitutable for separate wholesale services.
- 3.229 TalkTalk agreed that it was not necessary to conclude on retail bundling (i.e. whether customers would be willing to purchase voice and broadband services separately) for our wholesale market definition.
- 3.230 We therefore believe there is independent demand for wholesale broadband services, but that these services are constrained by bundled wholesale packages.

Mobile

- 3.231 As set out above, we conclude that the retail market definition of asymmetric broadband services does not include mobile broadband services.
- 3.232 If the price of WBA services increased and mobile operators voluntarily offered a wholesale mobile broadband product, CPs might be able to substitute to a wholesale mobile broadband product and use it to offer a fixed broadband service. Based on our retail analysis of the service characteristics and consumers' experience, it is unlikely that such a change would be profitable for the CP. This is because fixed broadband services tend to be able to offer both higher download speeds as well as higher download limits at a more consistent throughput.
- 3.233 On the supply side, we believe that the scale of the investment required for mobile networks to respond to a SSNIP by a hypothetical monopolist of fixed broadband services and start supplying fixed line services renders such a response unlikely.
- 3.234 TalkTalk agreed with our view that mobile internet access does not impose a competitive constraint on fixed line internet access at the wholesale level.
- 3.235 We therefore conclude that mobile broadband is in a separate product market from fixed broadband products at the wholesale level.

Fixed wireless access

- 3.236 As discussed in the retail market section above, deployment of broadband services using fixed wireless access so far has been limited to specific geographic areas or specific circumstances. In the short term, given the costs involved in providing fixed wireless access and the lower quality of the service, it is unlikely that an increase in the price of wholesale broadband products will lead a substantial number of CPs to switch to fixed wireless access at the wholesale level. It does not appear to us that this should be regarded as effective demand-side substitutes for asymmetric broadband access.
- 3.237 On the supply-side, we believe that the scale of the investment required for fixed wireless access providers to respond to a SSNIP by a hypothetical monopolist of

²³⁶ Ofcom, 2012 Narrowband Statement, p.76, paragraph 5.140.

fixed broadband services and start supplying fixed line services renders such a response unlikely.

3.238 No stakeholders commented on our wholesale definition in relation to fixed wireless.

3.239 We therefore conclude that broadband using fixed wireless access is not part of the relevant market under consideration in this review.

Broadband access using satellite

3.240 As with fixed wireless access, broadband access via satellite at the retail level is considered as a niche service and accounts for a small proportion of the total broadband access market. We do not think feasible that satellite providers will start providing broadband access via satellite if wholesale prices of fixed broadband went up. No stakeholders commented on our wholesale definition in relation to satellite.

3.241 We therefore conclude that the market definition does not include satellite broadband.

Conclusions

3.242 Based on the analysis above, we conclude that the relevant WBA product market is asymmetric broadband access and any backhaul as necessary to allow interconnection with other communications providers, which provides an always on capability, allows both voice and data services to be used simultaneously and provides data at speeds greater than a dial-up connection. This market includes both business and residential customers.

Section 4

Geographic market definition

Summary of our decision

- 4.1 We have found that the relevant geographic markets for WBA products for the period of this market review are:²³⁷
- the Hull Area (0.7% of UK premises);
 - Market A: exchanges where there are no more than two POs²³⁸ present, or forecast to be present, with either copper or cable (9.5% of UK premises); and
 - Market B: exchanges where there are three or more POs present, or forecast to be present, with either copper or cable (89.8% of premises).
- 4.2 The description of these markets is identical to the proposals put forward in the 2013 WBA Consultation. However, since that consultation we have updated our analysis using September 2013 data on the extent of LLU roll-out, whereas in the 2013 WBA Consultation we used data from December 2012. This results in a small change to the number of exchanges (and therefore the percentages of premises) in Market A and Market B, when compared to the proposals in our 2013 WBA Consultation.
- 4.3 Since the 2013 WBA Consultation, we have received more data on current and planned fibre roll-out into exchange areas where only BT or BT plus one other PO are present, or forecast to be present,²³⁹ with either copper or cable (“BT-only” and “BT+1” exchange areas). We have concluded that while such roll-out is likely to cover a large proportion of Market A by the end of the market review period, the strength of the competitive constraint imposed on BT by POs offering fibre based broadband is uncertain. For this reason we have concluded that it is not appropriate for us to modify the geographic market definition on the basis of existing or planned fibre roll-out in this market review. We will continue to monitor the roll-out of fibre by BT and the take-up of fibre services by CPs and end-users over the course of the market review period. Should sufficient evidence emerge showing that fibre services are providing a strong competitive constraint on BT, we would consider whether it was appropriate to re-open our consideration of this issue at that time or to bring forward the date of the next market review.
- 4.4 The relevant wholesale geographic markets that we have identified differ from those identified in the 2010 WBA Statement in two respects:
- First, the conditions of competition in BT-only exchanges and BT+1 exchanges are now sufficiently similar to justify their inclusion in the same geographic market (i.e. Market A) for the purpose of our SMP assessment. This reflects the fact that

²³⁷ The full market definition is given in this section read as a whole, and is summarised at paragraphs 4.206 to 4.211.

²³⁸ We do not count POs as being present, or forecast to be present, in areas where they only have a fibre service, due to the uncertainty over how fibre competition will develop – an issue which we address at paragraphs 4.156 to 4.199.

²³⁹ The forecast of the number of POs in an exchange area takes into account the exchanges where operators have “committed” to enter. Our definition of committed entry is explained in paragraphs 4.99 to 4.115.

BT's service share is high across both types of exchange and, in contrast to 2010, it is no longer necessary to differentiate between these exchange-types according to the extent of likely future entry.

- Second, the conditions of competition in all exchanges where in addition to BT there are two POs present, or forecast to be present, with copper or cable ("BT+2" exchanges) are sufficiently similar to exchanges where BT faces more competition, which justifies their inclusion in the same geographic market (i.e. Market B) for the purpose of our SMP assessment. In the 2010 WBA Statement we found that the conditions of competition were appreciably different between BT+2 exchanges in which BT's service share was greater than 50% and BT+2 exchanges in which BT's service share was less than 50%. This distinction is not appropriate for this market review. This is because we now have evidence indicating that where there are two copper or cable POs in addition to BT, BT's service share is expected to decrease significantly and progressively over time.

Introduction

- 4.5 The purpose of this section is to define the scope of the relevant WBA geographic markets. Our approach follows that adopted in the 2008 and 2010 WBA Statements, updated to reflect recent market developments, including the additional evidence now available on the impact of LLU entry and existing and planned fibre roll-out on competitive conditions in exchange areas.
- 4.6 In broad terms, competitive conditions in the majority of exchange areas remain unchanged since the last review. In particular, there are still a number of exchanges in which BT is the only PO present, while there does not appear to have been a significant weakening of competition in the exchanges that were found to be effectively competitive in the 2010 WBA Statement.²⁴⁰ Since the last review, however, there has been additional LLU roll-out in a number of exchanges where competition was more limited in 2010 (these exchanges were classified as belonging to either Market 1 or Market 2). As explained in paragraph 4.117 below, we have updated our analysis to take into account the additional LLU roll-out that has occurred since the last review, and further planned roll-out during this review period. We have also taken account of any cable network roll-out Virgin has undertaken since the last review and given consideration to Virgin's planned cable network roll-out (see paragraph 4.71).
- 4.7 Evidence gathered during the course of this review indicates that whilst there may be some further LLU roll-out during the review period, over and above that accounted for in our analysis, this is likely to be more limited than was the case in the 2010 WBA Statement. This reflects the fact that LLU operators have already entered the majority of exchanges that justify the sunk costs required for unbundling.
- 4.8 BT has progressed the deployment of its fibre network since the last review. BT's commercial roll-out of fibre has focused on the areas of the country previously found to be competitive (i.e. in areas that were classified in Market 3 in the 2010 WBA Statement). However, as described in Section 2, state funding via the BDUK scheme will lead to fibre being rolled out in less competitive areas of the country (indeed, some has already been rolled out). There is also some commercial roll-out in these areas. We consider the impact of fibre roll-out on competitive conditions in

²⁴⁰ There has also been consolidation in the market, in particular the acquisition of O2's residential fixed broadband services business by Sky. However, this acquisition was cleared by the OFT, on the basis that it was not expected to lead to any significant lessening of competition.

paragraphs 4.156 to 4.199, and conclude that this remains subject to significant uncertainty.

4.9 This section is structured as follows:

- we summarise the position put forward in our 2013 and 2014 WBA Consultations and the responses to them;
- we then summarise our approach to geographic market definition;
- we consider competitive conditions at the retail level;
- we consider competitive conditions at the wholesale level;
- we consider how to update our geographic market definitions; and
- we set out our conclusions on market definition as a whole, based on the combination of product market and geographic market assessments.

2013 WBA Consultation

Summary of 2013 WBA Consultation

- 4.10 In the 2013 WBA Consultation we proposed removing the 50% service share threshold criterion on BT+2 exchanges that we introduced in our 2010 statement, as we considered that all BT+2 exchanges were sufficiently similar to those exchanges with BT+3 or more POs. We also proposed that the competitive conditions of BT+1 exchanges were sufficiently similar to BT-only exchanges, such as to justify including them both in the same market.
- 4.11 We proposed the following wholesale geographic markets in the 2013 WBA Consultation:
- the Hull Area (0.7% of UK premises);
 - Market A: Exchanges where there are no more than two POs present or forecast to be present (9.6% of UK premises); and
 - Market B: Exchanges where there are three or more POs present or forecast to be present (89.7% of premises).
- 4.12 We assessed competitive conditions in exchange areas on the basis of the number of POs present or forecast to be present in a given exchange. With regards to forecasted entry, we proposed to consider POs to be present in an exchange if they had reached Stage 3 of Openreach's 'Advanced Point of Presence Ordering' (APO) process for a particular exchange.
- 4.13 Our proposed list of POs in the 2013 WBA Consultation (BT, Sky, TalkTalk, Virgin) differed from the 2010 WBA Statement in that we proposed no longer to include Vodafone (formerly C&W) or O2 (whose residential broadband business had been acquired by Sky). We proposed to continue to define Virgin as present as a PO in an exchange area if its coverage met or exceeded 65% of premises in that exchange area as we did in 2010.

- 4.14 With regards to fibre, we said that the vast majority of areas where fibre has been or will be deployed commercially are in the areas defined as Market 3 in the 2010 WBA Statement and which were classified as competitive.²⁴¹ We did not believe competition was likely to have decreased in these areas, as the number of operators in these areas remained high, and so considered that commercial roll-out of fibre did not introduce a change in the competitive conditions.
- 4.15 We considered that fibre deployments under the BDUK scheme could overlap with local exchange areas where there is limited or no use of LLU, and recognised that POs using this fibre could potentially provide an additional competitive constraint on BT. However, we said that we were unable to account for this in our analysis because, at that time, the exact locations where BDUK fibre will be deployed had not yet been determined, the timing of roll-out was uncertain, and there was uncertainty over the take-up of fibre-based services.

Responses to 2013 WBA Consultation

Market structure

- 4.16 BT stated that the proposed market definition, in particular our proposal to withdraw regulation from all exchanges with three POs (including BT), better reflects the spread of competition in more rural areas as CPs continue to roll out their networks.
- 4.17 TalkTalk also said it broadly agreed with the proposed three-market structure and the definition of POs, noting that the only issue of regulatory judgment is whether BT+1 exchanges fit in Market A or Market B.
- 4.18 EE stated that it supported the simplification of having three geographic markets, however it considered that all BT+1 exchanges should fall within Market B.

List of Principal Operators

- 4.19 BT and EE believed that Vodafone should remain a PO, as in 2010.
- 4.20 [3<] stated that it did not agree with our proposed set of POs, as it believed a CP can only be designated as a PO if it provides a wholesale broadband product which is fit for purpose for both residential and business consumers.

Planned LLU roll-out

- 4.21 BT stated that our proposed approach to planned LLU roll-out does not capture the latest available information and we should take into account public announcements of roll-out made by operators.
- 4.22 TalkTalk said that the proposed use of APO Stage 3 to determine whether planned LLU roll-out is 'committed' would result in a Market A that was too large, and APO Stage 1 should instead be used.

Virgin threshold

- 4.23 BT stated that it continued to believe that the 65% threshold for counting Virgin as a PO present in an exchange area is too high. It presented arguments and evidence which it believed supported a threshold of 50%.

²⁴¹ Ofcom calculations based on BT response to question 1 of s.135 notice, 18 November 2013

- 4.24 EE stated that the threshold for considering whether or not Virgin is present at an exchange should be reduced from 65% to 40%.
- 4.25 No other operator commented on our proposal for the Virgin threshold.

Fibre

- 4.26 EE said that BT is likely to face strong competition in the supply of WBA services in (Market A) exchanges with BDUK funded fibre roll-out. EE said Market A should cover only those 5% of UK premises in which BT will truly face no current or likely competition.

Updating market definitions

- 4.27 TalkTalk made clear that it does not believe the market definition should change during the review period, however it does consider that the geographic market definition should be set as close to publication of the Statement as possible, to ensure its accuracy.
- 4.28 EE suggested that Market A be updated for the 2nd and 3rd years of the SMP conditions imposed on BT, so as to remove exchanges from Market A, based on LLU (existing and planned) roll-out as at 31 December 2014. EE said that such an approach would materially reduce the risk of inadvertent over-regulation.

Data issues

- 4.29 BT raised a number of data concerns, including: “phantom” exchanges (i.e. exchanges with zero active circuits); exchanges located in the same building; and network expansion plans for Virgin. These points are addressed in Annex 6.

Other points raised

- 4.30 [X] raised concerns about Ofcom confusing retail competition with wholesale competition stating “[j]ust because some [LLU] operators are present in an exchange does not mean there is substantial wholesale competition (or even that the other [POs] offer such products) or that their products are fit for purpose.”²⁴²
- 4.31 [X] raised an issue with our lack of analysis regarding the nature of national demand for multi-site business users.
- 4.32 Virgin agreed with all of our proposals in respect of geographic market definition.

2014 WBA Consultation

Summary of 2014 WBA Consultation

- 4.33 Following the responses we received to the 2013 WBA Consultation regarding fibre, we issued further information requests to BT asking for its most up-to-date information on planned and existing fibre roll-out in proposed Market A exchange areas. BT subsequently provided further details of the timing and location of fibre deployment.

²⁴² [X] confidential response to 2013 WBA Consultation, page 3.

- 4.34 In our 2014 WBA Consultation we proposed that whilst we had more up to date information on BT's roll-out plans for fibre, there still remained uncertainty about the competitive constraint provided by fibre, and therefore that we would not take fibre into account when allocating exchanges to geographic markets.

Responses to the 2014 WBA Consultation

- 4.35 EE in its response stated that the competitive constraint provided by the roll-out of fibre in Market A is not too uncertain, and that we should *"reduce the size of Market A to remove those exchanges [with existing fibre] in which a competitive constraint from BDUK funded fibre is currently known to be likely"*. It made a number of points in support of this, which we address below.
- 4.36 Prospect did not comment directly on this issue in its response, but did appear to agree broadly with our position regarding fibre-based broadband services, noting that *"BDUK-backed projects, possessing a significant level of overlap with BT-only and BT+1 exchange areas, still require a significant degree of private investment from operators which had already rejected investing in such areas as unworthwhile."*²⁴³

Approach to geographic market definition

- 4.37 The purpose of market definition in this review is to structure and inform our forward looking assessment of whether SMP exists in the WBA market. Market definition is not an end in itself, but is intended to assist the competition assessment in order to understand whether broadband customers are protected by effective competition, or whether ex ante regulation is required.
- 4.38 In formulating our approach to market definition, we have had regard to the 2007 Recommendation on Markets and the accompanying Explanatory Memorandum, as well as the Commission's SMP Guidelines and the ERG Common Position on Geographic Aspects of Market Analysis.
- 4.39 Our general approach to market definition is set out in Annex 4. As in the 2010 WBA Statement, and discussed in Section 3, we have applied the Modified Greenfield Approach when carrying out the market definition exercise. This means that the market definition exercise is conducted in relation to a hypothetical scenario in which there are no ex ante SMP remedies in the WBA market, but ex ante SMP remedies in the upstream WLA market (i.e. LLU, VULA, SLU and PIA) exist.
- 4.40 As in the 2010 WBA Statement, we first consider the geographic boundaries of the retail market before considering the wholesale market. Our approach to wholesale geographic market definition then follows the same basic approach used in the 2008 and 2010 WBA Statements. In particular, our analysis focuses on the assessment of competition in local exchange areas and then aggregates exchanges with sufficiently similar competitive conditions into wider geographic markets.
- 4.41 In this assessment, we have considered the existing market conditions, taking into account past performance. To inform our forward looking view, we have also taken into account foreseeable market developments over the course of the review period.

²⁴³ Prospect non-confidential response to question 5 of 2014 WBA Consultation.

Retail geographic market definition

- 4.42 Since our primary interest is in the wholesale market, it is not necessary for us to conclude on the precise scope of the retail geographic market for the purpose of this review. However, it is relevant to consider competitive conditions at the retail level since they will affect competitive conditions in the WBA market.
- 4.43 In general, when assessing the geographic scope of fixed-line communications markets, the application of demand-side and supply-side substitution through the hypothetical monopolist test can lead to very narrow geographic market definitions. This is because end-users are unlikely to move home to benefit from lower prices, thus demand side substitution between different areas is not possible. Moreover, supplying a new area, either by unbundling a new exchange or extending an existing network, can require significant sunk costs, limiting supply side substitution. [36] suggested that there multi-site business users may look for a national supplier. As discussed in paragraph 4.57 we do not believe this will affect our analysis.
- 4.44 Areas which are not linked by supply- and demand-side substitution can nevertheless be included in the same market if they are linked instead by common pricing across different areas. In the retail broadband market, however, prices vary across the country. CPs typically offer differentiated prices depending on whether they serve the retail market using LLU (on-net) or WBA products purchased from another CP, particularly BT (off-net). EE, which supplies purely using WBA, also prices differentially, with higher prices in Market 1 areas. Although BT's main retail offering is currently priced nationally, its wholly-owned subsidiary Plus.net does vary its pricing on a geographic basis (see Annex 5).
- 4.45 BT could (like Plus.net) decide to vary the prices of its broadband offerings on a geographic basis, for example to account for variations in competitive conditions that reflect the extent to which other operators are able to self-supply retail broadband services. Fibre offerings are not yet available nationwide, suggesting further differentiation by area. Taken together, this suggests that it is not appropriate to define a national market due to a common pricing constraint.
- 4.46 Defining retail markets as they would be in the absence of regulation in WBA markets is inevitably a hypothetical exercise. However, it is reasonable to suppose that the geographic pattern of retail competition would reflect the geographic variation in LLU presence and cable coverage, so that in those areas where the WBA market is competitive, the retail market would also be competitive, and where the WBA market is not competitive, the retail market would not be competitive. There is also likely to be a distinct retail geographic market in the Hull Area.

Wholesale geographic market definition

- 4.47 In this subsection we consider wholesale geographic market definition. As in the 2008 and 2010 WBA Statements, we have identified a separate market in the Hull Area, in which KCOM operates the local access network (as opposed to BT in the rest of the UK) and is by far the largest supplier at the retail level in the Hull Area. The competitive conditions in the Hull Area therefore differ from the rest of the UK. We note that no respondent to the 2013 WBA Consultation disagreed with our view that the Hull Area should continue to be identified as a distinct geographic market, separate from the rest of the UK.
- 4.48 With regard to the geographic scope of wholesale market in the rest of the UK excluding the Hull Area, we use the same basic approach as in 2010, which is in line

with the ERG Common Position on Geographic Aspects of Market Analysis. In this approach, competitive conditions are assessed at the level of the local exchange area, and exchanges are then aggregated into wider geographic markets that form the basis of the SMP assessment. Exchanges are grouped together if competitive conditions in these areas are sufficiently homogeneous, or placed in different geographic markets if competitive conditions are appreciably different.

4.49 In the remainder of this section we consider the rest of the UK, excluding the Hull Area. It is structured as follows:

- We first explain why we consider the appropriate geographic unit to be the area served by CGA-based services from each local exchange, including how we account for the presence of Virgin and why there is no common pricing constraint.
- Next, we describe our method for assessing competitive conditions in BT local exchange areas, including how we determine our list of POs and how we ensure a forward looking view of the market.
- We then explain how we aggregate exchanges into geographic markets by considering the impact copper and cable operators have on competitive conditions, and aggregating areas where competitive conditions are similar.
- We then consider whether we need to alter our analysis to account for the impact of fibre roll-out.
- Finally, we summarise our geographic market definition.

The local exchange area for current generation services as the geographic unit

4.50 In the 2008 and 2010 WBA Statements, we considered that BT exchange areas (based on current generation services) were the most suitable geographic unit on which to base the geographic analysis. This was because these areas align exactly with (LLU) the upstream regulatory remedy, which is a significant driver of competition in the WBA market.

4.51 As discussed in Section 2, BT is currently deploying fibre-based broadband services across the UK, including in many rural areas. Where it deploys fibre, CPs are also able to purchase a regulated product in the WLA market (VULA) which enables them to provide fibre-based broadband services to their retail customers. BT intends to use fewer local exchanges to provide access to VULA than it uses to provide access to LLU. Fibre products available at a particular local exchange could therefore cover a wider geographic area than the copper access network at that same exchange.

4.52 The deployment of fibre raises the question of whether an alternative geographic unit is appropriate. BT's NGA network will comprise fibre deployment between BT's local exchanges and street cabinets (FTTC), or in some cases between the local exchanges and end user premises (FTTP). Most LLU exchange areas have a number of street cabinets, and fibre could be deployed to only some (and not all) of the cabinets within the exchange area.

4.53 In our 2013 WBA Consultation, we proposed that local exchange areas remained the appropriate basis for geographic analysis in this review, notwithstanding the roll-out of NGA networks. We considered competitive conditions for CGA and NGA were likely to be the same for a given exchange because the POs present in the exchange

would have access to, and the incentive to make use of, the upstream WLA remedies provided over both technologies.

- 4.54 Moreover, we noted that vast majority of areas where fibre has been or will be deployed commercially are in areas defined as competitive (allocated to Market 3) in the 2010 WBA Statement.²⁴⁴ We did not believe competition was likely to have decreased in these areas, as the number of operators in these areas remained high, and so considered that commercial roll-out of fibre did not introduce a change in the competitive conditions.
- 4.55 We considered that deployments under the BDUK scheme could overlap with local exchange areas where there is limited or no use of LLU, potentially providing an additional constraint. However, we said that we were unable to account for this in our analysis because, at that time, the exact locations where BDUK fibre will be deployed had not yet been determined, the timing of roll-out was uncertain, and there was uncertainty over the take-up of fibre-based services.
- 4.56 In response to the 2013 WBA Consultation, EE stated that it believed fibre should be included in our assessment, however that it would be reasonable to accommodate fibre in the framework of an exchange-based assessment, through the use of exchange-area thresholds (like the one used to determine Virgin's presence as a PO). No other respondent to the 2013 WBA Consultation disagreed with our proposal to keep the exchange area as the relevant geographic unit. We discuss the impact of fibre in paragraphs 4.172 to 4.199. However, that discussion concludes that fibre should not affect the grouping of exchanges based on our assessment of LLU and cable based competition. Therefore we remain of the view that LLU exchange areas remain the appropriate geographic unit to consider.
- 4.57 A further response to the 2013 WBA Consultation, from [X], suggested that multi-site business users may look for a national supplier. However, we believe that operators serving businesses can fulfil this need by combining the products of separate wholesale suppliers. In particular, an operator with its own network could self-supply in the areas of the country where it has its own network and purchase an externally provided service elsewhere. Therefore we do not believe it appropriate to define a national market on this basis. We conclude that in light of our assessment and consultation responses, we will continue to use the local exchange as the relevant geographic unit, for our geographic market definition assessment.

Accounting for Virgin

Background

- 4.58 Virgin has its own cable network, covering just under half ([X]%) of UK premises.²⁴⁵ In these areas, it does not rely on BT for the provision of WBA services.
- 4.59 Virgin's network does not precisely map onto the footprint of BT's exchanges. Therefore it is possible that Virgin's network serves a subset of the premises that are connected to an exchange. As in the 2010 WBA Statement, we believe that it is nevertheless appropriate to consider competition on the basis of the local exchange, as it is suitable for considering the competitive constraint from the majority of other (i.e. LLU) operators.

²⁴⁴ Ofcom calculations based on BT response to question 1 of s.135 notice, 18 November 2013.

²⁴⁵ Virgin response to question 1 of s.135 notice, 19 November 2013.

- 4.60 In the 2008 and 2010 WBA Statements, we concluded that Virgin should be considered to be 'present' as a PO in an exchange area if its network was able to supply at least 65% of the premises in that exchange area.

Consultation proposals

- 4.61 In the 2013 WBA Consultation we proposed to continue to use the 65% threshold.
- 4.62 We also said that Virgin had informed us that it plans to extend its network to an additional [X] [tens of thousands of] premises a year, but these were mostly in new developments, and to a lesser extent as 'in-fills'.²⁴⁶ Moreover, to the extent there is any expansion, it is likely to be close to its current network, which is in more densely populated (urban) areas. Indeed, the network extensions concern exchange areas which we classified as competitive in the 2010 review. This suggests any new build that does occur is unlikely to have a material impact on the competitive conditions in the market.

Consultation responses

- 4.63 BT and EE suggested it was more appropriate to use a lower threshold for determining whether or not Virgin is present as a PO in an exchange area. BT stated that a threshold of 65% understates the true competitive impact in the market, presenting evidence to support its conclusion that a threshold of 50% would be more appropriate. EE said it believed the threshold should be reduced to around 40%, since this should allow Virgin to achieve a service share that is similar to the national service shares of other POs.
- 4.64 BT submitted an econometric analysis which analyses how Virgin's coverage in an exchange affects BT's service share, having taken into account other relevant factors such as the number of LLU operators, and their date of entry in the exchange.²⁴⁷ BT suggested that this analysis shows that the long run impact of Virgin on BT's service share in an exchange where Virgin's coverage is between 30% and 65% is very similar to the impact on BT's service share of entry by a second LLU PO. Whilst BT recognised that their analysis is necessarily limited by data availability, they suggested that it is sufficient to justify a reduction in the coverage threshold we apply to determine whether Virgin is a PO from 65% to 50%.²⁴⁸
- 4.65 BT disagreed with our assessment of planned Virgin roll-out, stating that Ofcom's determination that Virgin's planned network expansions would not have a material impact is incorrect. BT said that such expansion is most likely to be concentrated close to Virgin's existing network, which could have an impact on whether Virgin is counted as present as a PO in some exchange areas.

Our conclusions

- 4.66 BT's proposed reduction in the threshold for including Virgin to 50% is based on the claim that BT's average service share in exchange areas in which there is one LLU PO present and where Virgin has coverage of 30-65%, is expected to be similar to BT's average service share in exchange areas where there are two LLU POs present

²⁴⁶ Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁴⁷ Prof. Hughes. Gordon, *The Impact of market structure on BT's market share [A note prepared for BT plc.]*, 9 October 2013.

²⁴⁸ BT's analysis is based on a classification of exchanges according to whether Virgin's coverage is either in the range 30-65%, or above 65%.

(this is supported by the results of BT's econometric analysis). We understand BT's argument to effectively be that this suggests that competitive conditions in exchanges where there is one LLU operator and Virgin has a coverage level of 30- 65% are similar to exchanges where there are two LLU operators.

- 4.67 BT does not have sufficiently detailed data to conduct a more detailed analysis to determine exactly which threshold, within the range of 30% and 65%, is appropriate for Virgin's coverage (i.e. at which threshold the impact of Virgin is on average equivalent to a second LLU PO). Nevertheless, it suggests that the results of its econometrics are sufficiently robust to justify reducing the threshold to 50%. EE's arguments appear to be along similar lines, in that it considers we should set a threshold for Virgin coverage above which Virgin is likely to have a similar impact to an LLU operator on BT's service share.²⁴⁹
- 4.68 We consider that even if Virgin has a similar long-run impact on BT's exchange level service share where its coverage is less than 65%, as does a second LLU operator, this does not necessarily imply that competitive conditions in each type of exchange are sufficiently similar, such as to define them as being in the same geographic market. In particular, we note that whilst LLU operators can serve all premises in an exchange area, Virgin is limited in its ability to serve customers by its coverage. Whilst we recognise that Virgin tends to capture more share than LLU operators where it is present, it is the case that customers who are outside the Virgin's coverage area may not benefit from Virgin's presence.
- 4.69 In previous reviews we have used a 65% coverage threshold, based on our assessment that at this level of coverage, Virgin can address a clear majority of premises in the exchange area, as well as our judgment that this is sufficient to be confident that Virgin would impose a significant competitive constraint on BT. If we were to reduce the threshold to 50%, as suggested by BT, this would mean that Virgin may only compete for half of the premises in the exchange area, which would leave 50% of premises served only by BT and one LLU operator. In our judgment, this would risk potentially overstating the strength of the competitive constraint from Virgin.
- 4.70 We note that changes to the Virgin threshold have only a minor impact on our geographic market definition in terms of the allocation of exchanges across markets. Our sensitivity analysis shown in Annex 6 varies the coverage threshold for including Virgin as a PO. Moving the threshold from 65% to 50% moves 16 exchanges from Market A to Market B, representing only 0.14% of UK premises.²⁵⁰
- 4.71 With regard to BT's point about accounting for Virgin cable network roll-out, in November 2013, we requested information from Virgin on where it plans to roll out additional cable network, for individual exchange areas. The data provided by Virgin showed, for a set of BT+1 exchanges in which Virgin has between 60% and 65% coverage, the number of premises in its current 'active build plan'. We understand that the 'active build plan' includes the roll-out which Virgin considers potentially economically viable, but does not guarantee the roll-out will occur.²⁵¹ The time it takes for a planned roll-out in the 'active build plan' to be realised is also not clear. In

²⁴⁹ We note that BT appears to have included all LLU POs in its analysis. Given that Vodafone and O2 are rarely present in BT+2 LLU exchanges, BT's assessment may overestimate the share captured by a 'typical' LLU PO in BT+2 LLU exchanges, which would act to decrease the coverage threshold at which Virgin captures the same market share.

²⁵⁰ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁵¹ This was clarified by Virgin during a meeting on 17 March 2014.

addition, we understand that a significant proportion of Virgin's planned roll-out are for new builds (i.e. new homes).²⁵² This would be very difficult to take account of in our assessment, since it would require us to take a view as to how likely/committed such new-build developments were. In addition, as these developments are not included in the base data on the number of premises in each exchange area used to calculate the number of premises covered by each BT exchange, this would mean the Virgin and BT data sets would be inconsistent.

- 4.72 We note that including Virgin's planned roll-outs would have a small effect on our market definition. This is due to the very small number of exchanges in which there is both limited LLU competition and Virgin has slightly less than 65% coverage.²⁵³ For example, there are only 7²⁵⁴ exchanges where Virgin has between 60% and 65% coverage and there is only one LLU PO competitor to BT.
- 4.73 Since we do not agree with BT that the analysis it provided indicates the threshold for Virgin should be below 65%, we have retained the 65% threshold we used in the 2008 and 2010 WBA Market Reviews, in order to count Virgin as a PO in an exchange area. Based on the discussion in paragraphs 4.71, we have not included Virgin's planned roll-out in calculating the coverage of its network against the 65% threshold.

Lack of common pricing constraint

- 4.74 In some cases, it is appropriate to group together areas where they are linked by a common pricing constraint.²⁵⁵ In this case, however, we do not believe there is a common pricing constraint linking different exchange areas. We took the same position in the 2008 and 2010 WBA Statements.
- 4.75 We have already noted that, absent SMP remedies in the WBA market, there will not necessarily be an effective common pricing constraint at the retail level, and wholesale prices for WBA services would therefore be likely to reflect local competitive conditions. BT's WBA prices currently vary across the geographic markets defined in the 2010 WBA Statement. In exchanges included in the 2010 Market 1 definition, BT's prices are determined by the charge control; in Market 2, which was subject to cost orientation, they are slightly higher; and in Market 3, lower. BT further differentiates its wholesale prices in Market 3 by offering discounts from its list price. [X]²⁵⁶
- 4.76 We note that no respondent to our 2013 WBA Consultation raised any concern with our assessment of the common pricing constraint.

Criteria for assessing competitive conditions in each exchange

- 4.77 In this subsection we explain how we have assessed competitive conditions in local exchanges. This analysis forms the basis of our subsequent grouping of exchanges with sufficiently similar competitive conditions into the geographic markets over which we conduct our SMP assessment.

²⁵² This was clarified by Virgin during a meeting on 17 March 2014.

²⁵³ For example we would need to take account of planned new builds, especially for large developments and blocks of flats.

²⁵⁴ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁵⁵ ERG Common Position on Geographic Aspects of Market Analysis [2008], page 15.

²⁵⁶ [X]

4.78 We consider several factors, discussed in turn below:

- the number of operators present at the exchange that exert a material competitive constraint (these are referred to as POs);
- BT's service share in exchange areas and how these change over time; and
- the likelihood of further LLU entry in the exchange over and above CPs' committed plans to enter.

4.79 As in the 2010 WBA Statement, we continue to consider the number of POs present at an exchange (as defined below) in assessing the competitive conditions. In order to better understand competitive conditions in exchanges, we have expanded our 2010 analysis on service shares to consider in further detail how they may evolve over time (for example, see paragraphs 4.128 to 4.133).

4.80 For our calculation of BT's service shares, we use circuit volume data at the exchange level to determine volumes of active broadband connections supplied by each operator. Service shares are calculated by dividing an operator's active circuits by all operators' active circuits. Broadband connections include those provided via MPF and SMPF on BT's copper network (either by BT or by an LLU operator) and by Virgin via its cable network.

4.81 Our analysis of service shares does not include wholesale products based on fibre (GEA products). This is because fibre based broadband services have only been available from non-BT providers for a relatively short period of 12-18 months, which we consider is likely to be too short to give a reliable indication of the long-term impact of fibre competition on BT's service share. As discussed below, the long-term impact of LLU entry on BT's service share only becomes clear after a period of at least 2-3 years, reflecting a gradual process of customers churning off BT and onto alternative providers. We consider that it is likely that it will also take a number of years before the impact of fibre becomes clear. We discuss the impact of fibre in paragraphs 4.156 to 4.199.

4.82 We recognise that some active circuits will be used for services that are outside the WBA market such as symmetric services including Ethernet in the First Mile (EFM). Given the low proportion of such circuits, this is unlikely to have a significant effect on our analysis.

4.83 We also consider how future roll-out of LLU might affect competitive conditions. Our forward looking assessment, considers planned roll-out which we believe are "committed", in that they are very likely to be realised; as well as those planned roll-out which are less likely to be realised.

Determining the list of Principal Operators

Background

4.84 Of the many operators that have unbundled local exchanges in the UK, a number of them focus on serving only small geographic areas or narrowly defined consumer segments. In carrying out our assessment, we have restricted our attention to the providers that are likely to exert a substantial competitive constraint on the other operators, across the UK. This is captured by our definition of a Principal Operator (PO), a concept we also used in the 2010 WBA Statement.

- 4.85 In order to assess which CPs to categorise as POs, we calculated the network coverage (in terms of UK premises) for each of the largest operators. In order to ensure our analysis is forward looking, we have accounted for planned roll-out by operators, provided they meet our definition of “committed” roll-out (see paragraphs 4.99 to 4.115 for definition of committed vs. uncommitted roll-out). The coverage of exchanges of the eight largest CPs as of September 2013 is shown in Table 4.1. CPs’ national service shares are also shown in Table 4.1. We note that these shares do not include fibre, and therefore only include copper and cable connections. We account for fibre in our geographic market assessment in paragraphs 4.156 to 4.199.

Table 4.1: Network coverage (in terms of premises) and national (copper and cable) service share for major CPs, September 2013

CP	Coverage (UK excluding the Hull Area) ²⁵⁷	National (copper and cable) service share (UK excluding the Hull Area)
BT	100%	33.6%
TalkTalk	95%	19.4%
Sky	90%	21.4%
Vodafone ²⁵⁸	64%	<1%
Virgin ²⁵⁹	40-50% [X]	23.0%
Updata	20%	<1%
Zen	16%	<1%

Source: Ofcom calculation from data provided by Openreach and Virgin.²⁶⁰

Consultation Proposals

- 4.86 In the 2013 WBA Consultation we considered that, while there are a number of CPs covering a substantial proportion of UK premises, only four of them have a substantial share at a national level: BT, TalkTalk, Sky and Virgin. These four CPs are large vertically integrated companies, well established in several telecommunications markets. Our 2013 Consultation therefore proposed to include them, as we did in the 2010 WBA Statement, in the list of POs.
- 4.87 We excluded Updata and Zen. These are both much smaller companies than the other players in the WBA market; the coverage for both is relatively low, at less than

²⁵⁷ These figures have been rounded to the nearest whole percent.

²⁵⁸ Vodafone is the owner of Cable & Wireless Ltd, to which these figures correspond.

²⁵⁹ Virgin’s coverage figure corresponds to the coverage of its cable network in terms of premises passed, which includes all premises the currently serve, as well as those that they don’t currently serve, but could do.

²⁶⁰ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

20% of premises; and their national market shares are also very low in comparison. Moreover, in individual exchanges their share is a maximum of [3<] [less than 5%].²⁶¹ In addition, we understand that neither operator has plans to significantly expand their retail operations at this stage.

- 4.88 We also proposed to exclude Vodafone from our list of POs. We said that although Vodafone is a sizeable company in the telecommunications market and has high UK network coverage, it had low national service shares, low maximum shares per exchange, and no plans (as far as we were aware) to expand its presence in the broadband market. Moreover, Vodafone's presence as a PO had very little impact on our analysis; in particular, it made little difference to the classification of exchanges as Market A or Market B as it was almost always only present where there were already three POs active.
- 4.89 In the 2013 WBA Consultation, we explained that in May 2013, O2's broadband business was acquired by Sky and as a result O2 no longer exists as an independent operator. It therefore cannot be included as a PO for any of our current or forward looking assessment. However, we recognised that O2 may have imposed a significant constraint on BT separate from Sky before the acquisition. This is because like BT, Virgin, Sky and TalkTalk, O2 (prior to the acquisition by Sky of its fixed broadband business) was a large vertically integrated company, present in several telecommunications markets where it was a well-established player, with network coverage of ([3<] 60-70% in December 2012). Although its national service share was low ([3<] [less than 5%] in December 2012), in some exchanges its service share was as high as [3<] [15-20%].²⁶² We therefore proposed to treat O2 as a PO in our historical analysis.

Consultation responses

- 4.90 In its 2013 WBA Consultation response, EE disagreed with our exclusion of Vodafone from the list of POs. It stated that Vodafone is a large vertically integrated company, and well established in several telecommunications markets. EE went on to say that given Vodafone's (64%) significant national coverage (which EE notes is greater than Virgin's), and the absence of any barriers to expansion of Vodafone's service share, Vodafone's presence represents a material competitive constraint on price increases by other operators in those areas.
- 4.91 BT argued in its 2013 WBA Consultation response that there was no justification for the removal of Vodafone from the list of POs, and it should therefore be re-instated, given its significant network coverage and the potential for it to expand (from its current low base). BT noted that Vodafone's coverage of UK premises is greater than Virgin's.
- 4.92 [3<] in its 2013 WBA Consultation response stated that it disagreed with Ofcom's proposed POs, stating that a CP should only be considered a PO if it provides wholesale broadband products which are fit for purpose for both residential and business users. [3<] argued that the proposed POs do not (all) meet this criteria. We considered this issue in Section 3.
- 4.93 We note that no respondent objected to our proposal to exclude Udata and Zen from our list of POs.

²⁶¹ Ibid

²⁶² Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Our conclusions

- 4.94 For the reasons set out in paragraph 4.86 we remain of the view that BT, Sky, TalkTalk and Virgin should be classified as POs.
- 4.95 We have given further consideration to the impact of Vodafone's other businesses on its ability to expand its broadband presence. In particular, we note recent statements from Vodafone's CEO indicate there may be scope for it to enter the residential broadband market in the near future.²⁶³ Following the acquisition, Vodafone may have a greater ability to expand into the residential broadband market, given its well established sales network, retail-focussed marketing and advertising, and mobile customer base, to which it could cross-sell a broadband product.
- 4.96 Therefore, we agree with EE and BT that Vodafone may be able to expand significantly in a relatively short period of time and impose a significant competitive constraint on other POs over the review period. We therefore include Vodafone in our list of POs for this market review period. We note that the impact on our geographic market definition is minimal (removing Vodafone as a PO would move only [X] exchanges from Market B to Market A).²⁶⁴
- 4.97 We also considered [X]'s view that a CP should only be considered a PO if it provides wholesale broadband products which are fit for purpose for both residential and business users. As discussed in Section 3, residential and business broadband providers do impose a competitive constraint on one another through demand side and supply side substitution. Therefore we do not think it necessary to categorise CPs based only on the type of customers CPs are currently serving.
- 4.98 Therefore the list of POs for this market review period is BT, Sky, TalkTalk, Vodafone and Virgin.

Ensuring a forward looking view of PO presence and shares

- 4.99 As with the 2010 WBA Statement, we use the numbers of POs present in a BT local exchange area as an indicator of the competitive conditions in that exchange area. In order to ensure our assessment of competitive conditions is forward looking, we need to take a view on prospective LLU roll-out. The forward looking impact of fibre roll-out is discussed separately in paragraphs 4.156 to 4.199.

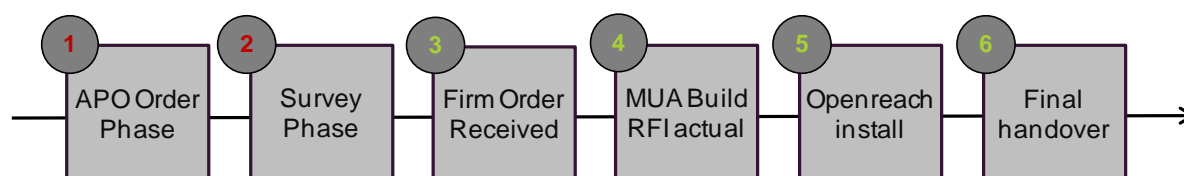
Consultation proposals

- 4.100 In the 2013 WBA Consultation, we proposed using a more precise approach to account for planned LLU roll-out, based on Openreach's provisioning process, to define and clarify what constitutes "committed" LLU roll-out.
- 4.101 To unbundle an exchange, an operator must follow the six steps prescribed by Openreach in its "Advance Point of Presence Ordering process" ('APO process'). In the first two steps, CPs ask Openreach about the feasibility and the availability of LLU at an exchange. At the third step, Openreach receives an order from the prospective LLU operator to unbundle the exchange. The remaining three steps then relate to the actual deployment of LLU and the final handover.

²⁶³ Total telecom. Vodafone mulls UK fixed broadband offer (published 6 February 2014), <http://www.totaltele.com/view.aspx?C=1&ID=485261>.

²⁶⁴ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Figure 4.1: Openreach's APO process



4.102 We proposed in the 2013 WBA Consultation that the first two stages of the APO process should constitute uncommitted roll-out since there is little commitment to proceed with the order (or penalty associated with not proceeding). We considered it unlikely that an operator reaching Stage 3 (the 'Firm order received' stage) would reverse its decision to unbundle the exchange.

Consultation responses

4.103 BT stated in its 2013 WBA Consultation response, that the Openreach APO process only provides a very short-term view of immediate roll-out, and sole reliance on it creates the opportunity for operators to 'game' Ofcom's market definition process in the period running up to the 2014 WBA Statement. BT proposed that as well as using the APO process, Ofcom should take account of publicly announced planned roll-out, with confirmation from a company director to serve as proof of commitment.

4.104 EE stated in its 2013 WBA Consultation response that the APO approach to assessing the likelihood of further entry into an exchange pays inadequate regard to the size of Market A exchanges. It considered the size of BT+1 exchanges is highly relevant to the question of the likelihood of further entry. EE went on to state that we should regard as prospectively competitive (and therefore move to Market B) those BT+1 exchanges which cover 3,000 premises or more.

4.105 EE also raised its concerns with the APO approach due to it not factoring in competition from non-LLU based CPs e.g. those using BDUK funded fibre networks to provide broadband services.

4.106 TalkTalk, in its 2013 WBA Consultation response said that our proposed APO approach was robust, but that the proposed use of APO Stage 3 to determine whether planned LLU roll-out is 'committed' would result in a Market A that was too large, as some exchanges that will be unbundled (at some point during the market review period) would not be allocated to Market B. It said this would result in a bias towards the scope of regulation being overly wide. It proposed instead the use of the 'advanced POP order' phase (Stage 1) for determining whether or not planned roll-out is 'committed'.

Provision of further information by BT

4.107 In order to enhance our understanding of the degree of roll-out certainty (and the potential for regulatory gaming) for each APO Stage, we asked BT to provide us with the proportion of all APO orders submitted in the past three years that were withdrawn at each of Stage 1, Stage 2, and Stage 3 or later.

- 4.108 The data provided by BT²⁶⁵ showed that since April 2010, there have been a total of 8,387 APO order processes. Of these, 1,878(22%) did not reach Stage 2, a further 961 (11%) did not reach Stage 3. However, only a further 66 (0.8%) of the total failed to be realised, with 98.8% of APO orders that reach Stage 3 being realised. This represents a significantly higher proportion of order completion (or “commitment”) compared to Stage 1, at which stage only 65.4% of APO orders go on to be realised, and Stage 2, at which stage only 84.2% of APO orders go on to be realised.

Our conclusions

- 4.109 In response to BT’s statement that we should take account of publicly announced planned roll-out, we note that, since such announcements usually relate to national or regional roll-out strategies, we would not be able to take account of them, unless the CP specifies to which exchanges it is planning to roll out. In addition, CPs are not obliged to follow through with such announcements, and face no penalty for not doing so. This may mean the forecasts are unreliable and it may also create scope for regulatory gaming. We therefore do not agree with BT that we should take account of publicly announced planned roll-out.
- 4.110 In response to EE’s comment regarding market size in BT+1 exchanges, we note that the size of the exchange is not the only consideration for a CP considering rolling out LLU.²⁶⁶ In addition to exchange size, CPs will also consider factors such as geographical location, as this will determine backhaul costs. Therefore considering only the size of the exchange would risk missing the other factors which could be critical to an operator’s decision to roll-out LLU in an exchange. As such, we do not agree that exchange size provides a good proxy for likelihood of LLU entry.
- 4.111 With regards to EE’s point that the APO process does not factor in BDUK, we have explained how we have taken BDUK investment into account in our analysis in paragraphs 4.156 to 4.199.
- 4.112 With regards to TalkTalk’s point, in light of the information provided by BT, we believe that defining “committed” LLU roll-out based on Stage 1 of the APO process would likely lead to a significant degree of uncertainty regarding planned LLU roll-out, as well as a greater potential for gaming (compared to Stage 3), since CPs would not incur any significant costs from withdrawing from the APO process at this stage. Earlier stages provide much less certainty over commitment to roll-out, and increase ability (and therefore the risk) of regulatory gaming.
- 4.113 For the reasons above, we continue to use Stage 3 of Openreach’s APO process to determine whether proposed LLU roll-out is “committed”, and therefore whether a PO is treated as being forecast to be present in an exchange, for the purposes of this market review. In Annex 6, we consider the impact on our geographic market definition of including all LLU roll-out (both “committed” and “uncommitted”) as well as the impact of excluding all roll-out that is not yet active. We highlight that the difference is fairly small - there are only 121 planned CP roll-out at Stage 1 or Stage 2 (across all 5,586 UK exchanges) based on September 2013 data.²⁶⁷
- 4.114 With regard to Virgin, the only non-LLU-based PO, as discussed in paragraphs 4.66 to 4.73, we consider Virgin present as a PO in an exchange area if its cable network passes 65% of premises within that exchange area. In January 2014 we asked Virgin

²⁶⁵ BT response to question 3 of s.135 notice, 18 November 2013.

²⁶⁶ A point we also made in the 2013 WBA Consultation, see paragraph 4.95.

²⁶⁷ BT response to question 3 of s.135 notice, 18 November 2013.

to provide information of its expansion plans.²⁶⁸ With regards to our forward looking view for Virgin, (as explained in paragraph 4.71), we do not take account of Virgin's planned cable network roll-out.

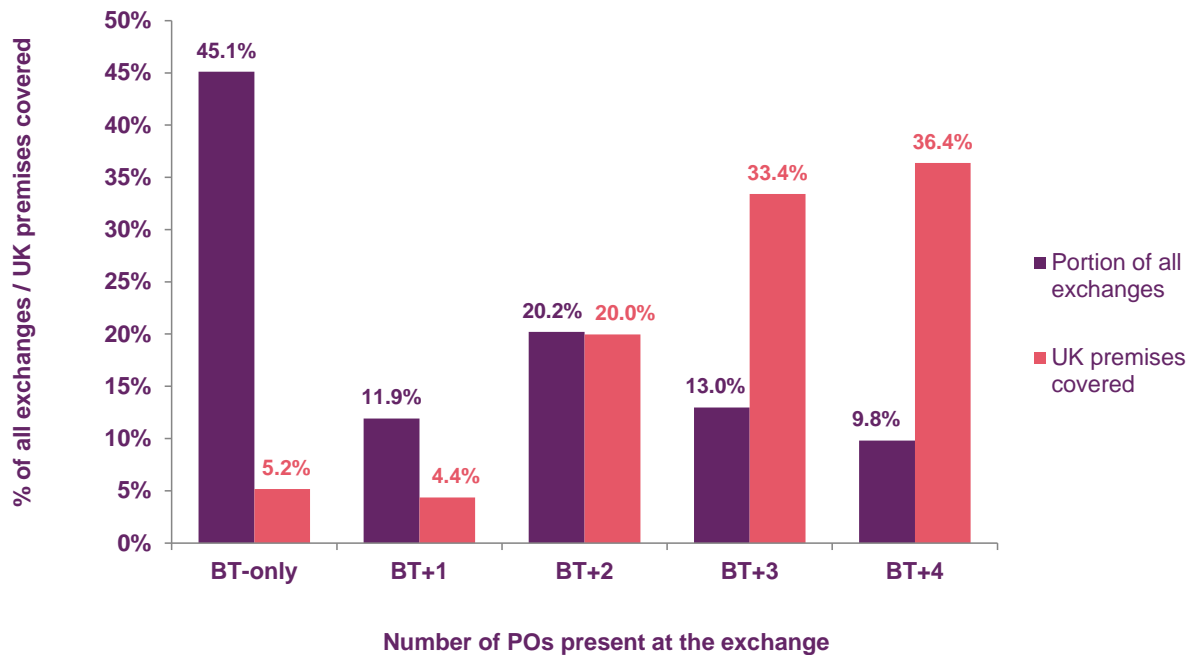
- 4.115 As well as taking into account future roll-out, we have also taken a forward looking view of service shares. In particular, as we did in the 2010 WBA Statement, we have assumed that LLU operators that enter an exchange in the review period migrate their existing customers (currently served using WBA services) onto their own network. For this reason, our analysis of service shares at an exchange include active lines that are based on self-supply of wholesale broadband (using SMPF or MPF) and active lines that could be migrated from BT's WBA service. As discussed below, we also conduct further analysis on the effect that LLU roll-out has on forward looking service share.

Analysis of LLU and cable based competition

- 4.116 This section considers the impact of LLU and cable based competition on the competitive conditions within an exchange. The analysis does not consider the impact of fibre-based broadband services on competition, which we consider (separately) in paragraphs 4.158 to 4.201. Thus when we discuss the number of POs present in an exchange we only include POs providing copper or cable based services in that exchange. Similarly service shares exclude fibre.
- 4.117 The analysis in this section replicates the analysis included in the 2013 WBA Consultation. We have used updated data (from September 2013) to conduct this analysis, and note that most changes resulting from updating the data are minor, and so do not change our conclusions.
- 4.118 Figure 4.2 shows the proportion of exchanges and premises supplied with copper or cable by different numbers of POs. It shows that in 45.1% of exchanges, BT is the only PO present, but most of these exchanges are very small and, in total, these 'BT-only' exchanges serve 5.2% of premises. The majority of premises are served by exchanges containing three or more POs (including BT).²⁶⁹

²⁶⁸ Virgin e-mail, from [redacted], received 30 January 2014.

²⁶⁹ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Figure 4.2: Distribution of exchanges by number of POs present (September 2013)

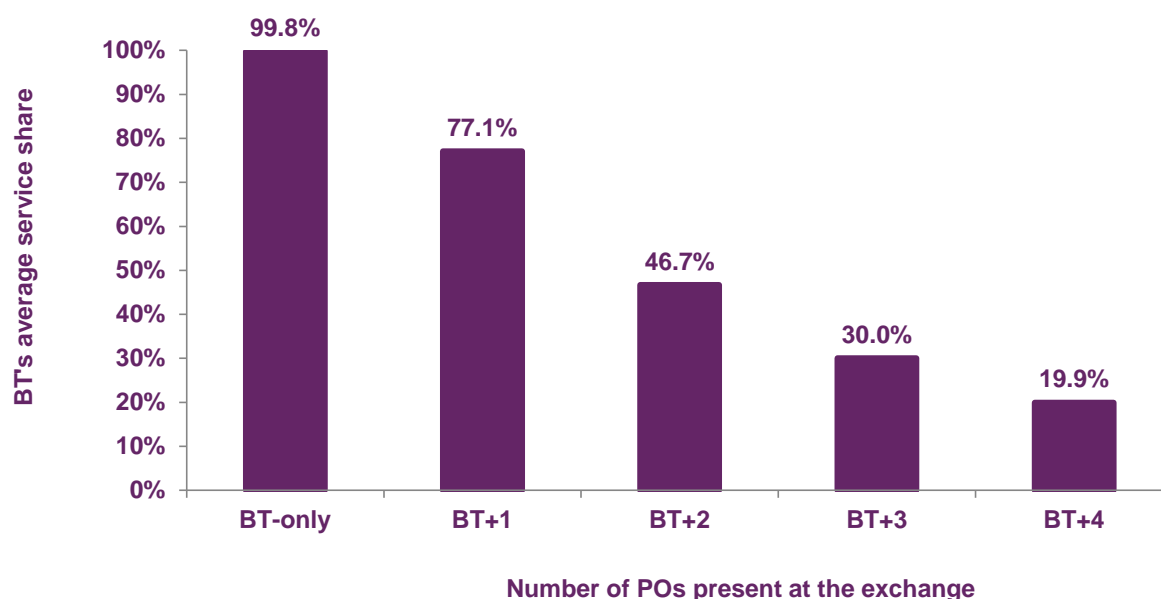
Source: Ofcom calculation from data provided by Openreach and Virgin.²⁷⁰

4.119 As in the 2010 WBA Statement we consider that the number of POs present in an exchange is an important indicator of competitive conditions. BT's service share varies significantly depending on the number of rival POs present, as shown in Figure 4.3.²⁷¹

²⁷⁰ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁷¹ Ibid

Figure 4.3: BT's average service share by number POs present at the exchange (September 2013)



Source: Ofcom calculation from data provided by Openreach and Virgin.²⁷²

4.120 In the remainder of this section we consider whether, based on the homogeneity of competitive conditions, we can group exchanges with different numbers of POs together and whether we need to distinguish between exchanges with the same number of POs, as we did in our 2010 review for BT+2 exchanges.

Exchanges where BT+3 or more POs are present

4.121 In the 2010 WBA Statement we concluded that competitive conditions in exchanges in which there were BT plus three or more POs were sufficiently homogenous to be grouped together for the purpose of our assessment of competitive conditions. This reflected the view that the incremental impact on competitive conditions from an increase in the number of POs beyond four is likely to be modest.

4.122 We have found no reason to change this view and no respondent to the 2013 WBA Consultation suggested we should do so. As Figure 4.4 shows, where BT faces three or more competitors, its service share is at or below 30% on average.²⁷³

Exchanges where BT+2 POs are present

Background

4.123 In the 2010 WBA Statement we divided BT+2 exchanges into two groups: those where BT's service share was less than 50%, which were included in Market 3 (along with exchanges in which there were BT+3 or more POs); and those where BT's service share was 50% or more, which we included in Market 2 (along with BT+1 exchanges).

²⁷² Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁷³ Ibid

Consultation proposals

- 4.124 In the 2013 WBA Consultation we presented analysis we had carried out on how BT's share falls over time following LLU entry. This analysis suggested that the conditions of competition in all BT+2 exchanges are similar to each other, as well as similar to exchanges where there are four or more POs present. This was based on the observation that, BT's exchange level share is influenced by both the number of PO competitors in the exchange, and the duration for which the POs have been present.
- 4.125 We observed that, when entry was more recent, BT's exchange share falls progressively and significantly over time (as a result of on-going end-user churn), and in BT+2 exchanges, after five years, falls to levels indicative of competitive conditions sufficiently similar to BT+3 or more PO exchanges.
- 4.126 We reconsider that analysis in this section using updated (September 2013) data, however note that this does not change the conclusions drawn from the analysis.

Consultation responses

- 4.127 No respondent to the 2013 WBA Consultation raised any concerns with this analysis, or the conclusions we drew from it.²⁷⁴

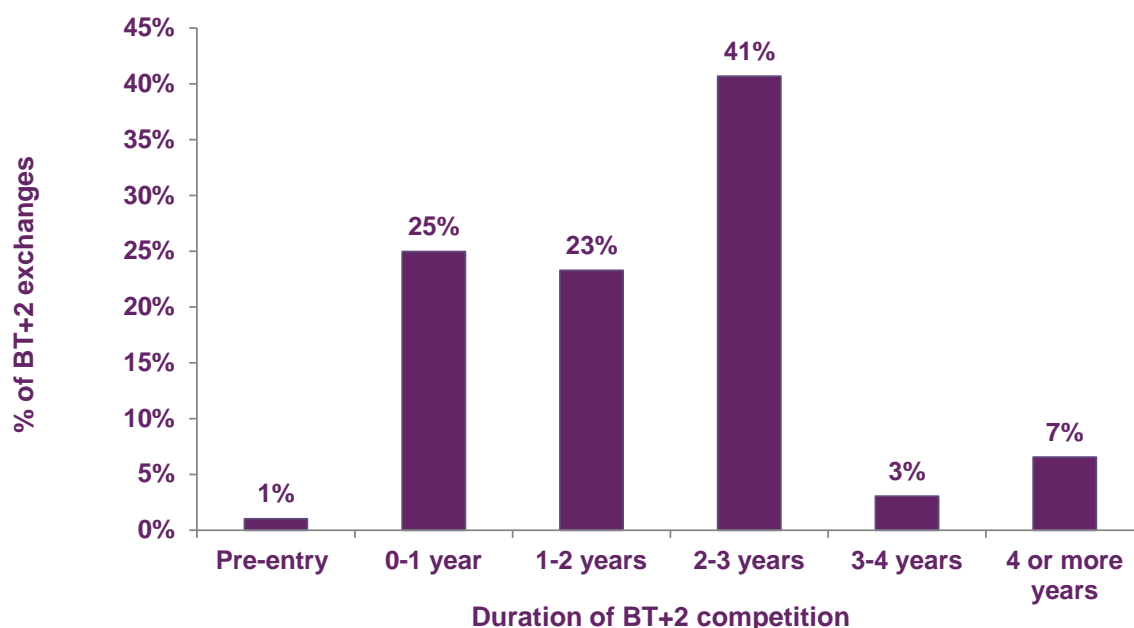
Our analysis and conclusions

- 4.128 As shown in Figure 4.3 BT's average service share in BT+2 exchanges is 46.7%, a level that may be consistent with SMP. However, our analysis suggests this service share overstates BT's competitive strength in these exchanges because in a number of BT+2 exchanges, entry has only been very recent and, in the case of future committed entry, has yet to have taken place. This is shown in Figure 4.4, which gives the distribution of BT+2 exchanges according to the length of time that the exchange has existed as a BT+2 exchange²⁷⁵ ("pre-entry" refers to exchanges with currently two POs in which a third PO has committed to enter, but is not yet active). In 90% of BT+2 exchanges, the two PO competitors to BT have been present for three years or less, including 25% of exchanges where entry has occurred only in the last year.

²⁷⁴ We did not include any of this analysis in the 2014 WBA Consultation.

²⁷⁵ A BT+2 exchange that has existed for two years, means the third PO (second PO entrant) in the exchange, entered two years ago, and that there has been no further PO entry since then.

Figure 4.4: BT+2 exchanges, broken down by number of years after entry of third PO (September 2013)



Source: Ofcom calculation from data provided by Openreach and Virgin.²⁷⁶

4.129 As explained in paragraph 4.115, service shares include the migration of WBA customers onto an entrant's own network. However, Figure 4.4 is likely to understate the longer term impact of the PO entrant(s) on BT's share. This is because "on-net" offers based on a PO's own LLU network are typically more attractive and more heavily marketed than "off-net" offers where it supplies customers using WBA. Moreover, the full impact of LLU entry on BT's share may take time to be realised, in part because many BT consumers are locked in to contracts of 12 or 18 months. As a result, we would expect to see a progressive reduction in BT's service share over a period of time following LLU entry, as more BT customers reach the end of their existing contract, and thereby have the option to switch to the entrant's network, as opposed to renewing with BT.²⁷⁷

4.130 This is indicated in Figure 4.5 which shows how service shares in BT+2 exchanges vary according to the length of time that there have been two rival (entrant) POs present. It shows that in exchanges where a second PO rival (to BT) has planned to enter, but has not yet entered, BT's service share is 79%. This represents the effect of the share captured by the single established PO entrant competitor, and our adjustment for migration, which assigns WBA customers of the new (third PO) entrant to that PO rather than BT. Once both PO entrants have been active for four or more years,²⁷⁸ BT's service share falls to 35%.²⁷⁹

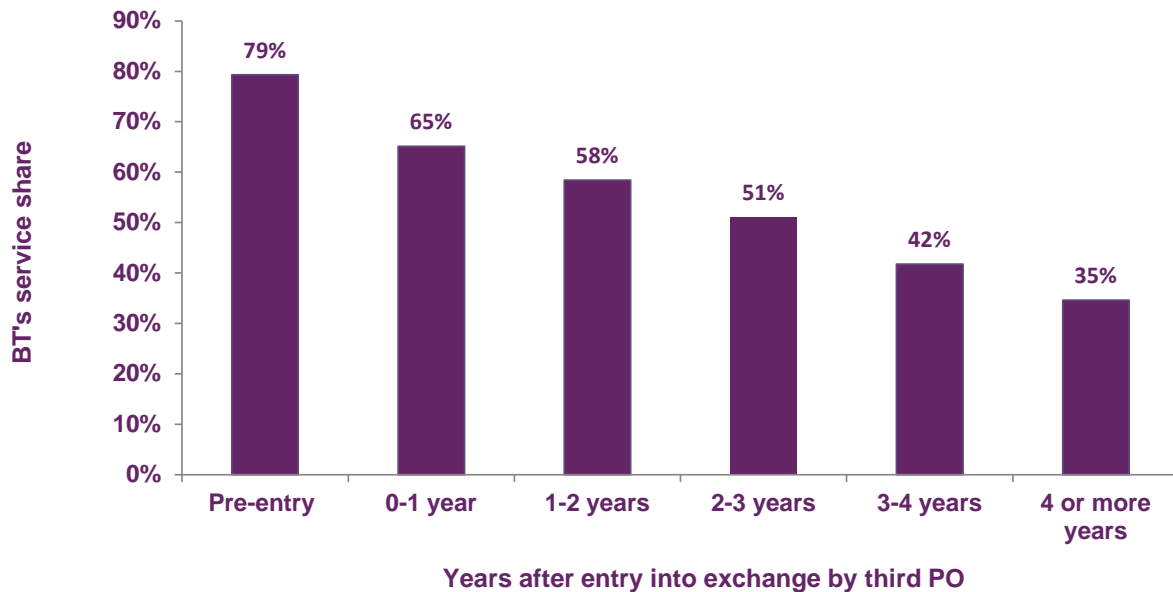
²⁷⁶ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁷⁷ An additional factor delaying switching is the dissemination of information that a new CP is available. Some customers may reach the end of their BT contract, and not be aware that a new operator has unbundled the exchange, and may therefore renew with BT due to a lack of knowledge about alternative providers.

²⁷⁸ This analysis considers only those BT+2 exchanges that have prevailed, and does not include exchanges that saw further entry. It therefore isolates only the time factor.

²⁷⁹ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Figure 4.5: BT's average service share in BT+2 exchanges, by number of years three POs have been active (September 2013)



Source: Ofcom calculation from data provided by Openreach and Virgin.²⁸⁰

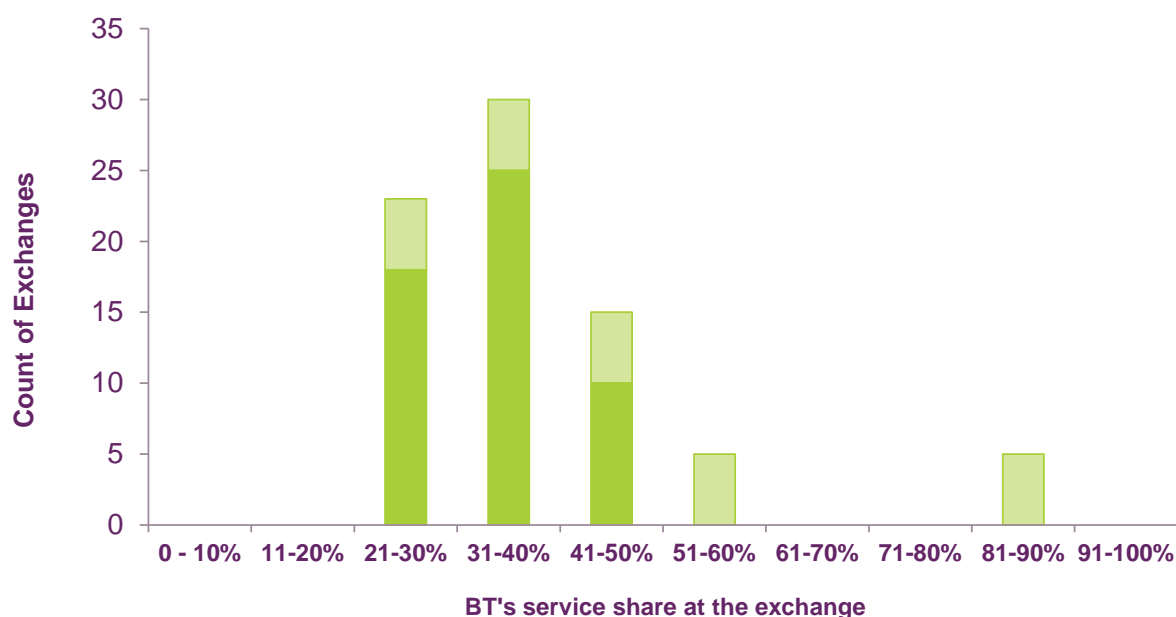
4.131 In order to understand the variance around the average service share figures shown in Figure 4.5, we considered the distribution of BT's service share in BT+2 exchange areas where competition is mature, i.e. where both PO competitors to BT have been present for four or more years; this is shown in Figure 4.6. It shows that in [∞] [over 95%] of all such exchanges, BT's service share is below 50%.²⁸¹ There is one notable outlier exchange in the 81-90% bracket. We understand that this exchange was closed and BT re-located the Main Distribution Frame (MDF) to another exchange building. Whilst BT maintains separate exchange records for these two MDFs, LLU operators can access both MDFs from a single LLU deployment.²⁸² This exchange is therefore atypical, and does not undermine the analysis.

²⁸⁰ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁸¹ Annex 6 shows the distribution of BT's service shares in BT+2 exchanges where the third PO has been present for less than four years. In all cases the distributions of BT's service shares are clustered around the average for that set of exchanges.

²⁸² We note that the other MDF served in this exchange building is a BT+3 exchange, which indicates that additional POs could enter this exchange.

Figure 4.6: BT+2 exchanges where the third PO has been present for four or more years, broken down by BT's service share (September 2013)



Source: Ofcom calculation from data provided by Openreach and Virgin.²⁸³

4.132 This evidence suggests that competitive conditions in all BT+2 exchanges can be regarded as being sufficiently similar to BT+3 or more PO exchanges. The entrant POs in BT+2 exchanges are large, vertically integrated companies, with highly developed sales networks, and are likely to impose a significant competitive constraint on BT. This is evidenced by their success in winning share from BT in the years following their entry. Indeed, BT's service share in BT+2 exchange areas eventually falls to levels below those usually associated with SMP. Even where entry into an exchange is recent and competitors have yet to win share from BT, the evidence from BT's service share evolution indicates BT+2 exchanges should be classified with the BT+3 or more PO exchanges. The two entrant POs in BT+2 exchanges exert a significant competitive constraint on BT from the time of entry, prompting a steady loss in BT's service share over time.

4.133 We therefore conclude that all BT+2 exchanges and BT+3 or more PO exchanges are in the same relevant geographic market due to sufficiently similar competitive conditions.

Exchanges where only BT or BT plus one other PO are present

Consultation proposals

4.134 In the 2013 WBA Consultation we proposed that it is no longer necessary to distinguish between BT-only and BT+1 exchanges. Our conclusion was based on our assessment of service shares over time and the likelihood of further LLU entry (we present this analysis, using updated data, below).

²⁸³ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

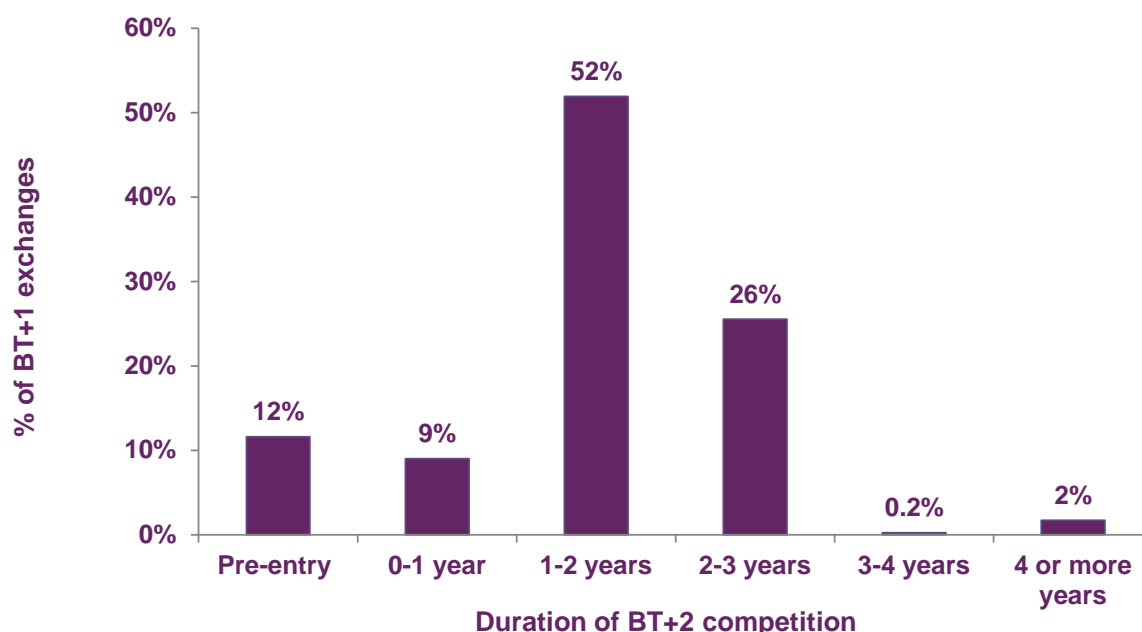
Consultation responses

- 4.135 In its 2013 WBA Consultation response, TalkTalk stated that BT+1 exchanges are not sufficiently similar to BT-only exchanges to warrant them being in the same market although it did not provide any evidence in support of this claim. TalkTalk did however indicate that it considered BT+1 exchanges to be more similar to BT-only than BT+2 exchanges and therefore if there are only two markets (excluding the Hull Area) it is appropriate to include them with BT-only exchanges.
- 4.136 EE in its 2013 WBA Consultation response raised concerns that our focus on levels of competition in BT+1 exchanges after only two years was inconsistent with our approach for BT+2 exchanges. EE stated that Ofcom should continue (as in 2010) to distinguish between BT-only and BT+1 exchanges since, given the short period of time in which there has been a second PO in the majority of BT+1 exchanges, it is too early to conclude that there are any material barriers to competitive service share expansion in these exchanges.
- 4.137 EE also said that given our definition of POs, our comments about POs in BT+2 exchanges being large vertically integrated companies with highly developed sales networks representing a significant competitive force, are equally valid in relation to BT+1 exchanges.
- 4.138 EE also stated in its 2013 WBA Consultation response that the size of Market A exchanges and the coverage of the exchange footprint are highly relevant to the question of the likelihood of further entry. In this regard, EE proposed that all BT+1 exchanges serving 3,000 or more premises should be considered as having sufficiently similar competitive conditions as exchanges with BT+2 or more POs.

Our analysis and conclusions

- 4.139 Although there is a difference in average service shares between BT-only and BT+1 exchanges (see Figure 4.3), in both cases they are significantly in excess of 50%. In BT-only exchanges, BT's service share is on average almost 100% due to the lack of any PO competition (its share is not always 100% since other CPs that have not been defined as a PO may be present). In BT+1 exchanges, BT's average service share is 77.1%. However, as with BT+2 exchanges, this is likely to fall over time as the PO entrant (who in many cases entered only in the past few years) captures market share from BT. This can be seen in Figure 4.7, which shows that the majority of entry has occurred within the last two years, and in 12% of exchanges, entry has not yet taken place (i.e. it is forecast, not actual, entry).

Figure 4.7: Exchanges with BT+1 PO, broken down by number of years after entry of the second PO, September 2013

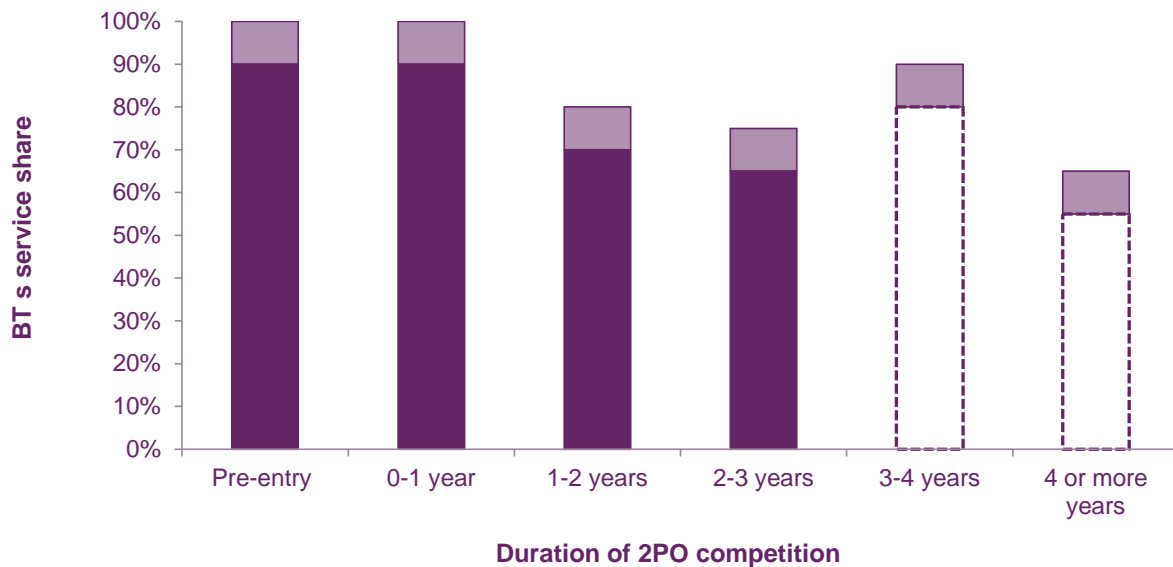


Source: Ofcom calculation from data provided by Openreach and Virgin.²⁸⁴

- 4.140 Figure 4.8 shows how BT's service share in BT+1 exchanges varies according to the length of time that the PO entrant has been present. We highlight that due to the very small number of data points for BT+1 exchanges that have prevailed for more than three years (less than 10 in each instance), we cannot give significant weight to them in our analysis. This is in contrast to the other years of data where we have significantly more data points (i.e. over 100 data points for 2-3 years, over 200 data points for 1-2 years).
- 4.141 Where entry is forecast but has not yet occurred, BT's service share, adjusted for migrated WBA connections, is [X] [90-100%]. BT's service share then falls as the new entrant becomes more established and after two to three years, it is [X] [65-75%] on average, which is considerably higher than in BT+2 exchanges (that have prevailed for two to three years) [X] [45-55%]. This suggests competitive conditions in BT+1 exchanges are appreciably different to BT+2 exchanges.

²⁸⁴ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Figure 4.8: BT's service share in BT+1 exchanges, broken down by number of years the second PO has been active, September 2013



Source: Ofcom calculation from data provided by Openreach and Virgin.²⁸⁵

- 4.142 Given the small number of BT+1 exchanges where competition has been established for more than three years, it is not possible to draw precise conclusions about these, and while it is possible that BT's share will continue to fall, we cannot conclude on the likely eventual level of BT's share. We note that, in Figure 4.8 BT's average service share, 3-4 years after entry of the PO competitor is higher than in those exchanges with 2-3 years of competition. However, this estimate, and the estimate for 4 or more years, is based on less than 10 data points and is therefore not reliable.
- 4.143 BT's high service share, which prevails even two to three years after entry of the second PO, suggests that it is not appropriate to distinguish between BT-only and BT+1 exchanges solely on the basis of current levels of competition. Whilst we recognise that there is some competition from the additional PO in BT+1 exchanges and no material competition in BT-only areas, in both cases BT's service shares are consistent with an SMP finding.
- 4.144 We have considered the impact of including fibre circuits on BT's service share. As discussed in paragraphs 4.163 to 4.164, it is likely that some of these areas will be affected by fibre roll-out, particularly under the BDUK scheme. However, BT currently has a high share of fibre in areas where Virgin is not present (around 79%, see paragraph 4.187), which is the case for the majority of BT-only and BT+1 exchange areas. Therefore accounting for fibre in these areas, at this time, would likely increase BT's service share. As discussed in paragraphs 4.186 to 4.187, we do not yet know what the long term impact of fibre competition on BT's market share will be.
- 4.145 In 2010, we differentiated between BT-only and BT+1 exchanges on the basis of future investment. We considered that Market 2 areas (which included BT+1 exchanges) not only already had some wholesale competition, but also that there was the potential for this to develop further through further LLU investment by CPs.

²⁸⁵ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Data provided by CPs on their (uncommitted) LLU unbundling plans indicates that the potential for further development of competition in BT+1 exchange areas is limited. This data indicates that, as at September 2013, uncommitted roll-out by CPs will affect only 6 of the 662 BT+1 exchanges. Moreover, to the extent that there is entry into less competitive areas, the LLU roll-out data suggests this is likely to be in BT-only areas, rather than BT+1 areas. 115 of the 2508 BT-only exchanges could see further LLU roll-out during the market review period. These cover 6.1% of premises in BT-only exchange areas. However, only one entrant is forecast to enter, so this entry is unlikely to result in a significant change in competitive conditions in these exchange areas.²⁸⁶

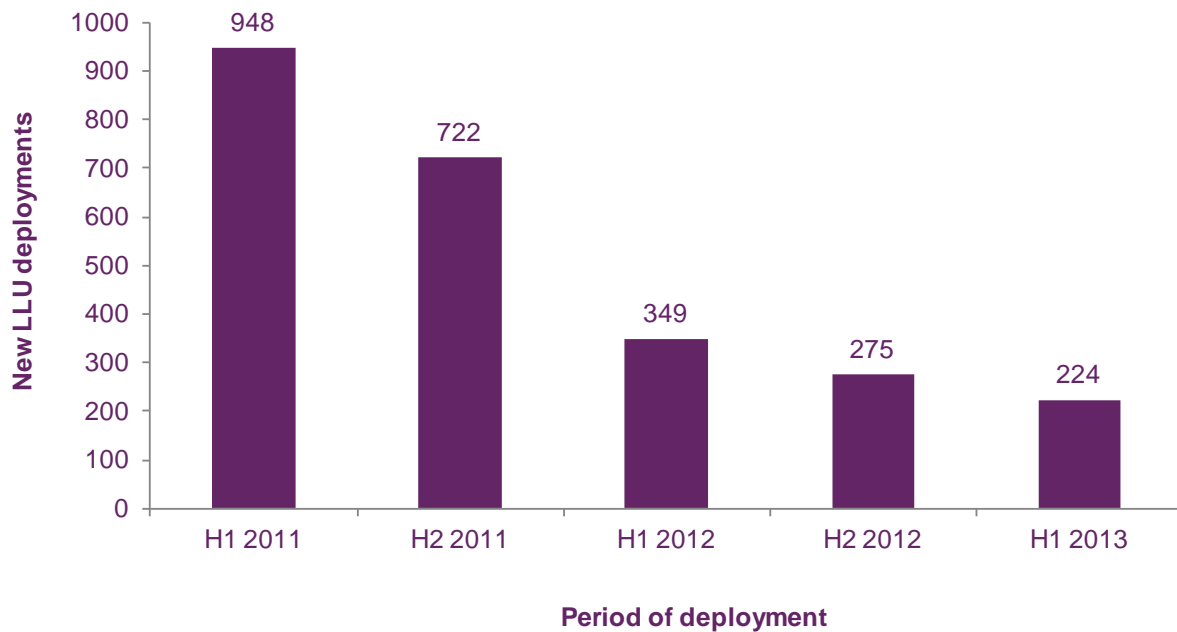
- 4.146 Statements from individual operators about their LLU roll-out plans also indicate that entry is likely to be limited in BT+1 areas, and also more widely. TalkTalk is planning some further roll-out which, if carried out, would take its coverage from 94.7% of all UK premises to 95.1%. This corresponds to unbundling 116 further exchanges, predominantly in BT-only areas. Since this additional roll-out is currently uncommitted, we have not taken it into account in our allocation of exchanges to markets.²⁸⁷
- 4.147 Virgin plans on a yearly basis to connect an additional [X] [tens of thousands of] additional homes with cable, a significant proportion of which will be in new developments.²⁸⁸ However, Virgin's plans predominantly affect areas where BT already faces more than one PO competitor.
- 4.148 More generally, since 2010, the rate of LLU roll-out has slowed considerably as remaining exchanges are increasingly smaller, less profitable and therefore less attractive to unbundle. This trend is shown in Figure 4.9, which shows the number of LLU deployments which occurred over 6-month periods, between the first half of 2011 (H1 2011) and the first half of 2013 (H1 2013). It shows that during the first half of 2011, there were 948 LLU deployments, however in the first half of 2013, only 224 LLU deployments took place.²⁸⁹

²⁸⁶ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁸⁷ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

²⁸⁸ Virgin response to s.135 notice, 21 December 2012.

²⁸⁹ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013.

Figure 4.9: Number of new PO LLU deployments, H1 2011 to H1 2013²⁹⁰

Source: Ofcom calculation from data provided by Openreach and Virgin.²⁹¹

- 4.149 We therefore believe it is no longer necessary to distinguish between BT-only and BT+1 exchanges on the basis of potential further LLU entry.
- 4.150 With regards to EE's claim that our assessment of BT+1 shares over time was not consistent with our assessment of BT+2 shares over time, we note that the methodology we used to analyse how BT's share is eroded over time in BT+1 and BT+2 exchanges is the same. As we discuss above, there are less than 10 BT+1 exchanges that have prevailed for more than three years, which we consider an insufficient basis on which to derive reliable conclusions.
- 4.151 In response to EE's point about large integrated operators in BT+1 exchanges, while we agree that the POs in the BT+1 exchanges tend to be the larger, vertically integrated operators, the relevant issue is the number of such operators required in order for the combined constraint imposed by all present POs on BT in the exchange area to be sufficiently similar to those exchanges with three or more POs present. We do not consider one PO competitor to be sufficient to make the exchange competitive. As above, BT's share remains very high in these exchanges (well above 50% even after three years).
- 4.152 EE proposed that all BT+1 exchanges serving 3,000 or more premises should be considered as having sufficiently similar competitive conditions as exchanges with BT+2 or more POs. As discussed in paragraph 4.110, we do not think it is appropriate to define markets on the basis of exchange size. This is because other factors, such as geographical location and how well the exchange maps to the operator's backhaul network²⁹² affect the current and forecast number of operators. The fact that one operator has already entered does not necessarily suggest entry by

²⁹⁰ Ibid

²⁹¹ Ibid

²⁹² For example if an exchange is right next to a backhaul link of a CP, they may be able to unbundle it with very low additional backhaul costs, if however the exchange is very isolated and many miles from the rest of the CP's network, there may be very considerable costs associated with providing backhaul from this exchange, which may make unbundling no longer commercially justifiable.

a further operator is likely for two reasons. First, the geographic location may be less convenient for that operator. Second, there could be other relevant factors to a CPs decision to unbundle an exchange, such as how many CPs (and, potentially, which other CPs) have already unbundled that exchange. For a CP, the important consideration is not just the absolute number of customers served by an exchange, but the absolute number of customers the would-be LLU entrant believes it could capture, which will be diminished if another operator has already entered, and which will not be accounted for by a simple market size criterion.

- 4.153 Furthermore, EE's suggestion to take account of market size would in any case make very little difference to our analysis as there are only 19 BT+1PO exchanges which currently serve more than 3,000 premises. These represent coverage of only 0.37% of UK premises (or 3.9% of Market A premises).²⁹³

Conclusion on the impact of copper- and cable-based competition on competitive conditions

- 4.154 The number of copper and cable based POs is a key determinant of competition. In 2010, where there were three such POs present, we distinguished between exchanges where BT had more than 50% of the wholesale market and those where it had less than 50%. We now have a better understanding of the dynamics of the market, which suggests this is no longer necessary. This is because, over time, BT's service share in BT+2 exchanges falls to levels which are sufficiently similar to exchange areas with BT+3 or more POs. As a result, it is appropriate to group all these exchanges together.
- 4.155 Based on the analysis above, we consider that the presence of a single rival PO competitor (to BT) is not sufficient to make an exchange area competitive. We therefore think it appropriate to classify these exchange areas separately from the geographic market containing exchanges with BT+2 or more POs. Moreover, given the slowdown in LLU roll-out, we do not think it necessary to distinguish between BT-only and BT+1 exchanges on the basis of future entry. Whilst we recognise that there is a difference in competitive conditions where one such PO has entered compared to "BT-only" areas, we do not consider that this alone creates sufficiently different competitive conditions to define separate markets. This is because in both areas, BT enjoys significantly high service shares at a level that is indicative of SMP.

Accounting for fibre roll-out

- 4.156 In this section we consider how we should account for the impact of fibre in our geographic market definition. We consider, in particular, whether fibre roll-out into areas with two or fewer POs providing copper or cable based services (i.e. BT-only or BT+1 exchanges) may make these areas sufficiently competitive to group them together those exchanges with BT+2 or more POs.

2013 and 2014 WBA Consultations

- 4.157 We considered how to take account of fibre in both the 2013 and 2014 WBA Consultations. We summarise our proposals in these consultations below along with the responses we received, before presenting our final assessment.

²⁹³ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

2013 WBA Consultation proposals

- 4.158 In the 2013 WBA Consultation, we noted that, based on BT's forecasts for fibre roll-out over the next two years, the vast majority of areas where fibre has been, or will be deployed commercially, are in exchange areas which were in Market 3 in the 2010 WBA Statement and so were classified as competitive.²⁹⁴ We stated that we did not believe competition is likely to have decreased in these areas, as the number of operators present in exchanges in these areas remains high. Therefore, we considered that in these exchange areas containing BT+2 or more POs, the roll-out of fibre is unlikely to introduce a change in the competitive conditions.
- 4.159 We noted that ongoing fibre deployments under the BDUK scheme may extend the coverage of fibre to local exchange areas where there is limited or no LLU, potentially providing an additional competitive constraint on BT. However we concluded that we were unable to account for this BDUK fibre roll-out in our analysis because, on the basis of the information available at that time, our understanding was that the exact locations where BDUK fibre would be deployed had not been determined, the timing of roll-out was uncertain and there remained uncertainty over the take-up of fibre-based services.

2013 WBA Consultation responses

- 4.160 In its response to the 2013 WBA Consultation, EE indicated that it believed we should take more account of BDUK when analysing competition in BT-only and BT+1 exchange areas. It noted that Ofcom's own estimates suggested that it was likely to have a significant impact, and it did not accept our comments that the roll-out locations for BDUK funded fibre are too uncertain for us to take into consideration. EE noted that BT currently publishes mapping of postcodes to cabinets soon to be enabled with fibre, including details of the proposed BDUK roll-out. EE also referred us to some results from a marketing survey by EE which it said provided evidence that take-up of fibre by end consumers in BT-only and BT+1 exchange areas was likely to be high. EE noted that the open access rules of the state aid funding removed any material entry barriers to competitive service provision over this infrastructure. EE therefore believed that areas likely to be covered by BDUK should be included in exchange areas containing BT+2 or more POs.
- 4.161 In response to this, we issued further information requests to BT asking for its most up-to-date information on planned and existing fibre roll-out in BT-only and BT+1 exchange areas, which was discussed in our 2014 Consultation.

2014 WBA Consultation proposals

- 4.162 In our 2014 WBA Consultation we considered the impact of the further information gathered on the planned and existing fibre roll-out in BT-only and BT+1 exchange areas. This included detailed information on the locations of existing fibre enabled cabinets and the premises they serve, the timing and location of future fibre roll-out, and the exchange to which these cabinets are connected. This information also showed which fibre was BDUK funded and which was commercially funded. In addition we obtained (at an exchange level) the number of premises currently using fibre in BT-only and BT+1 exchange areas for each CP.
- 4.163 The information provided by BT showed that 250 BT-only and BT+1 exchange areas already have at least one fibre-enabled cabinet. The majority (234) of these are

²⁹⁴ 2013 WBA Consultation, paragraph 4.31.

served with fibre from exchange areas with BT+2 or more copper or cable POs.²⁹⁵ As at October 2013, the fibre-enabled cabinets in BT-only and BT+1 exchange areas together served 453,000 premises, representing 16% of all premises in BT-only and BT+1 exchange areas, or 1.6% of all UK premises. At this time [X] premises in BT-only and BT+1 exchange areas used VULA-based fibre services, which represents a take-up of [X] [10-15%]. Of this take-up of VULA-based fibre connections in BT-only and BT+1 exchange areas, BT accounted for [X] [85-95%].²⁹⁶

- 4.164 The information provided by BT also showed that fibre connected to exchange areas containing BT+2 or more POs is likely to reach over half (between 50% and 70%) of BT-only and BT+1 exchange area premises by 2017. BT's forecasts indicate that much of this roll-out will take place in the first year of the review period.²⁹⁷
- 4.165 We acknowledged in the 2014 WBA Consultation that this information provided considerably more certainty over the timing and location of the fibre deployment affecting BT-only and BT+1 exchange areas. However, we stated that there was still uncertainty about the competitive constraint provided by fibre. We explained that a key reason for this uncertainty is that fibre roll-out is relatively recent in the UK and very limited in BT-only and BT+1 exchange areas. There is therefore limited data on: (a) the take-up of fibre by end-users; (b) if and when CPs will deploy fibre in small BT-only and BT+1 exchange areas; and (c) the impact of fibre on competition in BT-only and BT+1 exchange areas. In contrast, we have several years' data on LLU roll-out.²⁹⁸
- 4.166 We considered the marketing survey data provided by EE in response to the 2013 Consultation on the potential take-up of fibre in BT-only and BT+1 exchange areas but remained of the view that information on potential take-up did not provide sufficient certainty about actual take-up by consumers for us to take it into account in determining which exchanges areas to deregulate.
- 4.167 We noted also that for state-funded (BDUK) fibre roll-out, which constitutes the majority of BT-only and BT+1 exchange area fibre roll-out, the uncertainty regarding the competitive constraint is compounded by the fact that we do not have clarity as to the pricing terms of all the BDUK contracts between the relevant local authorities and BT.²⁹⁹
- 4.168 We also presented our position that, in this particular case, we are more concerned about the risks of under-regulation than over-regulation. This is because the large majority of fibre deployment in BT-only and BT+1 exchange areas will be state-funded, and there is limited further LLU roll-out expected in these areas, so regulation will have little, if any, effect on incentives to invest in these areas. As a result, there is a much lower risk that regulation across all BT-only and BT+1 exchange areas will harm consumers by deterring investment. On the other hand, if we do not impose regulation on BT in any of the fibre-enabled BT-only and BT+1 exchange areas, consumers may be harmed by higher prices if the fibre available in those areas does not prove to be an effective constraint.

²⁹⁵ Ofcom calculations based on BT response to question 1 and question 2 of s.135 notice, 18 November 2013.

²⁹⁶ We note that Virgin only has very small coverage in BT-only and BT+1 exchange areas and so does not impose much constraint on BT.

²⁹⁷ BT response to questions 1, 2 and 3 of s.135 notice, 9 October 2013.

²⁹⁸ 2014 WBA Consultation, paragraph 3.18.

²⁹⁹ 2014 WBA Consultation, paragraph 3.25.

- 4.169 We concluded that since there still remains uncertainty about the competitive constraint provided by fibre, we would not take fibre into account when allocating exchanges to geographic markets.

Consultation responses

- 4.170 In its response to the 2014 WBA Consultation, EE stated that it disagreed with our conclusion. It argued that fibre take-up by both CPs and end-users, as well as the pricing terms for BDUK-funded broadband, were less uncertain than we had indicated. EE stated that, to the extent Ofcom considers it necessary to further validate EE's marketing survey with a broader consumer survey, the onus was on Ofcom to do this.
- 4.171 It suggested that we should use a coverage threshold, similar to the one used for Virgin to classify exchanges with existing fibre with BT+2 or more copper or cable based POs.

Our assessment

- 4.172 We remain of the view that, even with fibre roll-out, BT+2 or more PO exchanges remain competitive. The number of operators in these areas remains high. When fibre is included, BT's market share increases a little, as it tends to have a higher proportion of fibre sales than copper sales. However, the effect is not significant. According to our estimates, across all exchanges where BT faces two or more POs (i.e. BT+2, BT+3 and BT+4 exchanges), BT's service share as a result of including BT Openreach provisioned fibre connections would increase to around 33%³⁰⁰ on average, and would therefore still remain appreciably below 40% on average.³⁰¹ Moreover, we remain of the view that it is not appropriate to classify BT-only and BT+1 exchange areas as competitive by taking fibre roll-out into account when allocating exchanges to geographic markets, particularly given the balance of risks in this case.
- 4.173 The information provided by BT following our 2013 Consultation does reduce the uncertainty over the timing and location of BT's fibre roll-out in BT-only and BT+1 exchange areas. Indeed, the data shows that, in some areas, roll-out has already taken place. We note, however, there still remains some uncertainty over the timing and location of BT's planned future roll-out. BT has stated that operational issues may result in the activation of around [X] of cabinets being subject to [X] delays to the plan, although BT stressed that this was not a maximum possible delay but the results of internal planning assumptions. BT also stated that up to [X] of planned roll-outs could 'drop-out' due to issues such as blockages, and planning permission.³⁰²
- 4.174 Moreover, even for the existing fibre roll-out, we believe that given the short period of time that fibre-based broadband services have been available (both nationally and in BT-only and BT+1 exchange areas exchange areas) from BT, as well as from alternative operators to BT, there is currently uncertainty in BT-only and BT+1

³⁰⁰ As of December 2013 there was around 2.4m fibre broadband connections across the UK, and 1.9m of these were BT Retail customers. BT's share of retail fibre connections across the UK is therefore around 79%. Given there are [X] [around 19m] active copper broadband connections in BT+2, BT+3 and BT+4 exchanges, but only around 2.4m active fibre broadband connections across the whole of the UK, the impact this will have on BT's share is relatively small.

³⁰¹ This calculation is computed by blending the current BT copper circuit share with the current national SFBB share for BT of 35%.

³⁰² BT response to question 1(a) of s.135 notice, 19 October 2013.

exchange areas over the extent of the competitive constraint provided by fibre. We consider this below, breaking the discussion down into:

- the take-up of fibre by end-users (i.e. copper to fibre migration);
- the launch of fibre based services by rivals to BT; and
- the impact of fibre on BT's competitive position.

Take-up by end-users

- 4.175 With regard to the take-up of fibre based services by end-users in BT-only and BT+1 exchange areas, there is little reliable data available since these services have only been available for a fairly short period. At present, fibre take-up in BT-only and BT+1 exchange areas is around [redacted] [10-15%]³⁰³ (where it is available). However, we expect this to increase over time, although we are unable to accurately quantify to what extent.
- 4.176 The marketing survey data provided by EE in its 2013 WBA Consultation response suggested that [redacted] [over 80%] of the customers it contacted in Market 1 areas wanted to upgrade to fibre, compared to [redacted] in Market 2/3 low speed WBC areas, and [redacted] in the rest of Market 2/3. It infers from this that the vast majority of BT-only and BT+1 exchange area customers would switch to fibre broadband if it were available. However, the sample size of relevant Market 1 respondents is fairly small, at around [redacted] people.³⁰⁴
- 4.177 We also note that in Market 1, EE charges the same for standard broadband and fibre-based broadband (and allows unlimited usage for this same price on fibre). It is not clear whether or not other CPs would charge the same price for copper and fibre in BT-only and BT+1 exchange areas. If they did not, fibre take-up may be lower than EE's figures suggest. Indeed, we note that [redacted]. In addition, as with many consumer surveys, there may be an element of stated preference bias, which could be uplifting the estimated conversion rate (i.e. many of the consumers who agreed to convert may not actually do so).
- 4.178 Data from other sources indicate actual copper to fibre conversion rates are much lower than EE suggests. In particular, Ofcom's Infrastructure Report states that around 8% of all broadband connections in the UK currently operate at less than 2Mbit/s, but the majority (63%) of consumers with these services have SFBB available.³⁰⁵ This indicates that many consumers that currently have sub-2Mbit/s broadband also have fibre available, but have not made the switch. While there may be a number of reasons for why these consumers have not taken up fibre (for example, they may not have renewed their contracts recently, or may not know that fibre is available in their area), this data still suggests that switching to fibre may be significantly lower than suggested by the information presented by EE.
- 4.179 We note that, at a national level, take-up of fibre-based broadband services by consumers is fairly low compared to availability. For example, in Q2 2013, 16% of UK premises had SFBB and nearly three quarters of premises were covered by NGA at

³⁰³ BT response to questions 1, 2 and 3 of s.135 notice, 9 October 2013.

³⁰⁴ From EE e-mail, (from [redacted]) 17 September 2013.

³⁰⁵ Ofcom, Infrastructure Report, page 22, 2013 Update. October 2013:
http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/infrastructure-report/IRU_2013.pdf.

that time,³⁰⁶ suggesting that take-up in areas with availability stood at approximately 22%.³⁰⁷

- 4.180 We do expect SFBB take-up to rise, both nationally and in BT-only and BT+1 exchange areas, in particular as consumers' existing contracts expire, giving them the opportunity to upgrade. Moreover, we note that, given that copper broadband speeds are often lower in BT-only and BT+1 exchange areas (for example because premises are located further from the exchange),³⁰⁸ we would expect NGA to be more attractive in these areas.³⁰⁹ In our charge control, bearing in mind cable is not available to any great extent in BT-only and BT+1 exchange areas, our central estimate is that 35% of retail customers in BT-only and BT+1 exchange areas with access to BDUK-funded fibre will take fibre by April 2017. However, we acknowledge that there is uncertainty around this, with our high end estimate being 45% and our low end estimate being 20%.
- 4.181 EE suggested we undertake our own survey to better understand the likely take up of fibre in these areas. However, such a survey is unlikely to affect our analysis, particularly given the uncertainty about the development of competition, as highlighted below.

Take-up by CPs

- 4.182 In its 2014 WBA Consultation response, EE said there is little uncertainty as to if and when CPs will deploy fibre in BT-only and BT+1 exchange areas, given that the large majority of fibre roll-out to cabinets in BT-only and BT+1 exchange areas will be served from exchange areas containing BT+2 or more POs, where Sky, TalkTalk and potentially other CPs are already present. EE said that to the extent there is any uncertainty, this can be resolved through information requests to CPs.
- 4.183 The data provided by BT does reduce, to a degree, the uncertainty over the likely uptake of that fibre by other CPs, as we know that the large majority of fibre roll-out to cabinets in BT-only and BT+1 exchange areas is served from exchange areas containing BT+2 or more POs, where Sky and TalkTalk (and potentially other CPs) already provide copper-based services, and in [X] [70-90%] of cases have already enabled fibre. Moreover, in the remaining [X] [10-30%] of exchanges, it is likely they will enable fibre also. Data from BT suggests that, nationally, in the vast majority those exchanges which BT enabled with fibre in 2010 and 2011, Sky and TalkTalk already offer fibre-based services, based on VULA. In exchanges which BT enabled more recently in the last 12-24 months, the figure is lower but nevertheless either Sky or TalkTalk already use fibre in at least (60-70%) of these exchanges.³¹⁰
- 4.184 This suggests it is likely that CPs will enable the vast majority of the fibre connected to BT-only and BT+1 exchange areas within the review period.

³⁰⁶ Ofcom, *Infrastructure Report: 2013*, Figure 9, p. 23.

³⁰⁷ The latest available data for Q4 2013 suggests that around 25% of fixed broadband connections are now superfast. See: http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/november2013/Fixed_bb_speeds_Nov_2013.pdf.

³⁰⁸ However, we also note that the higher speeds offered on fibre are dependent on the customer being close to the cabinet, and in rural areas there may be greater variance in the distance between the cabinet and the customer's premise than in urban areas. As such, some customers in BT-only and BT+1 exchange areas may not benefit to the same extent from fibre.

³⁰⁹ EE also suggest take-up in Market A will be higher than elsewhere because people in these isolated areas will place a higher priority on remote access for social and business functions, and because CPs off-net prices may be higher than their on-net prices.

³¹⁰ Ofcom calculations based on BT response to question 1 of s.135 notice, 20 March 2014.

Impact on competition

- 4.185 We note that, even if CPs were to use fibre to serve BT-only and BT+1 exchange areas, there remains uncertainty as to the impact of this on competition in these areas.
- 4.186 The impact of fibre competition on BT's share of fibre connections in BT-only and BT+1 exchange areas is still unclear. There is an important distinction between our ability to assess competitive conditions in copper-based broadband services and fibre-based broadband services. In contrast to fibre, we have many years of data to assess the impact of LLU roll-out, which allows us to observe the impact on BT's share in exchanges for a number of years after competition was first established.
- 4.187 We observe that, after four or more years of BT facing competition from two POs in an exchange, BT's share of copper connections falls below 40%, which is a level below that generally associated with SMP (see paragraphs 4.128 to 4.133). In contrast, competition in fibre-based services has existed for a short time and as such we cannot conduct comparable analysis. In December 2013, Sky and TalkTalk had made only very minor inroads into fibre, with BT supplying 79% of all retail fibre broadband connections provided over VULA.³¹¹ Although we would expect that, over time, BT's fibre share will fall as a result of further churn to operators such as Sky and TalkTalk, at this stage we do not yet know the extent or speed with which this will happen.
- 4.188 Moreover, we believe there exists a risk that BT will charge higher prices for access to BDUK fibre and commercial fibre serving exchanges with limited LLU or cable competition meaning fibre is a less effective competitive constraint on copper in BT-only and BT+1 exchange areas.
- 4.189 Considering first the commercially-funded fibre, we note that VULA is regulated on the basis of a margin squeeze condition. In exchange areas containing BT+2 or more POs, competitive copper and cable prices constrain retail prices for fibre and, given the margin squeeze condition, this will then feed through to a constraint on VULA prices. However, in BT-only and BT+1 exchange areas, in the absence of WBA regulation, we cannot rely on competition from copper and cable services to constrain BT's retail copper price or its retail fibre prices. It is therefore possible that BT could increase the retail fibre price in BT-only and BT+1 exchange areas, as well as the VULA price in BT-only and BT+1 exchange areas, while still complying with the margin squeeze condition. Competitors paying this higher VULA price are also likely to have to charge higher retail prices for fibre in BT-only and BT+1 exchange areas in order to cover their costs.
- 4.190 In response to the 2014 WBA Consultation, EE stated that this was unlikely because BT has historically always set a uniform national retail price throughout the UK for copper and fibre. Additionally, since the large majority of fibre cabinets in BT-only and BT+1 exchange areas are served from exchange areas containing BT+2 or more POs, which can be assumed to be competitive, the VULA price will anyway be constrained. EE stated that it is highly unlikely that BT would set VULA pricing at a cabinet level in order to be able to increase the fibre prices purely for BT-only and BT+1 exchange areas. It says that unless and until Ofcom is provided with tangible

³¹¹ All figures from BT's Q3 2013-14 results, <http://www.btplc.com/News/ResultsPDF/q314-release.pdf>.

evidence that BT plans to introduce differentiated retail or wholesale FTTC pricing, the mere theoretical possibility should be discounted.

- 4.191 We disagree with EE's position. We note that there is no guarantee that BT will continue pricing at a uniform level (indeed, it doesn't currently do so for its business or Plus.net products). Moreover, if BT did decide to differentiate its retail pricing, it may also differentiate its wholesale pricing. Raising VULA prices in BT+2 or more PO exchanges (which suggest raising retail prices in these areas to comply with the margin squeeze condition) means that retail fibre offerings become uncompetitive relative to copper for serving premises in exchange areas containing BT+2 or more POs so BT may simply lose fibre volumes. However, if the exchange also serves premises in BT-only and BT+1 exchange areas, where competition from copper or cable is less likely, the increase in fibre retail prices may not result in such a significant loss of sales. Whether or not it chooses to raise VULA prices in exchanges serving BT-only and BT+1 areas will depend on the balance of these two effects. We also cannot rule out that BT will price VULA at a cabinet level, and simply raise prices in cabinets serving BT-only and BT+1 exchange areas. As fibre, and the VULA remedy, have only been available for a relatively short period of time, it is hard for us to be certain about any of these issues. With regard to state-funded fibre, we stated in our 2014 WBA Consultation that there existed additional uncertainty in that we do not have clarity as to the pricing terms of the BDUK contracts between the relevant local authorities and BT. In its response to this, EE highlighted a Parliamentary discussion, which it felt was sufficient to clear up any uncertainty about the pricing terms under BDUK and therefore the constraint from BDUK funded fibre.³¹² We do not consider the Parliamentary comments are relevant to the issue (as they discuss costs, not pricing), and so it remains the case that we do not have clarity as to the pricing terms of the BDUK contracts between the relevant local authorities and BT.
- 4.192 We therefore consider that there is still uncertainty over the impact of fibre take up by CPs on competition in BT-only and BT+1 exchange areas.

We are adopting a cautious approach to deregulating in this case

- 4.193 We have to make a judgment about what is a 'sufficient' level of variance in competitive conditions for the purpose of the geographic market definition assessment. Market definition is a means to an end, namely identifying SMP and imposing appropriate remedies. However, because of the uncertainty regarding the impact of fibre on competitive conditions, we cannot conduct this exercise perfectly. Whilst in general we have a bias against intervention, we consider that it is appropriate to take a cautious approach in this case to avoid the risk of premature deregulation of areas in which there is little or no competitive constraint on BT from LLU operators, and the constraint from fibre is not effective. We therefore would not be confident to deregulate parts of BT-only and BT+1 exchange areas where there is limited LLU roll-out on the grounds that fibre had been rolled out in parts of these areas, even if this fibre was connected to exchange areas containing BT+2 or more POs.

³¹² "Under the superfast broadband contracts between local authorities and the devolved Administrations and BT the supplier may only claim for eligible capital expenditure incurred in implementation of the network. DCMS is able to provide comparison data on these costs to each of the local authorities and devolved Administrations. BT has committed that the costs [under BDUK] are the same as those used for its commercially-funded network. BT also bears part of the network installation costs itself so therefore has its own commercial incentives to minimise costs." Quoted by EE in its non-confidential response to the 2014 WBA Consultation, page 5.

- 4.194 This judgment reflects the fact that the large majority (around [3<]%)³¹³ of fibre roll-out in BT-only and BT+1 exchange areas is state-funded,³¹⁴ and hence unlikely to be affected by the regulation of WBA services in these areas. There is likely to be limited further commercial investment in BT-only and BT+1 exchange areas. In these specific circumstances, we consider that the risk of regulatory failure is lower than usual, and hence we should be less concerned about over-regulation. EE stated that over the course of the next charge control period, commercial investment decisions in both fibre and copper will inevitably be affected by the regulated WBA pricing Ofcom sets in BT-only and BT+1 exchange areas. These investments will influence decisions regarding the need for any further state aid funded projects. It stated that Ofcom needs to be concerned not only with the impact on its regulations on investment plans already in train but also with any distortive impact on future investment plans over the course of the charge control period. As above, we believe future commercial investment plans are likely to be limited in these areas, irrespective of regulation. We also do not believe BDUK's plans will be affected by our regulation.
- 4.195 EE also said in its response to the 2014 WBA Consultation that we had failed to give adequate weight to the risks of inadvertently harming the interests of consumers through over-regulation. It noted that the duty under s.3(3) of the 2003 Act for Ofcom to have regard in all cases to the principles under which regulatory activities should be, inter alia, "targeted only at cases in which action is needed" is reflected in Ofcom's Regulatory Principles³¹⁵ that it will "always seek the least intrusive mechanisms to achieve its policy objectives" and said that we did not give sufficient weight to these risks and duties. EE did not explain how consumers would be harmed,³¹⁶ but referred to its response to the 2013 WBA Consultation, in which it said a charge control is likely to result in price caps that are higher than BT's unregulated market driven pricing, which would mean the balance of risks is higher if we over-regulate in BT-only and BT+1 exchange areas than if we under-regulate.
- 4.196 We note that charge controls are set at a level reflecting efficiently incurred costs in the market in question. The control establishes an upper limit on prices, and BT is not prohibited from charging below this, for example where entry imposes a constraint on its prices below the level of the charge control. We have carefully considered our statutory duties and regulatory principles and have explained why, in the particular circumstances of this market review, we consider the risks of under-regulation outweigh the risks of over-regulation and why, therefore, regulation in these exchange areas is needed.

Final conclusion on fibre

- 4.197 The information on fibre we received from BT, EE, Sky and TalkTalk has not led us to change our view that there currently exists uncertainty over the competitive impact of fibre in BT-only and BT+1 exchange areas. We therefore do not think it appropriate for the purposes of geographic market definition to group exchanges with existing or proposed fibre roll-out (but limited LLU and cable roll-out) with those exchanges with BT+2 or more POs present.

³¹³ BT response to questions 1, 2 and 3 of s.135 notice, 9 October 2013.

³¹⁴ State funding under the BDUK scheme is a gap funding scheme where the exact proportion of total costs funded with public money is yet to be finalised.

³¹⁵ <http://www.ofcom.org.uk/about/what-is-ofcom/statutory-duties-and-regulatory-principles/>

³¹⁶ Although we do recognise that [3<].

- 4.198 In exercising our judgment on market definition, which leads to our SMP and remedies findings, we are more concerned about the risks of under-regulation than over-regulation. If we do not impose regulation on BT in any of the fibre-enabled BT-only and BT+1 exchange areas, consumers may be harmed by higher prices if the fibre available in those areas does not prove to be an effective constraint. Since the large majority of fibre deployment in BT-only and BT+1 exchange areas will be state-funded, and there is limited further copper roll-out in these areas, regulation will have little, if any, effect on incentives to invest in these areas. As a result, there is a much lower risk that regulation across all BT-only and BT+1 exchange areas will harm consumers by deterring investment.
- 4.199 We expect the uncertainty over the competitive impact of fibre in our proposed BT-only and BT+1 exchange areas to diminish over time as fibre roll-out progresses, and further evidence emerges on the take up of fibre-based services by both consumers and CPs, as well as the competitive impact on BT in BT-only and BT+1 exchange areas. We will continue to monitor the roll-out of fibre by BT and the take-up of fibre services by CPs and end-users over the course of the market review period. Should sufficient evidence emerge suggesting that fibre services are providing a stronger competitive constraint on BT in market areas than we have anticipated, we would consider whether it was appropriate to re-open our consideration of this issue at that time or to bring forward the date of the next market review.

Updating the geographic market definition

- 4.200 We have updated the geographic market definitions to take into account recent developments in planned and actual LLU roll-out, based on data up to September 2013.
- 4.201 We re-ran our analysis using the most up-to-date data on the number of POs which had entered, or committed to enter, an exchange, and re-allocated exchanges accordingly.
- 4.202 EE said in its 2013 WBA Consultation response that to ensure our regulation remains proportionate throughout the market review period we should reconsider whether any exchanges should be moved from proposed Market A to Market B based on roll-out and committed roll-out as at 31 December 2014. EE said this would not require us to: (a) revise the SMP conditions in place at the start of the market review period; (b) conduct a new market review; or (c) update our proposed charge control pricing.
- 4.203 We disagree with EE's comments, and consider them impractical for the following two reasons.
- First, if market boundaries were revised within the market review period, a CP that has planned on purchasing an SMP product could be required to purchase the service on purely commercial terms. This does not give the certainty that ex ante regulation should normally provide, potentially undermining CPs' investment decisions.
 - Second, if exchanges were moved from one market to another during the course of the market review period, this would in effect amount to a revision of the market definition on which the SMP analysis and remedies were founded. The legal underpinning for those remedies would be affected, and it might be necessary to carry out a new market review to define new markets, re-conduct the SMP analysis and re-impose the SMP conditions (or impose different conditions). The reclassification of exchanges from one market to another could

not be an automatic process in between market reviews. Future developments in the market which are foreseeable at the time of market definition are taken into account in the forward looking analysis, in particular, by factoring in “committed” forecast LLU roll-out (as explained in paragraphs 4.99 to 4.115).

- 4.204 We note that this approach is consistent with the ERG Geographic Common Position, which states that:

“Once the (forward-looking) geographic segmentation has been made, it appears to be in the sense of legal certainty and practicability that it does not change until the next review, even if future developments are somewhat different than expected. If future developments are very different to those expected, there is likely to be a necessity for a new analysis anyway.”

- 4.205 For the reasons mentioned above, the automatic update of exchange allocations to markets, to take into account further entry that is not reflected in committed entry plans at the time of our assessment is not appropriate. To the extent that the rate of LLU roll-out has slowed down, the impact of any automatic updates would anyway be more limited.

Summary of our conclusions on market definition

- 4.206 In Section 3, we defined the relevant wholesale product market as:

“Asymmetric broadband access and any backhaul as necessary to allow interconnection with other communications providers, which provides an always on capability, allows both voice and data services to be used simultaneously and provides data at speeds greater than a dial-up connection. This market includes both business and residential customers.”

- 4.207 We have used local exchange areas for current generation services as the geographic unit of our analysis. We have considered how many POs operate within each geographic area, considering Virgin as present if it supplies more than 65% of the premises in that exchange. We have accounted for future entry based on POs’ committed plans (defined as reaching the third stage of the Openreach APO process).
- 4.208 The number of copper and cable based POs is a key determinant of competition. As in 2010, where there are four or more such POs present, competitive conditions are unlikely to vary significantly. In 2010, where there were three such POs present, we distinguished between exchanges where BT had more than 50% of the wholesale market and those where it had less than 50%. We now have a better understanding of the dynamics of the market, which suggests this is no longer necessary. This is because, over time, shares fall to levels which are broadly consistent across exchanges with three copper or cable POs and are sufficiently similar to those with four or more copper or cable POs to group all these exchanges together.
- 4.209 Given the slowdown in LLU roll-out, we do not think it necessary to distinguish between exchanges with just one or two copper or cable POs on the basis of future entry. Whilst we recognise that there is a difference in competitive conditions where one such PO has entered compared to “BT-only” areas, we do not consider that this alone creates sufficiently different competitive conditions to define separate markets.

This is because in both areas, BT enjoys significantly high service shares at a level that is indicative of SMP.

4.210 We have considered the impact of fibre on competition in these exchange areas. We do not believe fibre roll-out is likely to have decreased competition in exchange areas with 3 or more copper or cable competitors (including BT). We also believe it is too early to determine the impact of fibre in areas where there is less copper and cable competition. We therefore do not believe that, in this market review, fibre should alter the allocation of exchanges to geographic markets based on cable and copper-based competition.

4.211 We have concluded that the relevant geographic markets are:

- the Hull Area (0.7% of UK premises);
- Market A: exchanges where there are no more than two POs are present or forecast to be present (9.5% of UK premises); and
- Market B: exchanges where there are three or more POs are present or forecast to be present (89.8% of premises).

Section 5

Market power assessment

Summary of our decision

5.1 In this section we set out our conclusions on SMP in each of the relevant markets as identified in Sections 3 and 4 and our analysis that leads us to these conclusions. In line with our proposals in the 2013 WBA Consultation, we conclude that:

- BT holds a position of SMP in the provision of WBA services in Market A;
- no operator holds a position of SMP in the provision of WBA services in Market B; and
- KCOM holds a position of SMP in the provision of WBA services in the Hull Area.

Introduction

5.2 Market definition is not an end in itself. The purpose of defining the relevant economic markets is to allow an assessment of whether an operator has, during the review period, significant market power ('SMP') in any of those markets. SMP is the ability to act, to an appreciable extent, independently of competitors, customers and consumers.

5.3 This remainder of this section is structured as follows:

- we summarise our position in the 2013 WBA Consultation;
- we summarise the responses to the 2013 WBA Consultation;³¹⁷
- we explain our approach to market power assessment;
- we present our conclusions on SMP in Market A;
- we present our conclusions on SMP in Market B;
- we present our conclusions on SMP in the Hull Area; and
- we set out our conclusions on SMP as a whole.

Summary of the 2013 WBA Consultation

5.4 In Section 5 of the 2013 WBA Consultation we proposed that:

- BT holds a position of SMP in the provision of WBA services in Market A;
- no operator holds a position of SMP in the provision of WBA services in Market B; and
- KCOM holds a position of SMP in the provision of WBA services in the Hull Area.

³¹⁷ We did not include any further proposals regarding SMP in the 2014 WBA Consultation.

Responses to the 2013 WBA Consultation

- 5.5 BT stated that given its national market share of the WBA market has now fallen to around 40%, it is no longer appropriate to separately identify such a small area of the UK as having SMP. BT agreed that no operator has SMP in Market B.
- 5.6 BT raised concerns about the data published in the 2013 WBA Consultation on Virgin's coverage, stating that the coverage figure was too low. We address this point in Annex 6.
- 5.7 EE agreed that no operator has SMP in Market B, and, subject to its to its comments regarding the removal from Market A of certain exchanges which are, or are likely to become, effectively competitive during the market review period, that BT has SMP in Market A. EE reiterated its ongoing reservations in relation to Ofcom's conclusions on countervailing buyer power, first raised in its response to our 2012 WBA Call for Inputs.
- 5.8 [3<] agreed that BT has SMP in Market A, but disagreed with Ofcom's proposal that no operator has SMP in Market B stating that it is not aware of the proposed POs having fit for purpose wholesale products which are sufficient to guarantee competition. [3<] stated that "*BT has de facto SMP*"³¹⁸ as the only operator that does have such an offering in all Market B exchanges.³¹⁹
- 5.9 TalkTalk and Virgin agreed with Ofcom's findings that BT has SMP in Market A and that no operator has SMP in Market B.
- 5.10 KCOM agreed with Ofcom's proposal that KCOM holds SMP in the Hull Area, but stated that Ofcom needs to better understand and analyse the existing and planned network deployments by MS3 in the Hull Area, which it believes has the potential to have a significant impact on its business at the retail and wholesale level during the market review period.

Approach to market power assessment

- 5.11 The purpose of the market analysis conducted under Article 16 of the Framework Directive and section 79 of the 2003 Act is to determine whether a market is effectively competitive. Where a national regulatory authority determines that a market is not effectively competitive, it shall identify any undertakings which individually or jointly have SMP in that market and shall impose or maintain on such undertakings appropriate specific regulatory obligations.
- 5.12 Sections 45, 46 and 78 et seq. of the 2003 Act grant Ofcom the power under certain circumstances to set conditions binding CPs, namely persons who provide an electronic communications network and/or an electronic communications service. Specifically, section 46(7) states that SMP services conditions may be imposed on a particular person who is either a CP or a person who makes associated facilities available, and who has been determined to have SMP in a "services market" (i.e. a specific market for electronic communications networks, electronic communications services or associated facilities).
- 5.13 Accordingly, having identified the relevant product and geographic markets, Ofcom is required to analyse each market in order to assess whether any person or persons

³¹⁸ [3<] response to Q5.2 of 2013 WBA Consultation, page 5.

³¹⁹ We address [3<]'s claims on this point in Section 3.

have SMP as defined in section 78 of the 2003 Act (and Article 14 of the Framework Directive).

- 5.14 Section 78 of the 2003 Act provides that SMP is defined as being equivalent to the competition law concept of dominance in accordance with Article 14(2) of the Framework Directive which provides:

“An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.”

- 5.15 Further, Article 14(3) of the Framework Directive states that:

“Where an undertaking has significant market power on a specific market (the first market), it may also be designated as having significant market power on a closely related market (the second market), where the links between the two markets are such as to allow the market power held in the first market to be leveraged into the second market, thereby strengthening the market power of the undertaking”.

- 5.16 Therefore, in the relevant market, one or more undertakings may be designated as having SMP where that undertaking, or undertakings, enjoy a position of dominance. Also, an undertaking may be designated as having SMP where it could leverage its market power from a closely related market into the relevant market, thereby strengthening its market power in the relevant market.

The criteria for assessing SMP

- 5.17 In assessing whether an undertaking has SMP, we have taken due account of the SMP Guidelines³²⁰ as required by section 79 of the 2003 Act. Where relevant, we have also had regard to the application of the equivalent Oftel Guidelines³²¹ and the ERG's revised working paper on SMP³²² (“ERG Revised SMP Paper”).
- 5.18 The SMP Guidelines require NRAs to assess whether the competition in a market is effective (i.e. no operator is found individually or jointly dominant). This market analysis is undertaken through a forward looking evaluation of the market, determining whether the market is prospectively competitive, taking account of foreseeable developments.
- 5.19 Market share is an indicator of market power although the SMP Guidelines state that high market share alone is not sufficient to establish the possession of significant market power. The SMP Guidelines further state that:

³²⁰ Commission guidelines on market analysis and the assessment of significant market power (2002/C165/03) – 11 July 2002.

<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>.

³²¹ Oftel's market review guidelines: criteria for the assessment of significant market power, http://www.ofcom.org.uk/static/archive/oftel/publications/about_oftel/2002/smpg0802.htm.

³²² ERG, *Revised working paper on the SMP concept for the new regulatory framework*, September 2005, http://berec.europa.eu/doc/publications/public_hearing_concept_smp/erg_03_09rev3_smp_common_concept.pdf, September 2005.

“In the Commission's decision-making practice, single dominance concerns normally arise in the case of undertakings with market shares of over 40%, although the Commission may in some cases have concerns about dominance even with lower market shares^[...], as dominance may occur without the existence of a large market share. According to established case-law, very large market shares — in excess of 50% — are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position^[...]. An undertaking with a large market share may be presumed to have SMP, that is, to be in a dominant position, if its market share has remained stable over time^[...]. The fact that an undertaking with a significant position on the market is gradually losing market share may well indicate that the market is becoming more competitive, but it does not preclude a finding of significant market power.”³²³

- 5.20 In view of this, market shares must be assessed as part of a thorough market analysis in order to assess whether an undertaking has SMP. The SMP Guidelines list a number of non-exhaustive criteria to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers.
- 5.21 Where a market is found to be effectively competitive then no SMP conditions can be imposed. Furthermore, section 84(4) of the 2003 Act requires that any SMP condition in that market, applying to a person by reference to a market power determination made on the basis of an earlier analysis, must be revoked. On the other hand, where the market is found not effectively competitive, the NRAs must identify the undertakings with SMP in that market and then impose appropriate obligations.

Assessment of SMP against relevant criteria

- 5.22 When assessing SMP, it is appropriate to take account of the existing regulation of a service upstream of the market that is being considered. In the context of this review, this includes the regulated supply of local loop unbundling (LLU), sub-loop unbundling (SLU), physical infrastructure access (PIA) and virtual unbundled local access (VULA) in the upstream wholesale local access market, which can be used to assist entry into the relevant WBA markets defined in Section 4. The existence of this upstream regulation needs to be taken into account in order to capture fully the competitive constraints in the WBA markets.
- 5.23 The assessment of SMP in the WBA markets we have identified is based on the most appropriate available information. We have had regard to evidence that relates to the wholesale markets directly, as well as to evidence that relates to the relevant retail markets as appropriate.
- 5.24 Following the approach we adopted in the previous 2008 and 2010 WBA Statements, we have identified those criteria for the assessment of SMP contained in the Commission's Guidelines and the ERG Revised SMP Paper that are most relevant for the WBA market, those that are less relevant and those that are not relevant. As in the 2010 WBA Statement, we continue to consider that the following criteria are the most important in this review:
- market growth and market shares;

³²³ SMP Guidelines, paragraph 75 (footnotes omitted).

- future potential market shares;
- barriers to entry and expansion, including the impact on number of operators present;
- economies of scale and scope;
- excessive pricing (and profitability); and
- countervailing buyer power.

5.25 We have also taken into account the following criteria in our assessment of SMP in WBA markets:

- overall size of the undertaking;
- technological advantages or superiority;
- vertical integration; and
- price trends and pricing behaviour.

Conclusions on SMP in Market A

5.26 As explained in Section 4, Market A comprises those BT exchanges where there are no more than two POs present or forecast to be present, based on committed LLU roll-out plans, over the period of the market review.³²⁴ Based on the information provided by Openreach and each of the POs in September 2013, there are 3,196 exchanges in Market A.³²⁵ These exchanges serve 9.5% of premises in the UK including the Hull Area.

5.27 Table 5.1 below provides information on the composition of Market A in terms of the number of exchanges and number of premises allocated to Market A from each of the markets defined in the 2010 WBA Review.³²⁶ This shows that 98% of exchanges in Market A were categorised as in Market 1 in the 2010 WBA Statement, while only 2% of them were in Market 2. In terms of the number of premises, 93% of premises in Market A were in Market 1 in 2010 and 7% were in Market 2.

³²⁴ All subsequent analysis includes “committed” planned roll-outs.

³²⁵ Note this includes those 26 exchanges which do not presently have active broadband connections. See Annex 6, paragraph A6.20 for discussion.

³²⁶ There is one new exchange in Market A that is not in the previous market review. However, it is very small and does not affect the proportions calculated in Table 5.1.

Table 5.1: Composition of Market A

	Market 1	Market 2	Market 3
Number of exchanges	98%	2%	0%
% of UK premises	93%	7%	0%

Source: Ofcom calculation from data provided by Openreach and Virgin.³²⁷

- 5.28 The most significant competitive constraints in this market come from the presence of LLU operators that we have classified as POs. There is currently little cable or fibre deployment in this market and there is still significant uncertainty over the impact of fibre rollout on competition as discussed in paragraphs 4.156 to 4.199. Based on October 2013 data, there were 453,000 premises in Market A with fibre coverage, corresponding to 16% of total Market A premises, and 32% of this coverage was the result of state funded (BDUK) rollout. There are plans for fibre to cover significantly more of Market A areas, with the majority of these being provided by BDUK-funded rollout. BT have forecasted that by April 2017, as much as [3<] [70-80%] of Market A premises will be covered by fibre.³²⁸

Market shares

Calculation of market shares

- 5.29 As explained in paragraph 4.80, our calculation of market shares corresponds to the share of active broadband connections supplied by the relevant PO. Active connections include broadband connections provided via MPF and SMPF on BT's copper network (either by BT or by an LLU operator) or by Virgin using its cable network. Market shares do not include wholesale products based on fibre (GEA products) for the reasons set out in paragraph 4.81. However, we comment qualitatively on the effect that the inclusion of fibre may have.
- 5.30 As explained in paragraph 4.115, we assume that an LLU operator can migrate off-net customers onto its own network shortly after entering an exchange. We have therefore taken account in our service shares of any WBA sales by BT to a PO that is either present or forecast to be present.

Current shares

- 5.31 Table 5.2 shows shares of Market A based on September 2013 data. BT holds an 88.8% share in Market A whilst TalkTalk (the largest rival to BT in Market A) has a share of [3<] [5-15%]. The combined share of all other operators in Market A is [3<] [less than 5%].

³²⁷ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³²⁸ Ofcom calculations based on BT response to question 1 of s.135 notice, 8 October 2013.

Table 5.2: Market A shares, September 2013

Operator	Market A Shares
BT	88.8%
TalkTalk	[<] 5-15%
Other operators	[<]

Source: Ofcom calculation from data provided by Openreach and Virgin.³²⁹

- 5.32 For reasons explained in paragraph 4.81, we do not include fibre circuits in our assessment of market shares; but, given the limited Market A coverage of fibre at present,³³⁰ it is unlikely to significantly impact BT's share for all broadband circuits. We also note that in Market A, the vast majority of fibre connections are provided by BT. As of February 2014, BT provided around [<] of Market A fibre connections.³³¹
- 5.33 BT commented (in its 2013 WBA Consultation response) that its national market share has fallen below 40%, and so it is no longer appropriate to separately identify such a small area of the UK as having SMP. However, as we have defined subnational markets, we do not consider the national market share is materially relevant. Further, as explained above, where we find that a market is not effectively competitive, we are required to identify the undertakings with SMP in that market and then impose appropriate obligations. In considering the appropriate obligations, we are required to demonstrate that the obligation in question is based on the nature of the problem identified, proportionate and justified in the light of the policy objectives as set out in Article 8 of the Framework Directive. We consider these criteria in detail in Section 6.
- 5.34 Table 5.3 shows coverage of Market A premises for each PO. This table shows that the only PO other than BT to have any significant coverage of Market A is TalkTalk, which covers 44.8% of Market A premises. The coverage of all other POs is very limited in this market. This suggests that there remain significant further sunk costs that would need to be incurred by operators other than BT to provide comprehensive coverage across Market A.

³²⁹ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³³⁰ As at September 2013, around 15% of Market A premises had access to fibre-broadband services, the take-up is however appreciable below this, at around [<] of Market A.

³³¹ Ofcom calculations based on BT response to question 9 of s.135 notice, 20 March 2014

Table 5.3: Market A coverage (of premises) by PO, September 2013

Operator	Market A Coverage
BT	100%
Sky (including O2)	0-10% [332]
TalkTalk	44.8%
Virgin	0-10% [333]
Vodafone	~1%

Source: Ofcom calculation from data provided by Openreach and Virgin.^{332 333}

- 5.35 Under the Modified Greenfield Approach, we need to take into account the fact that current market shares are influenced by SMP regulation at the level of the market being considered and downstream (but not upstream). In the case of the WBA markets, the regulated availability of BT wholesale products will influence the decisions of competing operators on whether to invest in LLU.
- 5.36 Absent the regulated availability of wholesale products such as IPstream, LLU roll-out might be more attractive, with the implication that BT's market share might be lower than 88.8%. However, we consider that significant further LLU roll-out is unlikely (beyond the committed plans that we have taken into account in our market share analysis), given the small size of exchanges in Market A, and in any event, will not be appreciable enough to change our conclusions.

Future shares

- 5.37 As required by the SMP Guidelines, our competitive assessment of the markets we have identified should be based on a prospective, forward looking approach.³³⁴
- 5.38 Our methodology for calculating shares takes account of operators already present and operators forecast to be present (based on committed entry).³³⁵ Market shares for operators forecast to be present are based on their existing WBA customers, which can be migrated onto their own network. Although we have not included any other factors into our calculations for shares, we have considered qualitatively how alternative factors might influence shares in Market A across the market review period (April 2014 to March 2017).
- 5.39 We identified two additional factors which could impact shares during the review period. First, further market share increase (beyond WBA migration) by operators that are either already present or forecast to be present (based on committed entry).

³³² O2 was also a PO in December 2012, but has since been purchased by Sky. Since this analysis of BT's SMP is forward looking, we have combined data from O2 and Sky.

³³³ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³³⁴ SMP Guidelines, paragraphs 20, 27, 35 and 80.

³³⁵ See paragraphs 4.99 to 4.115 for the definition of "committed" entry.

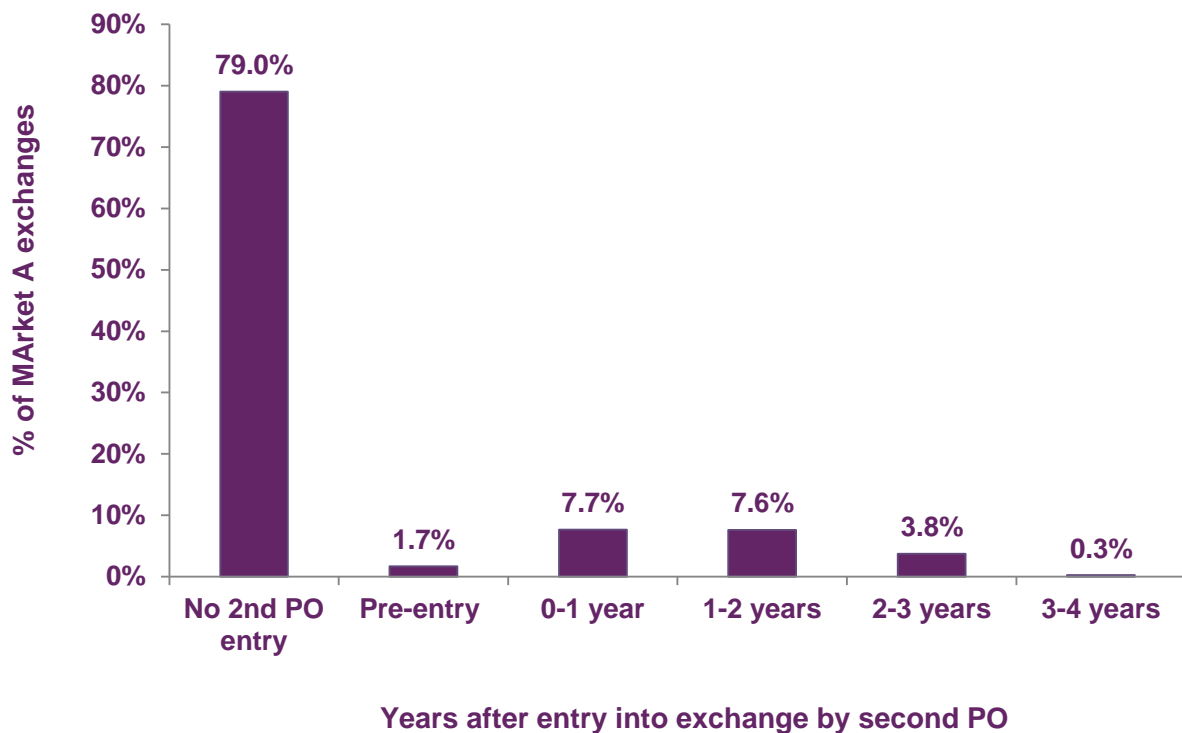
This was discussed in our analysis of the geographic market (see for example, paragraphs 4.129 to 4.130). Second, further market share increase by operator entry over and above that included in our analysis (i.e. potential entry we would categorise as 'uncommitted'). These are both discussed below in turn.

- 5.40 As shown in Figure 5.1 below, in the vast majority 79%³³⁶ of Market A exchanges, there has been no LLU PO entry and no such committed entry is forecast. In these exchanges (where BT is the only PO present), BT has a very significant share of all active circuits 99.8%.³³⁷
- 5.41 In most of the Market A exchanges that have seen (or are soon likely to see) entry from a PO in addition to BT, most have only witnessed entry in the last one or two years.³³⁸ In exchanges where entry is only recent it is likely that the process of customer churn onto the entrant PO's network is ongoing, and therefore BT's share in Market A exchanges can be expected to fall (to some extent) during the market review period. However, we anticipate BT's share in these exchanges to remain appreciably above 50% (see paragraphs 4.139 to 4.143 for analysis). Moreover, these exchanges form only a small proportion of Market A.
- 5.42 While fibre roll-out is likely to have an impact on BT's market share, at this time it is too early to assess the likely future evolution of fibre shares, since we only have 12-18 months of historical fibre share data (see paragraph 4.81).

³³⁶ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³³⁷ We note that BT's exchange level share in 'BT-only' exchanges can be less than 100% since 'BT-only' refers to exchanges in which BT is the only PO present; however, there may be other competitors to BT present that we do not classify as POs.

³³⁸ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Figure 5.1: Composition of Market A, September 2013

Source: Ofcom calculation from data provided by Openreach and Virgin.³³⁹

- 5.43 In addition to BT's share erosion in Market A as a result of existing or forecast entry, BT's Market A share would be eroded further if there were to be future entry into Market A exchanges in the period of the review over and above that included in our forecasts of committed entry. Entry is discussed in the next subsection.

Barriers to entry

Sunk costs

- 5.44 Sunk costs are costs which must be incurred in order to enter a market but which cannot be recovered on exit. Where an incumbent has already sunk significant costs by entering a market, later entrants may be deterred from following suit, in which case the incumbent may be able to exploit market power. In particular, the incumbent may set high prices without fear of encouraging entry. This is because, whatever the pre-entry price set by the incumbent, what matters for the profitability of a new entrant is the price that would arise from competition post-entry. If the expected post-entry price would be such that entrants' post-entry profits would fail to recover the sunk costs of entry and the entrant foresaw this, then entry would not take place.
- 5.45 There are two broad options available to a company wishing to compete in the WBA market. The first is to build a comprehensive local access network, which could address end-users directly. This would incur both the costs of providing individual access and the costs of the support infrastructure. We are not aware of any firm that is considering such investment in Market A.

³³⁹ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

- 5.46 The second option for those wishing to compete in the provision of WBA products is to take advantage of the upstream access remedies. For CGA, this would be LLU (MPF and SMPF) and for NGA it would be VULA, SLU and/or PIA, or any access remedies on which BDUK funding is conditional. These remedies mean that operators seeking to serve the WBA market do not have to incur the costs of building a local access network since these operators are able to purchase regulated access to BT's network on a wholesale basis and use this to provide wholesale broadband services for their own use, or for supply to third parties. However, this can still require a CP to incur, significant sunk costs, for example in relation to co-location at BT's exchanges and securing access to backhaul services.
- 5.47 In the section below we first consider the impact these sunk costs have on LLU economies of scale, scope and density, and then consider fibre (VULA) economies of scale, scope and density.

LLU entry

- 5.48 The significant sunk costs incurred through unbundling of exchanges means that LLU entry is unlikely to be profitable in exchanges where the number of customers served by the exchange is small.
- 5.49 Exchanges in Market A serve an average of [3<] [600-700] premises and [3<] [the majority] have fewer than 1000 active exchange lines.³⁴⁰ The costs associated with unbundling such as equipment costs (i.e. MSANs) have been falling, lowering the sunk costs required for LLU and therefore the barriers to LLU entry. Nevertheless, we believe there is likely to be only limited further LLU roll-out into Market A exchanges, due to the small size of exchanges in this market.
- 5.50 In its WBA 2012 CFI response, BT provided an econometric submission by Professor Gordon Hughes which analysed broadband penetration in the UK. In this report, Professor Hughes concludes that "there is little prospect of significant competition in the very small exchanges that serve less than 1,000 premises".³⁴¹ We agree that there is little prospect of significant competition in these exchanges. However, exchange size on its own is not a sufficient criterion for predicting the extent of entry. A number of other factors are relevant to an operator's decision to unbundle an exchange including geographical location and how well it maps to the operator's backhaul network.
- 5.51 We base our analysis of LLU entry on the information we received from Openreach regarding LLU orders, as part of its APO process (see paragraphs 4.99 to 4.115). As explained above, the allocation of exchanges to Market A already takes account of POs' committed roll-out plans and hence the relevant factor is whether any further entry into Market A is likely.
- 5.52 We recognise that it is possible that some POs may decide to go beyond their currently committed roll-out plans during the review period. In order to assess the likely extent of further roll-out we have considered operators' uncommitted roll-out plans as a guide to the extent of potential further roll-out in Market A.
- 5.53 Uncommitted roll-out plans suggest that whilst there may be some further roll-out into Market A exchanges, they are largely confined to (current) BT-only areas. Of the

³⁴⁰ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013.

³⁴¹ Hughes, Prof Gordon. (2013) 'Econometric modelling of broadband penetration in the UK. An updated analysis for 2008-2012'. A report prepared for BT plc.

2,507 BT-only exchanges currently defined using committed roll-out data, CPs have uncommitted plans (i.e. plans which have not yet progressed to Stage 3 of the APO process) to enter 115 (4.6%) exchanges above and beyond that which we have accounted for. These exchanges cover 7.3% of premises in currently defined Market A exchanges. Only 2 of the 659 BT+1 exchanges (covering 0.7% of premises in Market A exchange areas) have uncommitted roll-out plans.³⁴² As a result, we do not expect a significant number of Market A exchanges to have three or more POs present by the end of this review period. This is supported by information CPs provided to us in information requests about their general roll-out strategy.

- 5.54 We have also considered the general trend in the number of exchanges unbundled over time. In our geographic market analysis (see Figure 4.9) we showed that there has been a progressive decline in the amount of LLU roll-out. This trend is suggestive of operators reaching their final stages of roll-out, and indicative of there being limited further LLU roll-out.

Fibre entry

- 5.55 BT has been progressing its rollout of NGA and as of December 2013 offered fibre broadband services to over 18 million homes.³⁴³ In addition to BT's commercial deployment, state aid funding via BDUK is seeking to extend NGA coverage to around 95% of UK premises by 2017. We estimate that, over the course of this review, BDUK funding could impact 50-70% of premises in Market A. The state aid conditions mean that third party operators will be granted access to this network, probably using a similar service to VULA.
- 5.56 The topology of the fibre network is different from the CGA network. BT intends to use fewer local exchanges to provide access to the upstream fibre-based product than it uses to provide access to the copper product (LLU), but the fibre product available at each exchange (where provided) will cover a wider geographic area than the copper product. It is therefore possible that a premise is connected by fibre to an exchange which is different from, and further away than, the exchange it is connected to via copper. Indeed, we observe from existing fibre roll-out that the majority of the premises in Market A currently served by fibre are connected to a Market B exchange.³⁴⁴ Where a PO has deployed in a Market B exchange to access NGA services, it will be able to access all customers connected via VULA to that Market B exchange, even if they are located in a Market A exchange area. This means that barriers to entry for fibre are likely to be lower than for copper.
- 5.57 However, at present, while we know where current fibre roll-out is, and where planned fibre is likely to be, there are still significant uncertainties surrounding the impact of fibre roll-out into an exchange area on the competitive conditions in that exchange area (see paragraphs 4.156 to 4.199).

³⁴² Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³⁴³ BT Q3 2013/14 press release:

<http://www.btplc.com/news/articles/showarticle.cfm?ArticleID=42b944bd-9880-4dbf-8f0a-7f39daf9f1d1>.

³⁴⁴ Ofcom calculation based on BT response to question 1, 2 and 3 of s.135 notice of 9 October 2013.

Pricing and profitability

- 5.58 We consider that the relevance of analysis on pricing and profitability in Market A is of limited insight since the majority of exchanges in Market A were formerly in Market 1 (in the 2010 WBA Market Review) and were therefore subject to a charge control.
- 5.59 We therefore do not consider pricing and profitability as part of our SMP assessment of Market A.

Countervailing buyer power

- 5.60 As in the previous review we have had regard in particular to the OFT guidance on the assessment of market power ('OFT Guidance'), which states that the strength of buyers and the structure of the buyers' side of the market may constrain the market power of a seller.³⁴⁵ The OFT Guidance notes that the relevant consideration in assessing the impact of buyer power on the ability of the seller to set a price is whether a buyer would have choice or, in other words, the benefit of an 'outside option'.
- 5.61 BT's market power is unlikely to be constrained by countervailing buyer power in Market A. Other than BT, TalkTalk is the only provider with any significant presence in Market A. TalkTalk could provide an alternative source of supply to purchasers of WBA. However, for over half 55% of Market A premises,³⁴⁶ BT is the only PO provider. As a result a CP wishing to serve Market A via WBA would still have no choice but to purchase from BT in the majority of Market A exchanges.
- 5.62 One purchaser of WBA [X] claimed (in its confidential 2012 WBA Call for Inputs response) that it had [X]. It restated these points in response to our 2013 WBA Consultation. However, we believe that this CP [X].³⁴⁷ We also note that information from other CPs suggests that it is not easy to play wholesalers off against each other. We also consider that the primary constraint on WBA prices is likely to be indirect constraints that arise from self-supply by LLU operators, rather than the direct constraints in the merchant market. Countervailing buyer power is not relevant to indirect constraints as end consumers have very little buyer power.

Joint dominance

- 5.63 Joint dominance is not relevant for the analysis of SMP in Market A, primarily due to the fact no operator other than BT has significant coverage or market share in Market A.

Conclusion on SMP in Market A

- 5.64 Given BT's substantial market share, the high barriers to entry via LLU and the uncertainty surrounding the potential rollout and take-up of fibre, and the lack of countervailing buyer power, we consider that BT has (and will continue to have for the duration of the market review period) a position of economic strength in Market A affording it the power to behave to an appreciable extent independently of

³⁴⁵ OFT, Assessment of market power, p.24
http://www.offt.gov.uk/shared_offt/business_leaflets/ca98_guidelines/oft415.pdf. The OFT Guidance has been adopted by the Board of the Competition and Markets Authority ('CMA').

³⁴⁶ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³⁴⁷ [X] confidential response to 2012 WBA Call for Inputs.

competitors, customers and ultimately consumers. We therefore find that BT has SMP in the market for the provision of WBA services in Market A.

Conclusions on SMP in Market B

- 5.65 Market B comprises those BT exchanges where there are more than two POs present or forecast to be present.³⁴⁸ As we did for Market A, we have taken into account “committed” PO roll-outs. Taking these into account, 2,394 exchanges fall into Market B. These exchanges serve 89.8% of UK premises (including the Hull Area).³⁴⁹
- 5.66 Table 5.4 shows that 64.3% of Market B exchanges were included in Market 3 in the 2010 WBA Statement, while 25.0% and 10.7% of exchanges were in Markets 2 and 1 respectively. The overlap between Market B and Market 3 as defined in the 2010 WBA Statement is even more evident in terms of the number of premises covered by exchanges with 86.8% of premises in Market B having been included in Market 3 in 2010, as Market 3 exchanges tend to be larger exchanges covering more premises.

Table 5.4: Composition of Market B in September 2013

	Market 1	Market 2	Market 3
Number of exchanges	10.7%	25.0%	64.3%
Number of premises	2.7%	10.5%	86.8%

Source: Ofcom calculation from data provided by Openreach and Virgin.³⁵⁰

Market shares

Current shares

- 5.67 Table 5.5 shows shares in Market B based on September 2013 volume data.³⁵¹ In Market B, BT’s market share is 27.6%. This is below the level at which single firm dominance concerns would normally arise.³⁵² Moreover, there are three other competitors with significant share in Market B. These are large, vertically integrated operators, with access to the same technology standards and suppliers as BT.
- 5.68 [S], in its response to the 2013 WBA Consultation, said that it did not consider that all POs offered a fit for purpose business product, and that in Market B, BT has de facto SMP due being the only operator that does have such an offering in Market B. We address these arguments in Section 3.

³⁴⁸ See paragraphs 4.206 to 4.211 above for the precise market definition employed for the purposes of this review.

³⁴⁹ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³⁵⁰ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³⁵¹ As in the Market A section, this section takes a forward looking view, by taking into account “committed” planned LLU roll-outs, as well as our assumption regarding migration.

³⁵² See paragraph 75 of the SMP Guidelines.

Table 5.5: Market B shares by PO, September 2013

Operator	Market B Shares
BT	27.6%
Sky (including O2)	22.5-227.5% [353]
TalkTalk	20-25% [354]
Virgin	22.5-27.5% [354]
Vodafone	~1%
Other operators	0-5% [354]

Source: Ofcom calculation from data provided by Openreach and Virgin.^{353 354}

5.69 As noted in paragraph 5.32, we do not include fibre in our calculation of market shares. However, we have considered BT's share with the inclusion of fibre, and note that it would not change our conclusion since: BT's share of copper connections in Market B is significantly below 30%; and the current take-up of fibre in Market B (around 2.4m Openreach³⁵⁵ provided lines) is fairly low compared to take-up of copper services (around 19m). As such the impact of including BT fibre on BT's overall broadband connection share is fairly small. As a result of BT's share of copper connections (which comprise the majority of its total connections) being significantly below 30%, adding fibre connections into our market share analysis would not lead to BT's Market B share of broadband connections being above 40%, for any value of fibre connections shares (i.e. even if BT had 100% share of Openreach provided fibre connections in Market B).³⁵⁶

5.70 Although no PO other than BT has 100% coverage of Market B premises, two other POs have over 95%, with all POs having over 40% coverage.

³⁵³ O2 was also a PO in December 2012, but has since been purchased by Sky. Since this analysis of BT's SMP is forward looking, we have combined data from O2 and Sky.

³⁵⁴ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

³⁵⁵ BT Q3 2013/14 financial results, p.4: <http://www.btplc.com/News/ResultsPDF/q314-release.pdf>.

³⁵⁶ As of December 2013 there was around 2.4m fibre broadband connections across the UK, and 1.9m of these were BT Retail customers. BT's share of retail fibre connections across the UK is therefore around 79%. Given there are [354] [around 19m] active copper broadband connections in Market B but only around 2.4m active fibre broadband connections across the whole of the UK, the impact this will have on BT's overall market share in Market B is relatively small. If the market shares are weighted by active connection volumes, and we assume (for consideration of the worst case scenario) that all fibre connections are in Market B, the adjusted BT Market B share is around 33.3%. This is still appreciably below 40%, and as mentioned, represents an upper bound on BT's share, due to the fact that not all fibre circuits should be allocated to Market B.

Table 5.6: Market B coverage (of premises) by PO, September 2013

Operator	Market B Coverage
BT	100%
Sky (including O2)	95-100% [X]
TalkTalk	99.9%
Virgin	40-50% [X]
Vodafone	71%

Source: Ofcom calculation from data provided by Openreach and Virgin.³⁵⁷

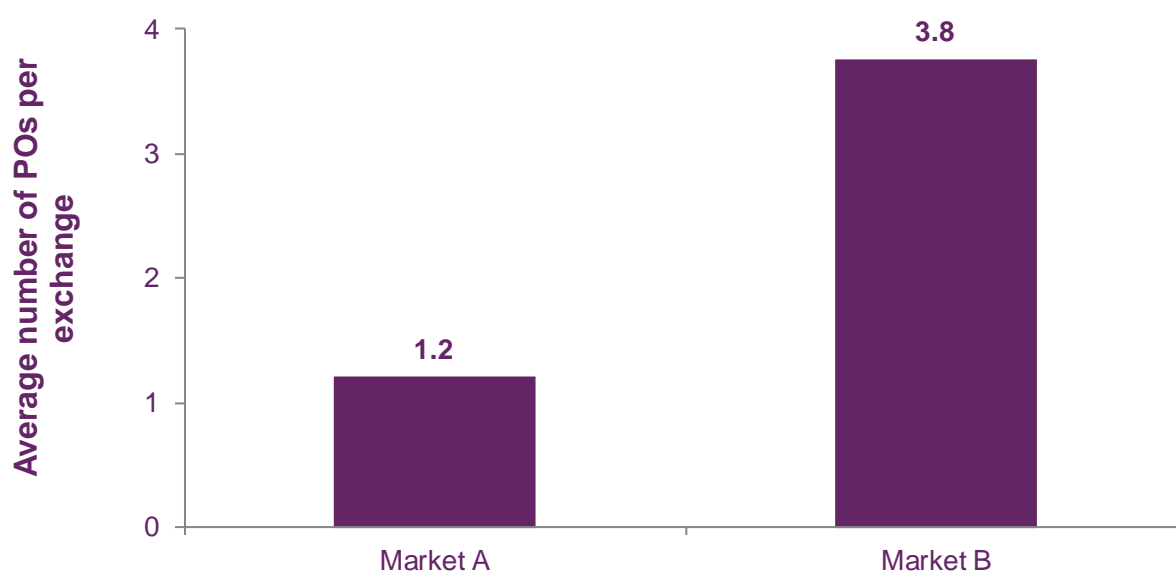
- 5.71 We anticipate that, over the review period, several large operators will continue to be present, each with a significant market share and coverage of Market B. BT's share may fall further in exchanges where entry has been recent, as a result of ongoing consumer churn (for example, see paragraphs 4.128 to 4.133 for analysis of BT's share erosion).

Barriers to entry

- 5.72 Barriers to entry in Market B are much lower than Market A. As discussed above in relation to Market A, the sunk costs associated with unbundling an exchange create significant barriers to entry due to the lack of economies of scale where exchanges are small. This is however less of a barrier to entry in Market B because of the much larger size of exchanges.
- 5.73 The number of entrants in Market B exchanges suggests that sunk costs and economies of scale are not a barrier to entry in this market. As shown in Figure 5.3, there are on average 3.8 POs per exchange in Market B compared to 1.2 in Market A. We anticipate (based on operators' planned roll-out) that there may be a small amount of additional roll-out in Market B exchanges during the review period.

³⁵⁷ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Figure 5.3: Average number of POs per exchange, September 2013



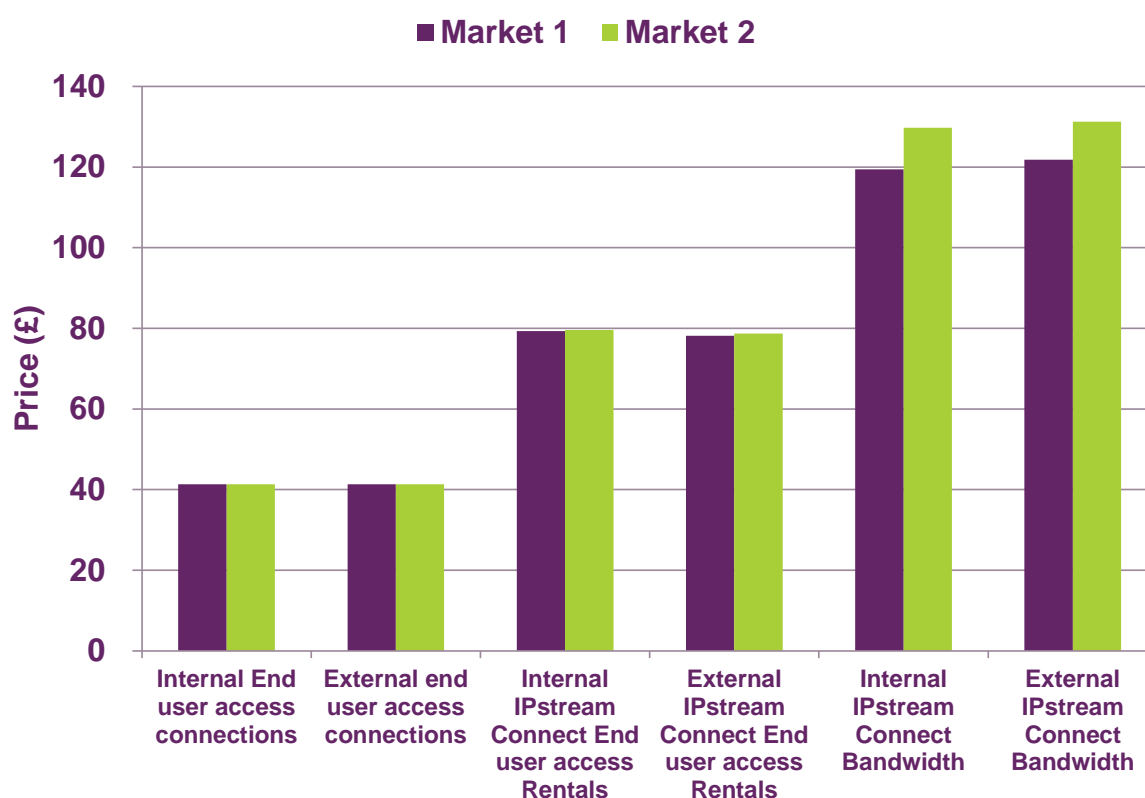
Source: Ofcom calculation from data provided by Openreach and Virgin.³⁵⁸

Pricing and profitability

- 5.74 The analysis below on pricing and profitability corresponds to that analysis we published in the 2013 WBA Consultation. We note that we have not updated this analysis, owing to the significant cost allocation issues in BT's 2013 RFS.
- 5.75 Figure 5.4 below provides price comparison across Market 1, 2 and 3, covering a range of charges on IPstream products offered by BT, broken down by internal and external clients.

³⁵⁸ Ofcom calculations based on BT response to question 1 of s.135 notice, 14 October 2013 and Virgin response to question 1 of s.135 notice, 19 November 2013.

Figure 5.4: Price comparison across Market 1, 2 and 3



Source: BT.³⁵⁹

- 5.76 The figure shows that prices in Market 3, which accounts for the majority of Market B, are lower than Market 1. This could to some extent reflect lower costs, however, BT's Return on MCE in Market 3 was [X] for financial year 2011/12, showing that BT is making losses.³⁶⁰ This suggests that BT is unlikely to have SMP in Market 3 areas.
- 5.77 In Market 2, where cost orientation was applied, prices of IPstream products are very similar to the charge controlled prices in Market 1, with the exception of IPstream Connect bandwidth charges which are slightly higher. The bandwidth charges may be higher in order to incentivise customers to migrate to WBC, which has yet to be rolled out in Market 1. All these prices are well below current DSAC levels.
- 5.78 For financial year 2011/12 in Market 2, Return on MCE is [X]%. We note that this falls to [X]% after making adjustments suggested by BT, which we described in Annex 11 of the 2013 WBA Consultation. This is still greater than its WACC. This high profitability may reflect the higher bandwidth charges on IPstream. These are likely to be eroded as BT's customers migrate to its WBC product. In addition, BT will lose further volumes in some Market 2 exchanges, as POs which have recently entered with their own LLU network migrate their WBA customers and gain further share from BT, this follows our analysis on the evolution of BT's share in BT+1 and BT+2 exchanges (see paragraphs 4.139 to 4.143). Moreover, if Return on MCE is lower in Market 3 than Market 2, the overall return in Market B will be lowered further.

³⁵⁹ BT data provided in response to question 3.3 in s.135 notice, 28 November 2012.

³⁶⁰ BT Group plc, *Regulatory financial statements 2012* ('the 2012 RFS'), <http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2012/index.htm>. Whilst not reported in the 2011/12 RFS, we understand this figure is consistent with the way returns in Market 1 and Market 2 were reported in the 2011/12 RFS.

- 5.79 EE also supplied some additional data on pricing. In particular, [361].³⁶¹ As the majority of Market 2 and Market 3 exchanges, and only a minority of Market 1 exchanges, are in Market B, this is consistent with our view that BT does not possess market power in Market B.

Countervailing buyer power

- 5.80 The pattern of market shares indicates that the market can be regarded as competitive. It is therefore not necessary to analyse countervailing buyer power for our SMP assessment.

Joint dominance

- 5.81 There is no significant risk of joint dominance in the market given the number of competitors present.

Conclusion on SMP in Market B

- 5.82 Given the significant amount of entry that has occurred across Market B exchanges and the success of these LLU POs and Virgin in securing market share, Ofcom considers that no operator has (and will have during the market review period) a position of economic strength in Market B affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.
- 5.83 We therefore find that no operator has SMP in the market for the provision of WBA services in Market B.

Conclusion on SMP in the Hull Area

- 5.84 The conclusions of our SMP analysis for the Hull Area remain unchanged from the 2010 review. Despite the entry of MS3 (an operator offering fibre-based wholesale broadband products) since the 2010 Review, KCOM's position of economic strength in the Hull Area affords it the ability and incentive to behave to an appreciable extent independent of competitors. We therefore find that KCOM has SMP in the provision of WBA in the Hull Area for the reasons set out below.

Market share

Current shares

- 5.85 KCOM is a vertically integrated supplier of fixed broadband access in the Hull Area and has historically been the sole supplier of fixed line broadband in the Hull Area. Since the last review, there has been entry into the Hull Area by MS3, a fibre-only broadband provider, which has invested £4.5 million in building its own fibre network in the Hull Area. Although MS3 will provide direct infrastructure competition with KCOM, its plans indicate that it will only achieve very limited market coverage during the review period.
- 5.86 In its 2013 WBA Consultation response, KCOM stated that it agreed with the proposal that KCOM holds SMP in the Hull Area, but that Ofcom needed to better understand and analyse the existing and planned network deployments by MS3,

³⁶¹ [361]

which it believes has the potential to significantly impact its business at the retail and wholesale level.

- 5.87 To address KCOM's point, we requested information from MS3 (under formal information gathering powers) both on the current extent of its network and its expansion plans over the market review period, including forecasts for total premises passed. The data MS3 provided in response to this information request shows that, as of October 2013, MS3's network covered 5,000 Hull Area premises, corresponding to 2.4% of the Hull Area.³⁶² MS3 also provided forecasted network coverage up to 2017, at which point it forecast its network to cover 13,500³⁶³ Hull Area premises, corresponding to 6.6% of Hull Area coverage.³⁶⁴ This very low coverage will limit MS3's ability to exert a significant competitive constraint on KCOM in the Hull market. As KCOM has 100% coverage of premises in the Hull Area, KCOM will remain the only the option for the vast majority of Hull Area premises. We also note that at present MS3 is only offering its service to business customers.

Future shares

- 5.88 Although KCOM's market share in the Hull Area may be eroded slightly as a result of MS3's entry, the extent of this is likely to be very small, given MS3 will have less than 10% coverage of the Hull Area by the end of the review period.

Barriers to entry

- 5.89 The Hull Area is characterised by significant barriers to expansion and entry for competitors to KCOM in the market for WBA, primarily in the form of sunk costs and economies of scale.
- 5.90 One of the notable barriers to entry is the small market size. There are only a limited number of exchanges in the Hull Area, a number of which only serve a small number of premises. In addition, the costs of LLU deployment would be much higher than in the rest of the UK, in particular because of bespoke configuration and backhaul costs, since a PO would need to have an access point in (or around) the Hull Area. There are also fixed costs associated with purchasing LLU from KCOM, including the costs of developing systems that interface with KCOM's systems, which are required to order, maintain and manage LLU products. We understand that although a number of operators such as The Post Office,³⁶⁵ and MS3 have considered taking LLU from KCOM, none have yet established plans to do so, a number citing that it did not make commercial sense due to do so.
- 5.91 MS3 has entered since the last review by building its own network. However, as described above, the extent of its coverage and its expansion plans are both very limited.

Countervailing buyer power

- 5.92 Countervailing buyer power is not relevant for the analysis of SMP in the Hull Area.
- 5.93 In the vast majority of the Hull Area there are no current alternative options available other than KCOM for buyers of the WBA product. With the rolling out of its fibre

³⁶² MS3 response to question 2 of s135 response dated 19 November 2013.

³⁶³ Ibid

³⁶⁴ The Hull Area accounts for around 200,000 premises.

³⁶⁵ From confidential 2012 WBA Call for Inputs responses.

network, MS3 will provide coverage in certain parts of the Hull Area, however this will not reach comparable levels of coverage to KCOM. Additionally, as mentioned above, currently MS3 is only offering its service to business customers.

- 5.94 It therefore does not appear that any buyer, regardless of size, would be in a position to bargain aggressively in the purchase of WBA services in the Hull Area.

Joint dominance

- 5.95 Joint dominance is not relevant in this market, in particular because there is a single firm with such a significant market share.

SMP in the Hull Area

- 5.96 Despite the entry of MS3, KCOM's market position, barriers to entry and the other factors in this market mean that KCOM currently enjoys (and will continue to do so for the duration of this review) a position of economic strength affording it the power to behave to an appreciable extent independent of competitors, customers and ultimately consumers.
- 5.97 We therefore find that KCOM has SMP in the market for the provision of WBA services in the Hull Area.

Conclusions on SMP

- 5.98 As set out above, we conclude that:
- BT holds a position of SMP in the provision of WBA services in Market A;
 - no operator holds a position of SMP in the provision of WBA services in Market B; and
 - KCOM holds a position of SMP in the provision of WBA services in the Hull Area.

Section 6

Remedies

Summary

6.1 Table 6.1 summarises the regulatory remedies that we have decided to impose on BT in Market A and on KCOM in the Hull Area.

Table 6.1: Remedies by market

Market	Operator	Remedy
Market A and The Hull Area	BT (in Market A) and KCOM (in The Hull Area)	Requirement to provide network access on reasonable request Requirement not to discriminate Requirement to publish a reference offer Requirement to notify charges, terms and conditions Transparency as to quality of service Requirement to notify technical information Requirement to account separately
Market A only	BT	Charge control Cost accounting

6.2 The remedies we are imposing on BT differ in the following ways from the remedies that we imposed on it following the 2010 WBA Statement and the 2011 WBA Charge Control Statement:

- the obligation not to discriminate now requires BT to provide services on an equivalence of inputs (“EOI”) basis, rather than being required not to discriminate unduly;
- we are not imposing a cost orientation obligation on BT; and
- we have made changes to the charge control obligations, as set out in Section 7.

6.3 The remedies we are imposing on KCOM are the same as those that we imposed on it following the 2010 WBA Statement.

Introduction

6.4 In this section, we set out our conclusions on the remedies to address the competition problems we have identified arising from BT’s SMP in Market A and KCOM’s SMP in the Hull Area.

6.5 Each remedy fulfils our statutory duties and satisfies the relevant legal tests for imposing such remedies. In reaching our conclusions, we have taken account of our regulatory experience from our previous market reviews, recent developments in this

market, views expressed by stakeholders in response to the 2013 WBA Consultation and the 2014 WBA Consultation and expected developments over the review period.

6.6 We have structured the rest of this section as follows:

- our approach to remedies, explaining how WBA services have previously been regulated, and setting out the legal background to SMP remedies as well as the remedy proposals in the 2013 WBA Consultation;
- a high level discussion of the competition problems identified in Market A and in the Hull Area as a result of our SMP assessment;
- our assessment of appropriate remedies for Market A and for the Hull Area, including comments made by stakeholders in response to the 2013 WBA Consultation;
- our conclusion on the appropriate set of remedies based on the above assessment; and
- clarification of the aim and the legal basis for each remedy.

Approach to remedies

6.7 We set out in this subsection the existing general remedies for the WBA markets under review and our approach to remedies in this review.

The regulatory remedies that apply presently

6.8 In the 2010 WBA Statement we found that there was limited prospect of any substantial competition in Market 1 (as defined therein) over the period covered by the 2010 market review. We therefore imposed general access and non-discrimination obligations on BT. We also imposed obligations requiring BT to publish information that would secure transparency for the services provided in Market 1. We decided that BT should also be subject to an accounting separation obligation to provide transparency as to the services it provided to external CPs and to its own retail divisions.

6.9 In addition, we decided that BT's services in Market 1 should be based on the costs of provision (i.e. cost orientated), and should be subject to a charge control in order to restrict BT's ability to charge excessive prices to CPs which would ultimately be passed on to consumers. The details of the charge control were considered in a further consultation published in January 2011 and finalised in the 2011 WBA CC Statement published in July 2011.³⁶⁶

³⁶⁶ The 2011 WBA CC Statement was subject to two appeals by BT and TalkTalk. BT's appeal against the charge control was dismissed on 22 June 2012 following the Competition Commission's Determination of 11 June 2012 (see case 1187/3/3/11 *British Telecommunications plc v Ofcom (WBA Charge Control)* at <http://www.catribunal.org.uk/237-7278/1187-3-3-11-British-Telecommunications-PLC-Wholesale-Broadband-Access-Charge-Control.html>). TalkTalk's appeal was dismissed by the CAT on 10 January 2011 (see case 1186/3/3/11 *TalkTalk Telecom Group plc v Ofcom (Wholesale Broadband Access Charge Control)* [2011] CAT 1 at http://www.catribunal.org.uk/files/1.1186_TalkTalk_Judgment_CAT_1_100112.pdf). A further appeal by TalkTalk to the Court of Appeal was dismissed on 30 October 2013 (see *TalkTalk Telecom Group plc v Ofcom* [2013] EWCA Civ 1318 at <http://www.bailii.org/ew/cases/EWCA/Civ/2013/1318.html>).

- 6.10 To allow us and other stakeholders to monitor the effectiveness of the charge control and cost orientation obligations, we imposed a cost accounting obligation on BT requiring it to provide transparent cost data. This was the first time that we had imposed cost orientation, a charge control and cost accounting in the WBA market.
- 6.11 In Market 2 (as defined in the 2010 WBA Statement) we also imposed general access, non-discrimination and transparency obligations, for the same reasons as in Market 1. Although we found there was potential for BT to raise its prices to an excessive level, given its market position, we found that there was some wholesale competition and the potential for this to develop further. We therefore decided to impose a cost orientation obligation on BT but did not impose a charge control. As in Market 1, we also decided that BT's services should be subject to accounting separation and cost accounting obligations to provide transparency of financial information.
- 6.12 In the Hull Area we decided to impose general access, non-discrimination and transparency obligations (including an accounting separation obligation) on KCOM. We considered that a lack of retail competition in the Hull Area was the result of the lack of entry into the market by providers other than KCOM. Our view was that imposing additional wholesale regulation (such as charge controls) would not encourage investment by other providers. We did not impose a cost orientation obligation, a charge control, or a cost accounting obligation.

Proposals in the 2013 WBA Consultation

- 6.13 In the 2013 WBA Consultation, we proposed to place general access and non-discrimination (in the form of EOI) obligations on BT in Market A to ensure that other CPs have the opportunity to use wholesale products supplied by BT to compete effectively at the retail level. We also proposed to impose obligations requiring BT to publish information that provides transparency of the services it provides in Market A. We proposed that BT should be subject to an accounting separation obligation to provide transparency as to the services it provides to external CPs and to its own retail divisions.
- 6.14 We proposed that BT's services in Market A should be subject to a charge control, as well as a cost accounting obligation to provide transparent data, to ensure that BT does not set excessive prices for wholesale broadband services which would ultimately be passed on to consumers.
- 6.15 In the Hull Area, we proposed to continue with the same set of regulatory obligations for KCOM as we imposed in 2010 – i.e. general access, non-discrimination and transparency remedies.
- 6.16 All our proposals for remedies, stakeholders' views on them, our further considerations and decisions (including our reasoning) are set out in detail below.

The legal background to SMP remedies

- 6.17 We set out in Annex 3 the factors relevant when assessing the need for *ex ante* regulation and whether competition law might be appropriate to address the competition concerns identified.
- 6.18 Section 87(1) of the 2003 Act provides that, where Ofcom has made a determination that a person has SMP in a particular market, it must set such SMP services

conditions as it considers appropriate and as are authorised under the 2003 Act. Section 87(1) implements Article 8 of the Access Directive.

- 6.19 Paragraphs 21 and 114 of the SMP Guidelines state that NRAs must impose one or more SMP services conditions on an undertaking having SMP, and that it would be inconsistent with the objectives of the Framework Directive not to impose any SMP services conditions on an undertaking which has SMP.
- 6.20 The 2003 Act (sections 45-49 and 87-91) sets out the obligations that Ofcom can impose if it finds that any undertaking has SMP. Sections 87 to 91 implement Articles 9 to 13b of the Access Directive and Article 17 of the Universal Service Directive.
- 6.21 Recital 27 of the Framework Directive provides that *ex ante* regulation should be imposed only where there is not effective competition and where competition law remedies are not sufficient to address the perceived problem. In order to provide a full analysis, we have considered whether we could rely on competition law alone, while noting the obligations referred to above.
- 6.22 Section 3 of the 2003 Act sets out Ofcom's general duties. Section 3(1) states that Ofcom's principal duty is to further the interests of citizens in relation to communications matters and consumers in relevant markets, where appropriate, by promoting competition. Specifically, section 3(2)(b) states that Ofcom is required to secure the availability of a wide range of electronic communications services throughout the UK. Section 3(4)(b) explains that, in meeting these requirements, Ofcom must have regard to the desirability of promoting competition in relevant markets. Ofcom must also have regard, in performing its duties, to the desirability of encouraging investment and innovation in relevant markets (section 3(4)(d)) and encouraging the availability and use of high speed data transfer services throughout the UK (section 3(4)(e)). Ofcom must also have regard to the different interests of persons in different parts of the United Kingdom and of persons living in rural and urban areas (section 3(4)(f)). Also, in furthering the interests of consumers, Ofcom must have regard to choice, price, quality of service and value for money (section 3(5)).
- 6.23 Additionally, section 4 of the 2003 Act sets out the Community duties on Ofcom which flow from Article 8 of the Framework Directive. Where it appears to Ofcom that any of their general duties conflict with one or more of their duties under section 4, priority must be given to those latter duties (section 3(6)). In carrying out its functions under this review, Ofcom must take due account of all applicable recommendations issued by the European Commission under Article 19 of the Framework Directive. Pursuant to Article 3(3) of Regulation (EC) No 1211/2009,³⁶⁷ Ofcom must take utmost account of any relevant opinion, recommendation, guidelines, advice or regulatory practice adopted by BEREC.
- 6.24 In considering whether to impose any SMP services conditions, we have considered these duties. In particular, we have considered the requirement to promote competition in relation to the provision of electronic communications networks and electronic communications services.

³⁶⁷ Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Office <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0001:0010:EN:PDF>.

6.25 Also, SMP services conditions must be appropriate (section 87(1) of the 2003 Act) and satisfy the tests set out in section 47(2) of the 2003 Act. These are that each condition must be:

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

Aims of regulating WBA

6.26 In Section 5 we explain why we have found that BT has SMP in the provision of WBA services in Market A and that KCOM has SMP in the provision of WBA services in the Hull Area. Article 16 of the Framework Directive provides that:

“Where a national regulatory authority determines that a relevant market is not effectively competitive, it shall identify undertakings which individually or jointly have significant market power on that market...and...shall on such undertakings impose appropriate specific regulatory obligations...or maintain or amend such obligations where they exist already.”³⁶⁸

6.27 The Commission considers that in most cases it is preferable to apply regulation at the wholesale level.³⁶⁹ We agree with the Commission’s view. Regulation at the wholesale level can address SMP concerns in the relevant wholesale market and hence, in turn, increase competition in the downstream markets that rely on these wholesale inputs.

6.28 The introduction of regulation in wholesale markets allows providers to purchase wholesale products, which they cannot replicate easily themselves, and combine them with their own capabilities so as to provide competition to KCOM and BT in downstream markets.

6.29 Regulation at the wholesale level will also help to ensure that the objectives of sections 4(7) and 4(8) of the 2003 Act are met. These are that we take measures which encourage the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition and efficient investment and innovation, and for the purpose of securing the maximum benefit for the persons who are customers of CPs and of persons who make associated facilities available. Regulation at the wholesale level will be likely, as noted above, to help to increase the level of competition in the downstream markets and this will in turn help to ensure that the benefits in terms of price, choice and quality are optimised for retail consumers of broadband internet services.

6.30 In assessing the appropriate regulatory measures to be applied, we have also taken into account the SMP Guidelines which state at paragraph 15 that regulation should

³⁶⁸ Article 16(4) of the Framework Directive.

³⁶⁹ See, for example, section 2.5 of the Explanatory Note to the EC Recommendation on Markets, https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/sec_2007_1483_2_0.pdf.

aim to promote an open and competitive market, and at paragraph 16 that *ex ante* regulations should be imposed to ensure that an SMP provider cannot use its market power to restrict or distort competition on the relevant market or leverage market power on to adjacent markets.

6.31 We have also taken full account of Oftel's guidelines on the imposition of access obligations under the EU Directives, which were published on 13 September 2002 ("the Access Guidelines").³⁷⁰ These describe the circumstances in which we consider the imposition of wholesale access obligations to be appropriate, give guidance on the nature of the wholesale products we expect to be supplied as a result of an obligation to provide access, and describe the conditions under which products should be made available.

6.32 In addition, we have considered the Revised ERG Common Position on the approach to appropriate remedies in the electronic communication networks and services (ECNS) regulatory framework³⁷¹ ("the Revised ERG Remedies Position") and, in particular, the statement that:

"...there is a presumption that *ex ante* regulation is appropriate on the 18 markets in the Recommendation if a position of SMP is found."³⁷²

6.33 The Revised ERG Remedies Position sets out that in the case of markets where there is a single firm having SMP, remedies should be considered to address the following concerns:

- entry-deterrence;
- exploitative behaviour; and
- productive inefficiencies.

6.34 The Revised ERG Remedies Position also sets out that, in the case of a single firm having SMP in a wholesale market such as that for WBA, the following remedies are available to address the concerns set out above:

- transparency obligations;
- non-discrimination obligations;
- accounting separation obligations;
- obligations to meet reasonable requests for access to, and use of, specific network elements and associated facilities; and
- price control and cost accounting obligations.³⁷³

³⁷⁰ These guidelines can be found at:

http://www.ofcom.org.uk/static/archive/oftel/publications/ind_guidelines/acce0902.htm.

³⁷¹ See

http://www.irg.eu/streaming/erg_06_33_remedies_common_position_june_06.pdf?contentId=542920&field=ATTACHED_FILE.

³⁷² See page 9 of the Revised ERG Remedies Position. Note: the number of markets identified by the Commission as susceptible to *ex ante* regulation was subsequently reduced from 18 to 7 in the 2007 Recommendation on Markets.

- 6.35 We have also taken utmost account of the BEREC common position on best practice in remedies on the market for WBA (including bitstream access) imposed as a consequence of a position of significant market power in the relevant market (“the BEREC Common Position on WBA”).³⁷⁴
- 6.36 In addition, we have taken due account of the Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (“the NGA recommendation”)³⁷⁵, which includes a range of remedy considerations that NRAs need to take into account in the light of the deployment of NGA networks. Finally, we have had regard to the Costing and Non-Discrimination Recommendation, which seeks to provide further guidance on the regulatory principles established by the NGA recommendation.³⁷⁶

Assessment of the competition problems in Market A

- 6.37 In Section 6 of the 2013 WBA Consultation, we said that in light of our SMP analysis, in the absence of ex-ante regulation, BT would have the incentive, and its market power would afford it the ability, to:
- refuse to provide network access to other providers which could restrict competition in the provision of retail offers;
 - discriminate in favour of its own retail divisions, e.g. by setting different terms and conditions (including prices), which would limit the ability of CPs to compete in the retail market;
 - charge excessively high prices; and
 - engage in a margin squeeze.
- 6.38 We did not receive any responses to the 2013 WBA Consultation that disagreed with our assessment of the potential competition problems in Market A, and remain of the view that BT would have the incentive, and its market power would afford it the ability, to engage in the behaviour set out in the above paragraph.
- 6.39 We consider these competition problems further as we address each remedy for Market A below.

Insufficiency of national and EU competition law remedies

- 6.40 We have concluded that national and EU competition law remedies alone are insufficient to address the competition problems we have identified.
- 6.41 First, appropriate remedies could not necessarily be imposed under competition law. In this respect, we refer to the detailed nature and scope of the remedies we are imposing to address the competition problems – e.g. a requirement to supply WBA services, cost accounting obligations, and a charge control. In addition, the SMP conditions we are imposing have been designed specifically to be able to effectively

³⁷³ See section 3 of the Revised ERG Remedies Position.

³⁷⁴ See

[http://www.berec.europa.eu/files/document_register_store/2012/12/BoR_\(12\)_128_CP_WBA.pdf](http://www.berec.europa.eu/files/document_register_store/2012/12/BoR_(12)_128_CP_WBA.pdf).

³⁷⁵ See <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:251:0035:0048:EN:PDF>.

³⁷⁶ See <http://ec.europa.eu/digital-agenda/en/news/commission-recommendation-consistent-non-discrimination-obligations-and-costing-methodologies>.

address the competition problems we have identified over the three year review period.

- 6.42 Second, the requirements of intervening are extensive, such as the time and resources required to investigate whether national or EU competition law has been breached and to determine an appropriate remedy
- 6.43 Third, providing certainty in the wholesale market is of paramount importance, both to BT and to its competitors, as this underpins competition in the retail market, which delivers benefits for consumers. This is best achieved through *ex ante* regulation which, in comparison to reliance on *ex post* competition law remedies alone, will:
- provide greater clarity on the types of behaviour that is/is not allowed; and
 - be easier to enforce in that it will allow for timely intervention through a process with which the market, in general, is familiar and which is set out in the 2003 Act.

Result of our assessment of competition problems

- 6.44 In light of our market analysis, in particular our SMP assessment, and our assessment of the insufficiency of national and EU competition law remedies to address the competition problems we have identified, we have concluded that, over the course of the review period, competition would be ineffective in Market A.
- 6.45 Accordingly, in order to address the competition problems identified we now turn to our assessment of the appropriate SMP remedies.
- 6.46 We note that BT said in its response to the 2013 WBA Consultation that we should consider alternative, less intrusive solutions to SMP regulation. We do not consider this is appropriate at the current time, given we have concluded that BT has SMP in Market A and that the remedies considered below are appropriate to address that SMP and are authorised under the 2003 Act. Under section 87(1) of the 2003 Act we are therefore required to impose those remedies on BT.
- 6.47 In subsequent WBA market reviews, we will consider whether SMP regulation remains appropriate in this market.

Assessment of appropriate general access, non-discrimination and transparency remedies for Market A

General access obligations

Consultation proposals

- 6.48 In our 2013 WBA Consultation, we proposed to impose on BT in Market A an obligation to provide network access on reasonable request, including an obligation to provide access on fair and reasonable terms, conditions and charges. This was to address our concerns that BT may otherwise refuse to provide network access to other providers, which could restrict competition in the provision of retail offers.

Consultation responses

- 6.49 Stakeholders broadly agreed with our proposal to impose general access obligations on BT in Market A. BT and Virgin raised specific points on the requirement to provide

access subject to fair and reasonable charges. We address these points within our assessment of pricing remedies below.

Our conclusions

- 6.50 As explained above, in the absence of regulatory remedies in Market A, BT would have an incentive to refuse to provide network access to other providers, and this could restrict competition in the provision of retail offers.
- 6.51 Given this finding and stakeholders' broad agreement with our consultation proposals on general access, we have decided that an obligation requiring BT to provide network access is necessary in order to promote competition in the provision of downstream broadband services.
- 6.52 The condition will help to enable other providers to compete in the downstream markets by allowing them access to the products they need, but which they cannot replicate themselves due to the very high costs of deploying the network needed to provide these products.
- 6.53 The network access provided by BT will be that required by third parties to compete in the retail market, including the ability to differentiate their products as far as possible from those of BT's retail divisions. However, it is not appropriate to require BT to provide any and all types of network access required by third parties. A requirement to provide any type of network access could result in BT being requested to develop multiple products at potentially high costs with very limited customer demand. It is only appropriate to require BT to meet those requests that are *reasonable* (for example, have a high expected customer demand, or a low cost of development, or can be charged at a premium to recover costs of development).³⁷⁷

Non-discrimination obligations

Consultation proposals

- 6.54 In our 2013 WBA Consultation, we proposed to impose non-discrimination obligations on BT in Market A on an EOI basis to address our concerns that BT may otherwise discriminate in favour of their own retail divisions, which would limit the ability of CPs to compete in the retail market.

Consultation responses

- 6.55 Stakeholders broadly agreed with our proposal that a non-discrimination SMP remedy should be imposed in Market A.
- 6.56 With regard to the form of non-discrimination obligation, BT said there is nothing new conceptually that did not form part of the justification for the no undue discrimination remedy that is currently imposed on BT. It argued that we had not demonstrated that our proposal to require BT to provide network access on an EOI basis was objectively justified or proportionate. It therefore considered that our proposal did not meet the criteria set out in section 47(2) of the 2003 Act.

³⁷⁷ By way of example, a request for network access from BT in an exchange that it has not enabled for broadband would not be a reasonable request.

- 6.57 It also said that, by failing to demonstrate why EOI is needed over and above a conventional non-discrimination remedy, we had not followed point 7 of the Costing and Non-Discrimination Recommendation.
- 6.58 BT went on to say that it was inappropriate for us simply to argue that because EOI is a requirement of the undertakings given to Ofcom by BT pursuant to the Enterprise Act 2002 (the “BT Undertakings”),³⁷⁸ it is automatically not disproportionate as an SMP remedy. Furthermore, it was concerned that as the definition of the SMP conditions does not align with that of the BT Undertakings, there is a real risk that some activities that may be allowed by the BT Undertakings could be seen as a breach of the SMP obligation.
- 6.59 Given the above, BT said that we should rely on the “conventional” discrimination remedy in its current form, but that if we are still minded to impose an EOI requirement, we should either amend the definition of EOI in condition 2 so as to allow for differences that are permitted by the BT Undertakings, or build in a provision for Ofcom to grant BT consent to any differences that are allowed by the BT Undertakings.
- 6.60 BT went on to say that the EOI SMP obligation does not contain any of the checks and balances found in the BT Undertakings, e.g. provisions about systems, processes and information sharing. BT also expressed its concern about the difference in the wording of the definition of EOI in the SMP conditions and the BT Undertakings. In particular, BT was concerned the proposed definition in the SMP conditions does not include point (d) of the definition in the BT Undertakings which provides that in the context of EOI in the BT Undertakings “the same” means exactly the same subject to:
- “such other differences as are specified elsewhere in these Undertakings, including where Commercial Information is provided in accordance with these Undertakings to any of the nominated individuals, and individuals occupying the roles and functional areas (and their relevant external advisers, subcontractors and agents) listed in Annex 2.”*
- 6.61 BT argued that this raises the question as to whether the proposed SMP remedy prohibits differences that the BT Undertakings allow. BT noted Ofcom’s assertion in the 2013 WBA Consultation that Ofcom does not intend the proposed SMP conditions to be more onerous than the BT Undertakings. Therefore, BT requested that Ofcom either amend the wording of the SMP conditions so that the definition of EOI mirrors that in the BT Undertakings or, at the time the final statement is published, Ofcom grant its consent that any existing differences that are specified in the BT Undertakings including their exemptions and variations as relevant to the existing BT products that fall within the WBA markets and are presently subject to an EOI obligation in the BT Undertakings.
- 6.62 It also said the EOI SMP obligation does not afford BT the protection in circumstances where “Exceptional Incidents” occur, which is provided for in the BT Undertakings. BT said the obligation also does not contain the safeguard built into the Undertakings which allows BT to apply for exemptions from EOI where this may be appropriate.

³⁷⁸ See <http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bt/consolidated.pdf>.

Our conclusions

- 6.63 We consider that it is appropriate, proportionate and justified to impose a non-discrimination obligation on BT in Market A. Such an obligation is required in order to address its ability and incentive (arising out of its SMP) to discriminate in favour of its own downstream retail operations, thereby distorting and restricting competition at the retail level. In particular, we are concerned that, in the absence of such an obligation, BT would be incentivised to provide the requested wholesale network access service, in Market A in which we consider it holds a position of SMP, on terms and conditions that discriminate in favour of its own downstream divisions. For example, it might decide to charge competing providers more than the amount charged to its own downstream divisions or it might provide the same services but within different delivery timescales, which could have an adverse effect on competition.
- 6.64 We consider that EOI is the most effective form of non-discrimination obligation. The concept of EOI was identified in Ofcom's 2004-2005 Strategic Review of Telecommunications³⁷⁹ as one of our key policy principles to ensure that regulation of the telecommunication markets is effective. In principle, EOI delivers many advantages over equivalence of outputs ("EOO").³⁸⁰ It generates better incentives on the dominant undertaking to improve the products it offers to its competitors, it increases transparency, it is easier to monitor compliance, and it requires less on-going intervention by Ofcom. It therefore offers greater potential to address the issue of inequality of access in a sustainable fashion. However, we recognise it may be costly to introduce for some existing products.

The importance of ensuring a level playing field in downstream markets

- 6.65 Given the importance of WBA to CPs, it is essential that BT is prevented from any discrimination both on a price and non-price basis in order to prevent the distortion or restriction of competition and ensure a level playing field on which other CPs can compete with BT.
- 6.66 In our view, a general no undue discrimination remedy would, by its very nature, allow for certain discriminatory conduct – compliance with that obligation needs to establish in particular whether the discrimination in question is undue. However, whether the conduct in question is such as to amount to a breach of the undue discrimination obligation can only be determined on a case-by-case basis. As the Commission notes in Recital (12) of the Costing and Non-Discrimination Recommendation, "it is particularly difficult to detect and address non-price discriminatory behaviour through the mere application of a general non-discrimination obligation".
- 6.67 Conversely, an EOI obligation removes any degree of discretion accorded to the nature of the conduct. The distinction between these two forms of non-discrimination is that, in the case of the former, both the ability and the incentive on the part of the SMP operator may still exist to engage in the relevant conduct – however, in the case of the latter, the ability is removed ex ante altogether.

³⁷⁹ Ofcom, *Strategic Review of Telecommunications – Phase 2 consultation document*, Section 6, 18 November 2004,

http://stakeholders.ofcom.org.uk/binaries/consultations/telecoms_p2/summary/maincondoc.pdf

³⁸⁰ Equivalence of Outputs (EOO) is the provision of wholesale inputs to access seekers in a manner, which is comparable, in terms of functionality and price, to those the SMP operator provides internally to its own downstream business e.g. its retail arm, albeit using potentially different systems and processes.

- 6.68 Further, EOI is particularly important in ensuring non-discrimination in relation to non-price terms as it ensures that BT's downstream divisions must use the same systems and processes as its competitors in relation to the development, provision, maintenance and repair of access services. In contrast, it would be more difficult to detect and address non-price discrimination through the application of a general undue discrimination remedy.
- 6.69 We consider that discriminatory behaviour by BT in the supply of WBA could undermine a level playing field in the related downstream markets to the detriment of competition and consumers. Therefore, the need for EOI as the most effective non-discrimination remedy (as part of a wider package of remedies) to address BT's SMP in each of the wholesale fixed access markets is crucial to maintaining a level playing field between BT's downstream businesses and CPs over the course of the forward look of our review.

Assessment of points raised by BT in response to the 2013 WBA Consultation

- 6.70 We disagree with the points made by BT. BT's arguments ignore that it has been subject to a separate obligation to supply many of the services in these markets on an EOI basis by virtue of the BT Undertakings given to and accepted by Ofcom in 2005 in lieu of making a reference to the Competition Commission under section 131 of the Enterprise Act 2002. Although imposed under a different legal framework and to address different concerns, the EOI obligation in the BT Undertakings has existed alongside the no undue discrimination SMP remedy. Therefore, the absence of specific issues arising during the current market review period from the current no undue discrimination remedy reflects the combined effect of the no undue discrimination remedy imposed under the previous market review and the requirements for EOI in the BT Undertakings. Therefore we do not believe that the current position is evidence that the undue discrimination remedy is effective on its own.
- 6.71 The BT Undertakings are intended to complement *ex ante* regulation under the 2003 Act. They seek to deploy a variety of mechanisms aimed at defining equivalent treatment, and at preventing and detecting discriminatory conduct by BT when supplying wholesale network access and backhaul services to its downstream competitors. In contrast, the SMP remedies we are imposing are needed to address the competition problems we have identified in this market review. We consider that rather than relying on elements of BT's Undertakings, in effect a remedy under national competition law, the right approach in this market review is to impose an SMP EOI obligation which is specifically applied to address, *ex ante*, the competition problems we have found arising from our finding that BT has SMP in Market A both now and over the three year review period. For this reason, we consider that it is appropriate to impose EOI in this review under the SMP framework.
- 6.72 This is the same approach we have already taken in the 2013 BCMR Statement and we have also taken the same approach in the 2014 FAMR Draft Statement.
- 6.73 Therefore, for the reasons set out above we consider that an SMP EOI remedy is appropriate and justified in order to best achieve the regulatory aims we have articulated.
- 6.74 We have also considered the proportionality of imposing EOI to address the competition concerns we have identified.

- 6.75 BT already provides WBA on an EOI basis by virtue of its obligations under the BT Undertakings. We do not consider that imposing EOI in these circumstances would be unduly onerous as it would not require BT to re-engineer existing systems and processes. Furthermore, we have amended SMP condition 2 to exclude from the scope of the EOI obligation network access which BT is not providing on an EOI basis as at the date on which the proposed condition comes into force and to enable BT to seek consent from Ofcom to the provision of network access on a non-EOI basis, this provides a mechanism which affords flexibility in the application of EOI where circumstances warrant it. We consider the imposition of an EOI obligation to be proportionate in these circumstances.
- 6.76 In reaching this view, we have taken utmost account of point 7 of the Costing and Non-Discrimination Recommendation which details various considerations we should take into account in any assessment of proportionality. In particular, as we have set out above, we are not requiring BT to redesign its existing systems to meet the EOI obligation we are imposing by way of an SMP EOI condition. Furthermore, we do not consider that in imposing an SMP EOI obligation on BT in the manner set out above, that there is any other reason which might give rise to material compliance costs on BT which would cause us to consider that the imposition of SMP EOI is disproportionate. We have also set out above our reasons as to why we consider it appropriate to impose EOI in this review under the SMP framework rather than relying on elements of BT's Undertakings insofar as these may be taken to mean a "voluntary commitment" for the purposes of Article 7(iv) of the Costing and Non-Discrimination Recommendation.
- 6.77 With regard to BT's concerns around the sharing of commercial information, we note that the BT Undertakings had two purposes: equivalence at the product level (BT to offer the same or similar wholesale products to wholesale customers as it offers to itself, at the same prices, and using the same or similar transactional processes) and ensuring functional separation. In the context of this market review, we are imposing an EOI requirement on BT to prevent it from discriminating in favour of its downstream retail business; we are not requiring as part of this market review functional separation between Openreach and the rest of BT. Given BT's concern and reflecting this policy, we have amended the definition of EOI in the SMP condition set out in Annex 2 to include an additional exclusion for differences relating to the provision of commercial information which are necessary for purposes other than relating to the provision of network access. Our intention is that the SMP EOI condition should be no more onerous than the Undertakings and should only apply to information sharing where it is associated with the provision of network access.
- 6.78 In any event, as noted above, SMP condition 2 makes specific provision for Ofcom to consent in writing to exclusions from the EOI requirement. Therefore we consider that BT is able to make representations at any time setting out the detail of the specific form of network access which it believes it provides in the WBA market and, with regard to which, it considers the requirement to provide on an EOI basis should be disapplied. We would consider any such requests in the light of our policy intention that the SMP EOI condition is no more onerous than the Undertakings and consult on any such request(s) in accordance with section 49 of the 2003 Act. The same would apply to any other differences which are permitted by the BT Undertakings, but not by the SMP conditions, which are subsequently identified by BT.
- 6.79 In light of our policy intention that the SMP obligation should be no more onerous than the BT Undertakings and the concerns raised by BT, as noted above, we have amended SMP condition 2 to provide that the requirement on BT to provide network

access on an EOI basis does not apply to network access which BT was not providing on an EOI basis as at the date the SMP conditions come into force.

- 6.80 As a consequence of this amendment, we have also amended SMP condition 2 to include a no undue discrimination obligation in relation to any services which are provided by BT and which are not subject to the EOI obligation. We consider it appropriate to impose such an obligation to ensure that there is some form of non-discrimination remedy in place to protect against the incentive and ability for BT to engage in discriminatory pricing and/or non-pricing practices for those services not be subject to an EOI obligation. This approach is consistent with the approach taken in the 2014 FAMR Draft Statement.

Transparency obligations

Consultation proposals

- 6.81 In our 2013 WBA Consultation, we proposed to impose the following transparency obligations on BT in Market A to ensure it complies with the obligations to provide network access on an EOI basis:

- a requirement to publish a reference offer;
- a requirement to notify charges, terms and conditions;
- a requirement to notify technical information;
- a requirement as to transparency of service; and
- a requirement to account separately.

Consultation responses

- 6.82 Stakeholders broadly agreed with our proposal that transparency SMP remedies should be imposed on BT in Market A.
- 6.83 BT and EE raised a number of comments on the detail of the proposed requirements for BT to publish a reference offer and to notify charges, terms and conditions. We address these comments under the heading, “Conditions in Market A” below, as they relate to the detailed provisions of the SMP conditions.

Transparency as to quality of service

- 6.84 [3<] suggested that we provide plain English information, delivered in a timely fashion, on the service standards and performance of the products to complement our SMP remedies.
- 6.85 EE recommended that we revisit our conclusions once the quality of service regime under the FAMR has been settled, so as to ensure consistency of approach where appropriate.

Requirement to account separately

- 6.86 TalkTalk told us that the existence of an accounting separation obligation and an EOI obligation on BT says absolutely nothing about whether BT is discriminating. It said that BT’s retail pricing behaviour does not reflect internal transfer prices but rather

the cost that BT incurs – and that this is wholly different to external customers for whom the wholesale price equals the cost. It considered that the only way we can be sure that BT is not discriminating would be by ensuring that the wholesale charge reflected the cost that BT faced and/or if it were shown that BT were not margin squeezing.

Our conclusions

- 6.87 In order to ensure BT is complying with the obligations to provide network access on an EOI basis, and in light of consultation responses received, we have concluded that obligations related to ensuring transparency are required. Such obligations will provide third parties with access to the information they need in order to make informed decisions about purchasing BT's wholesale products. Without these obligations, not only would it be difficult for third parties to assess whether BT was meeting its obligations to provide network access and to not discriminate unduly, but third parties might not have sufficient information in order to decide whether, or how, to enter the downstream market by purchasing BT's wholesale products. This could ultimately undermine the effectiveness of our access remedies.
- 6.88 Transparency obligations will require BT to publish a reference offer and notify charges, terms and conditions and technical information related to the product with sufficient notice so that third parties can act on the information in a timely manner. Without this, BT could change products or pricing with insufficient or no notice to its wholesale customers with the intent of discriminating in favour of its retail divisions.
- 6.89 A further transparency obligation is related to providing information as to quality of service. BT could seek to favour its own retail divisions by, for example, providing a service more quickly to its retail division than to third parties. Alternatively it may offer preferential repair for its retail divisions or prioritise the broadband traffic of its retail customers over third party traffic. An obligation to provide transparency as to quality of service will ensure BT complies with its obligation not to unduly discriminate by reporting the quality of service provided internally and externally.
- 6.90 It is essential, if the EOI obligation is to be meaningful, that BT is required to make transparent its wholesale prices and internal transfer prices, i.e. to demonstrate that it is not discriminating against CPs. It is therefore necessary to retain an accounting separation requirement on BT in order to allow Ofcom, and third parties, to monitor its activities to ensure that it does not discriminate in favour of its own downstream business.
- 6.91 In light of this, BT will be required to publish, in relation to Market A, information including revenue, prices and volumes at a service level, separately identifying internal and external activities. It will also be required to publish FAC in respect of Market A.
- 6.92 We do not agree with [3<] that we should provide separate, plain English information on the transparency obligations. This is because we are imposing regulation only at the wholesale level and we believe that the intention of the SMP conditions will be clear to CPs.
- 6.93 With regard to the point raised by EE, the conditions we are imposing on BT in Market A and in the markets defined in the 2014 FAMR Draft Statement (the "FAMR markets") address the competition concerns we have identified in each market. If our competition concerns in Market A were the same as those in the FAMR markets, it might be appropriate to impose the same remedies. However, our competition

concerns in Market A are different from the concerns we have identified in the FAMR markets. We have therefore taken a different approach to remedies in Market A.

- 6.94 With regard to TalkTalk's comments, we consider that the EOI and accounting separation obligations we are imposing on BT are necessary to help ensure there is no discrimination in the provision of network access. Those remedies do not address all of our competition concerns, including those relating to excessive pricing and margin squeeze, which we are addressing through a charge control and 'fair and reasonable charges' obligations (see paragraphs 6.136 to 6.148).

Switching remedies

- 6.95 In the 2013 WBA Consultation, we did not propose to impose any specific remedies on BT in respect of switching to reflect best practice remedy BP28 in the BEREC Common Position on WBA, which states that "NRAs should impose obligations on SMP operators in order to ensure wholesale switching processes are speedy and efficient".
- 6.96 EE disagreed with our reasoning for this proposal, arguing that insignificant wholesale switching levels seen so far in the UK, and the small size of Market A and the Hull Area are not relevant considerations.
- 6.97 Notwithstanding EE's comments, we remain of the view that to the extent switching does occur it relies on migration processes in place in the upstream LLU market and that migration processes in the much larger Market B (which is a competitive market and therefore not subject to regulation) will be the more important factor in switching when compared to the much smaller regulated Market A. Consequently, we have decided that in the specific circumstances of the UK market, where WBA services are unregulated in approximately 90% of country, it is not necessary to impose any remedies on BT in Market A to reflect BP28.

Assessment of appropriate pricing remedies for Market A

Consultation proposals

- 6.98 In the 2013 WBA Consultation, we proposed that in the absence of a charge control, BT would have the ability and incentive to set prices above the competitive level in Market A, notwithstanding our proposal to include a requirement for network access to be provided on fair and reasonable terms, conditions and charges in the general access conditions.
- 6.99 We said that BT's wholesale competitors would be forced to pay these high prices in order to provide retail services to their customers, who would suffer accordingly from higher retail prices. We also said that BT may also have reduced incentives to reduce costs and improve efficiency.
- 6.100 In light of these concerns, we proposed that BT should be subject to a charge control and cost accounting obligations to ensure it would not price excessively for WBA services.
- 6.101 We considered that a cost orientation remedy, in the absence of any charge control, would not be appropriate to address our competition concerns, for reasons of

efficiency incentives, cost uncertainties and the difficulty in selecting the appropriate basis for any cost orientation obligation.³⁸¹

- 6.102 We also considered that linking prices in uncompetitive areas to competitive areas was not appropriate given the practical difficulties associated with this form of remedy.

Consultation responses

Charge control

- 6.103 BT said that the imposition of a charge control in such a small proportion of the UK is disproportionate in light of the extensive level of competitive entry that already exists and the small number of customers not already in competitive areas. It said we should consider just general access and non-discrimination remedies, as in Hull, but also suggested a return to voluntary safeguards, such as those in place before 2010, or a safeguard cap.
- 6.104 No other respondent objected to our proposal to impose a charge control remedy on BT in Market A to address our competition concerns regarding excessive pricing.³⁸²
- 6.105 TalkTalk noted that at paragraph 6.60 of the 2013 WBA consultation, it appears that BT considers a charge control is disproportionate since it is difficult to forecast costs. TalkTalk said this is not a sound reason since the WACC reflects the risk facing BT, providing further funding to cover the expected cost of such return volatility.
- 6.106 It also made the point that at paragraph 6.80 of the 2013 WBA consultation, we seemed to suggest that BT has cost minimisation incentives once it reaches the efficiency target. Making reference to paragraph A7.18 of the 2013 LLU Consultation in support of the point, it said that BT's cost minimisation incentives are not dependent on where the efficiency target is set.

Cost orientation

- 6.107 Virgin said there is a case for maintaining the existing cost orientation remedy, noting that previous reviews had relied upon a market wide cost orientation obligation to provide protection from excessively high or low pricing.
- 6.108 EE noted that BT's cost orientation obligations are very useful to assist operators, inter alia, in their commercial negotiations where there is regulatory flexibility.
- 6.109 TalkTalk said it agreed that a cost orientation only obligation at DSAC would give BT too much flexibility, but that it would be useful if Ofcom could articulate the reasons why DSAC is too great in this context.

Fair and reasonable charges

- 6.110 BT said that if we are minded to impose a charge control in Market A, a fair and reasonable charges obligation is unnecessary to protect consumers. It said we

³⁸¹ We considered in Section 7 of the 2013 WBA Consultation whether it would be appropriate to impose a cost orientation obligation alongside a charge control. We set out our conclusions on that issue in Section 7 of this statement.

³⁸² We address the points raised by respondents on the form of the charge control in Section 7.

should follow a similar approach to the 2013 FAMR Consultation and remove this additional layer of regulation.

- 6.111 No other stakeholder objected to the imposition of a fair and reasonable charges obligation, although Virgin said there is little guidance as to what fair and reasonable means in the context of a price control condition, and that this creates a lack of sufficient transparency to ensure the remedy fulfils the function Ofcom intends. It also noted that it had raised this issue in response to our consultation on cost orientation.³⁸³
- 6.112 TalkTalk said that it considers Plus.net (which is wholly owned by BT) is margin squeezing in Market 1 areas (i.e. squeeze between the retail price and WBA prices) and that Ofcom should therefore consider in this review measures to prevent such abuse..

Our conclusions

- 6.113 In a competitive market, the pricing of services on the basis of the commercial judgements of individual companies could be expected to deliver cost reflective pricing. However, where competition cannot be expected to provide effective constraints, *ex ante* regulation may be desirable to prevent excessive pricing and margin squeezing. Such intervention could also promote efficiency, allow the development of effective competition in downstream markets and confer the greatest possible benefits on end users.
- 6.114 In light of our conclusion that BT will have the incentive and ability to increase wholesale prices in Market A in the absence of regulation, we have considered the following options for how we might approach price regulation in that market:
- no price specific price controls;
 - link prices in uncompetitive areas to competitive areas;
 - cost orientation;
 - voluntary commitments from BT;
 - charge control.

(a) No specific price controls

- 6.115 A combination of the general access remedies and non-discrimination remedies that we are imposing on BT in Market A has the potential to constrain BT's wholesale prices in Market A. The general access remedies are intended to act in addition to the *ex post* competition law requirement for a dominant operator not to engage in abusive conduct (e.g. excessive pricing or margin squeeze) towards downstream rivals.
- 6.116 It is possible that these obligations will be effective in constraining BT's wholesale prices if BT set a uniform national retail price, and the retail price in Market B is constrained by competition. This might mean that its retail prices will also be constrained at the competitive level in Market A. Furthermore, non-discrimination obligations and the threat of margin squeeze investigations could mean that BT is

³⁸³ <http://stakeholders.ofcom.org.uk/consultations/cost-orientation/>

unable to raise wholesale prices to competitors in Market A above the competitive level.

- 6.117 Historically, BT has priced its main products uniformly at the retail level. However, there is no assurance that it will continue this practice. It already prices some of its business products differentially according to geographic areas. Moreover, the BT subsidiary Plus.net prices differently in Market 2 and Market 3 (compared with Market 1). Finally BT Retail, whilst maintaining a national price, offers discounts to its customers, which could be used to price discriminate according to geography, although at present these appear limited [384].
- 6.118 In light of the above, we conclude that some form of price control is appropriate in Market A. BT's comment that we should rely solely on the general access and non-discrimination obligations does not alter that conclusion, as BT did not provide any further explanation for its view.

(b) Link prices in uncompetitive areas to competitive areas

- 6.119 This potential remedy would impose a pricing mechanism on BT by which Market A pricing would be linked to the pricing in the more competitive Market B. We note that no stakeholder provided comments on this option in its response to the 2013 WBA Consultation.
- 6.120 In March 2013, BT proposed a similar such mechanism to us, whereby Market 1 pricing could be linked to the pricing in the more competitive Market 3.³⁸⁵ BT told us that, in response to competitive pressures, its Market 3 pricing would continue to offer greater levels of bandwidth to end users without average prices increasing to the same extent, and that a pricing mechanism could be introduced to allow BT to mirror this dynamic in Market 1.
- 6.121 BT told us that this would provide:
- greater certainty and consistency of pricing across broadband markets for wholesale customers over the next five years;
 - pricing that supports further broadband bandwidth growth and a high level of end user experience in Market 1, without the need for Ofcom to impose direct market remedies; and
 - the necessary market conditions to complete the WBC roll-out to the remainder of the UK over the same period.
- 6.122 There are numerous difficulties associated with this approach, including the following:
- BT might offer discounts on the published prices in Market B or enter into bespoke commercial arrangements, defeating the purpose of the remedy by breaking the link between Market A and Market B prices;
 - if we linked prices in Market A with an average of non-published prices in Market B, it is not clear how we would calculate the average price (and it is not clear how often that average price would need to be recalculated);

³⁸⁴ BT response to s.135 notice, 28 November 2012.

³⁸⁵ Submission from BT, "Broadband Market 1 Discussion Paper", 7 March 2013.

- if BT made frequent adjustments to actual or headline prices in Market B, thereby affecting the prices in Market A, this could make monitoring of the remedy difficult; and
- there would also be a lack of transparency for BT's wholesale customers in that it would be difficult for them to see what price(s) the prices in Market A should be linked with.

6.123 As a result, there would be a high risk of regulatory failure by imposing such a remedy. Therefore, we have concluded that it would not be an appropriate or practicable remedy to address the competition concerns regarding potential excessive pricing in Market A.

(c) Cost orientation only

6.124 In the 2010 WBA Statement we imposed a cost orientation obligation on BT in both Market 1 (alongside a charge control) and Market 2 (where there was no charge control).

6.125 We have considered whether it is appropriate to impose only a cost orientation obligation on BT in Market A (i.e. in the absence of any charge control³⁸⁶). Such an obligation would require BT to set prices based on its costs incurred in Market A, to provide a safeguard against excessive pricing.

6.126 Although there has been stakeholder support for a cost orientation obligation, as we explain below, we have concluded that this remedy would not be appropriate for reasons of efficiency incentives, cost uncertainties, and the difficulty in selecting the appropriate basis for any cost orientation obligation.

6.127 To further address the point raised by Virgin, although we have imposed cost orientation on BT in previous market reviews, we consider below that the present market circumstances are such that a combination of a charge control and fair and reasonable charges addresses our pricing concerns.

Efficiency incentives

6.128 Cost orientation alone is less likely to encourage BT to reduce its costs over time by becoming more efficient in the provision of WBA services. Under an Inflation-X charge control, incentives are created on the incumbent provider to increase its efficiency, thereby imitating the effect of a competitive market. If the firm can reduce its costs below the level expected when the cap was set, then the firm retains the increased profits, at least for the period the control is in place. A cost orientation obligation, which only requires the firm to comply with prescribed cost floors and ceilings that move annually in line with costs, would not have the same effect.

Cost uncertainties

6.129 Up to now, BT has allocated the cost of IPstream on a national basis. However, BT is in the process of replacing IPstream with WBC and this will continue during the next market review period. It is unclear what impact this might have on BT's approach to cost allocation and, consequently, on its wholesale prices during the next market review period. Given this uncertainty, it is difficult to know how effective any cost

³⁸⁶ We consider in Section 7 whether it would be appropriate to impose a cost orientation obligation alongside a charge control.

orientation obligation would be in constraining BT's ability to increase its wholesale prices.

Basis for cost orientation obligation

- 6.130 Even if we did not have concerns regarding efficiency incentives or cost uncertainties, it is not obvious what the appropriate method for this type of regulation would be.
- 6.131 A cost orientation obligation based on DSAC and DLRIC is likely to allow BT too much pricing flexibility, creating uncertainty in the market. The wide range between the DSAC cost ceiling and DLRIC cost floor can be observed, for example, in the marked difference between DSAC and DLRIC for connected bandwidth in BT's RFS.³⁸⁷
- 6.132 As set out in previous Sections, BT faces little or no competition in Market A, so a tighter control is likely to be warranted in order to protect consumers.
- 6.133 We could use an alternative form of cost orientation obligation. One option would be to use an approach based on fully allocated costs ('FAC').³⁸⁸ However, setting a condition limiting all prices to FAC would be too rigid to allow the bounded flexibility we consider desirable. As the provision of WBA services is characterised by high fixed common costs which have to be recovered through charges, efficient recovery of total costs will require prices to be set taking account of the responsiveness of demand to changes in price. Simply setting all prices equal to a measure of accounting cost such as FAC therefore has the potential to be inefficient given the significant common costs. It would be possible to require average prices to be set at FAC; but that would then open the question of how to constrain individual prices. This could perhaps be done by allowing a particular range relative to FAC on smaller groups of services. However this starts to come close to the approach of a charge control, without the desirable efficiency benefits, as set out in the next paragraph.
- 6.134 A variant of this approach would be to allow prices to be set within a range, e.g. FAC plus Y%, potentially with a different value for Y across different groups of services. However, if we compare this approach to an Inflation-X charge control, it looks less desirable, as an inflation-X charge control also seeks to bring prices in line with FAC, but does so in a way that also offers efficiency benefits, as well as greater certainty both for the regulated firm and for other stakeholders.
- 6.135 This point is likely to apply particularly strongly where the regulated firm is considering upgrading to newer technology which may offer lower costs. If a lower-cost technology existed, a cost orientation obligation which required BT to maintain prices in line with annual costs would pull prices down immediately to the new lower level once the new technology was rolled out. This would risk providing less incentive to invest when compared to an inflation-X charge control, which would allow BT to reap the benefits from rolling out more efficient, lower-cost services, at least for the life of the charge control.

³⁸⁷ See page 112 of BT's 2013 RFS,

<http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2013/CurrentCostFinancialStatements2013.pdf>.

³⁸⁸ FAC is an accounting concept designed to ensure that all of a firm's relevant costs (both incremental and common) are attributed to its activities. If a firm set all its charges equal to FAC for each unit, all things being equal, it would be expected to recover (but not over-recover) all its costs, including all of its common costs. These costs typically also include an allowance for a return on capital which is measured at the firm's cost of capital (i.e. its WACC).

(d) Voluntary commitments

- 6.136 In its response to the 2013 WBA Consultation, BT said a return to voluntary safeguards would be a more proportionate remedy than a charge control.³⁸⁹ We do not agree. There is no certainty that commitments would address our competition concerns regarding excessive pricing. This is because, given the voluntary nature of the commitments, BT might be able to set prices at an excessive level in Market A. In contrast, a charge control would allow BT to make a return on investment in Market A whilst acting to constrain its ability to set prices above the competitive level which may result in consumers paying higher retail prices.

(e) Charge control

- 6.137 Having identified a risk of excessive pricing in Market A in our market analysis, we consider that some form of price control is necessary.
- 6.138 However, none of the approaches discussed above (relying on general access and non-discrimination obligations, linking prices in uncompetitive areas to competitive areas, or cost orientation only) would be likely to address our concerns. We have therefore concluded that these concerns should be addressed through an appropriate charge control condition.
- 6.139 We recognise that a charge control potentially carries scope for forecasting error, which is not a concern in respect of cost orientation obligations. This is because charge controls are based on a regulatory forecast of costs at the time of the market review, while cost orientation obligations are based on an annual assessment of current costs. However, as we explain in Section 7, costs are not so uncertain as to prevent us from designing an effective charge control remedy. Furthermore, the duration of the charge control will be limited to three years, which will mitigate the potential impact of any forecast error.
- 6.140 In Section 7, we consider the specifics of the charge control, including comments raised by stakeholders in their responses to the 2013 WBA Consultation.

Fair and reasonable charges

- 6.141 While the charge control remedy seeks to address our concerns regarding excessive pricing, it may not be able to address other forms of anticompetitive pricing such as discrimination, margin squeeze, or, potentially, excessive pricing in respect of WBC.³⁹⁰
- 6.142 For this reason, as part of the wider general access obligation (see paragraphs 6.48 to 6.53), we are imposing an obligation on BT which will require it to provide WBA and any ancillary services on fair and reasonable charges.
- 6.143 With regard to the point raised by Virgin, we do not consider that there is a lack of transparency in relation to the fair and reasonable charges requirement. Unlike in relation to the charge control remedy, we cannot specify with precision or certainty

³⁸⁹ On 10 November 2006, BT undertook a voluntary commitment to place a floor and ceiling on the average revenue per user (ARPU) for wholesale broadband access, which was set by use of a reference pricing model. The commitment applied to BT's IPstream and WBC wholesale broadband products and remained in place until 1 April 2011.

³⁹⁰ With regard to potential excessive pricing in respect of WBC, see also paragraph 7.73 of this statement.

the types of pricing behaviour that BT would be likely to engage in. This means the requirement is necessarily broad in scope and that we are limited in our ability to provide detailed guidance on what is meant by 'fair and reasonable charges'. However, the condition will require BT to maintain a suitable margin between its WBA charges and its charges for retail products which are based on WBA.

- 6.144 It should also be noted that we do not intend the requirement for fair and reasonable charges to establish any additional constraint over and above the charge control remedy on the maximum prices that BT can charge in relation to the products and services to which the charge control specifically applies, except in as far as lower prices might be necessary to satisfy the requirement not to impose a margin squeeze.
- 6.145 The requirement for fair and reasonable charges could also be used to address any concerns about low prices. However, we do not consider that predatory pricing is likely to be a concern in Market A.
- 6.146 In addition, and separately, the margin between BT's WBA charges and its charges for retail products which are based on WBA will be subject to assessment under EU and/or UK competition law.
- 6.147 As discussed in the 2014 FAMR Draft Statement, in relation to Virtual Unbundled Local Access (VULA) there is a distinction between SMP (ex-ante) and competition law (ex-post) regulation. However, whether this distinction manifests itself as a different approach when assessing a potential margin squeeze will depend on the potential concern being addressed by the SMP regulation.
- 6.148 Our concerns in respect of WBA products in Market A are different to those in relation to VULA across the whole of the UK. Consumers in Market A areas already face some of the highest prices for broadband services in the UK. Therefore, we would not want to pursue a regulatory approach that may result in these prices increasing in the short to medium term further unless there were clear long term benefits that outweighed these price increases.
- 6.149 The requirement for charges to be fair and reasonable in addition to competition law is sufficient to address any potential concerns regarding alleged margin squeeze.

Cost accounting

- 6.150 We have concluded that a transparency obligation requiring BT to provide cost accounting data is appropriate in order to provide transparency of BT's costs in Market A, as this will allow us and other stakeholders to ensure BT is complying with the charge control obligations.
- 6.151 In Section 7, we consider the cost accounting obligations, including comments raised by stakeholders in their responses to the 2013 WBA Consultation. We note here that no stakeholder objected, in principle, to our proposal to impose costing accounting obligations on BT in Market A.

Conditions in Market A

- 6.152 Based on the above, we have decided to impose the following remedies on BT in Market A:

- Requirement to provide network access on reasonable request (including an obligation to provide access on fair and reasonable terms, conditions and charges);
- Requirement not to discriminate;
- Transparency obligations;
 - Requirement to publish a reference offer;
 - Requirement to notify charges, terms and conditions;
 - Requirement to notify technical information;
 - Transparency as to quality of service; and
 - Requirement to account separately.
- Charge control; and
- Cost accounting.

6.153 With the exception of the charge control and cost accounting conditions, which we discuss in Section 7, we discuss each of these conditions below, specifically in relation to how they address our competition concerns in Market A.

Requirement to provide network access on reasonable request, including an obligation to provide access on fair and reasonable terms, conditions and charges

6.154 Section 87(3) of the 2003 Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide such network access as it may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for new forms of network access are made and responded to, and for securing that conditions are complied with within the periods and at the times required by or under the conditions.

6.155 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the 2003 Act, including, inter alia, the technical and economic viability of installing other competing facilities, the feasibility of the proposed form of network access, the investment made by the person initially providing the network (taking account of any public investment made) and the need to secure effective competition (including, where it appears to Ofcom to be appropriate, economically efficient infrastructure based competition).

Aim of regulation

6.156 We have concluded that it is appropriate to impose a requirement on BT as a result of its SMP to meet reasonable requests for network access. In the absence of such a requirement, BT would have the ability and the incentive not to provide such access. It is therefore necessary to impose an obligation on BT to provide network access on reasonable request. The condition will also require BT to provide network access in response to such a reasonable request and that access should be provided on fair and reasonable terms, conditions and charges.

- 6.157 Our market analysis has shown that there are considerable sunk costs associated with building networks to provide broadband services in Market A, at least for current generation services. It is unlikely to be economically viable for other CPs to build direct access networks in Market A on a sufficient scale to provide a viable alternative to BT. Therefore, a requirement on BT to provide access to its network in Market A is appropriate as it is likely to facilitate competition in downstream markets by enabling CPs to compete without the need to invest in a network which might not be economically viable.
- 6.158 As noted in paragraph 6.53, it is only appropriate to require BT to meet those requests for network access that are reasonable and technically feasible (for example, have a high expected customer demand, or a low cost of development, or can be charged at a premium to recover costs of development).

Legal tests

- 6.159 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:
- objectively justifiable as it will secure effective competition by ensuring third parties are able to require WBA where they are unable to replicate BT's network;
 - not unduly discriminatory as it is imposed on BT and BT is the only operator which we have found holds SMP in Market A;
 - proportionate as it is directly targeted at addressing the market power which Ofcom consider BT holds in this market and it does not require BT to provide access where it is not technically feasible or reasonable; and
 - transparent in relation to what it is intended to achieve as it is clear that the intention of the condition is to ensure that BT provides access to its networks in order to facilitate competition.
- 6.160 We have also taken into account the factors set out in section 87(4) of the 2003 Act. In particular, the obligation will require BT to meet requests that are reasonable only, by which it is meant, inter alia, that the terms of access are technically and economically viable, and feasible. The requirement on BT only to meet reasonable network access requests also ensures that due account is taken of the investment made by BT initially in providing the network whilst ensuring that effective competition is secured in the long term.
- 6.161 We are also required to ensure that the condition satisfies the tests set out in section 88 of the 2003 Act as the requirement places controls on network access pricing, insofar as charges are required to be fair and reasonable.
- 6.162 Section 88(1)(a) of the 2003 Act requires that Ofcom must not impose price control conditions unless it appears to them from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. We have discussed above that, in the absence of price regulation requiring prices to be 'fair and reasonable', BT may price excessively or engage in a margin squeeze, and therefore that there is such a risk.
- 6.163 Section 88(1)(b) of the 2003 Act provides that Ofcom must not set a price control condition unless it appears to them that the setting of the condition is 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.
- 6.164 Fair and reasonable charges will prevent BT from passing on any inefficiently incurred costs to other wholesale providers through excessively high prices. In this way, this condition supports the aim of improved efficiency.
- 6.165 The provision of network access on fair and reasonable terms will also promote sustainable competition by ensuring that other CPs can effectively compete at the retail level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end users of the services.
- 6.166 We are also required, under Section 88(2) of the 2003 Act, to consider BT's investment. We believe that fair and reasonable charges will allow BT's costs to be taken into account and will also provide for common cost recovery. This condition is therefore an appropriate basis upon which to control BT's prices.
- 6.167 We have considered our duties under section 3 of the 2003 Act and consider that the condition will further the interests of citizens and consumers in relevant markets by the promotion of competition.
- 6.168 We have considered the Community requirements as set out in section 4 of the 2003 Act. The obligation will promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficient and sustainable competition in markets for electronic communications networks and services resulting in the maximum benefit for retail consumers of broadband internet access services.
- 6.169 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objectives "Assurance of access" (BP1 to BP9) and "Fair and coherent access pricing" (BP42).
- 6.170 BEREC BP10 ("Assurance of co-location at delivery points") is not relevant to our assessment of remedies, as the interconnect products currently in place in the market do not rely on co-location.
- 6.171 In using a fair and reasonable charges obligation to protect against a margin squeeze, the condition is also consistent with the 2002 Access Guidelines, which state that:³⁹¹
- "Of tel takes 'fair and reasonable' to mean, amongst other things, that terms and conditions under which products are offered are consistent with those which would be offered in a competitive market, sensible, practical, and do not impose a margin squeeze on competitors".
- 6.172 For the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

³⁹¹ "Imposing access obligations under the EU Directives", Of tel, 13 September 2002, paragraph 3.39, http://www.ofcom.org.uk/static/archive/oftel/publications/ind_guidelines/acce0902.pdf.

Equivalence of Inputs (EOI)

- 6.173 Article 8(1) of the Access Directive³⁹² requires Member States to ensure that national regulatory authorities are empowered to impose certain obligations where an operator is designated as having SMP. These include, under Article 10 of the Access Directive, obligations of non-discrimination. Article 10(1) provides that a national regulatory authority may: *“impose obligations of non-discrimination, in relation to interconnection and/or access”*. Article 10(2) further provides *“[o]bligations of non-discrimination shall ensure, in particular, that the operator applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services, and provides services and information to others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners”*.
- 6.174 Article 10 of the Access Directive is implemented into UK law by section 87(6)(a) of the 2003 Act which gives us a power to impose *“a 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 network access to the relevant network or with the availability of the relevant facilities”*. We consider any conditions imposed pursuant to this power require equivalence as per Article 10(2).³⁹³
- 6.175 Article 10 of the Access Directive, as implemented by section 87(6)(a) of the 2003 Act, provides a basis for imposing both EOI and a less strict interpretation of non-discrimination which prevents discrimination that is undue.

Aim of regulation

- 6.176 A non-discrimination obligation is intended as a complementary remedy to the network access obligation, principally to prevent the dominant provider from discriminating in favour of its own downstream divisions and to ensure that competing providers are placed in an equivalent position. Without such an obligation, the dominant provider is incentivised to provide the requested wholesale network access service on terms and conditions that discriminate in favour of its own downstream divisions.
- 6.177 Non-discrimination can have different forms of implementation. A strict form of non-discrimination – i.e. a complete prohibition of discrimination – 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. Essentially, the inputs available to all CPs (including the SMP CPs’ own downstream divisions) would be provided on a truly equivalent basis, an arrangement which has become known as EOI. An EOI obligation removes any degree of discretion accorded to the nature of the conduct.

³⁹² Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities, www.eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0007:0020:EN:PDF.

³⁹³ This position is supported by our 2005 guidance on Undue discrimination by SMP CPs where we state at paragraph 1.1 that *“in wholesale markets Requirements not to unduly discriminate (under the 2003 Act) have the same meaning, and describes the same concept, as an obligation of non-discrimination (under the [Access] Directive)”* (Ofcom, *Undue discrimination by SMP providers*, 15 November 2005, www.stakeholders.ofcom.org.uk/binaries/consultations/undsmp/statement/contraventions4.pdf).

6.178 On the other hand, a less strict interpretation of non-discrimination may allow for flexibility and result in a more practical and cost-effective implementation of wholesale inputs. For example, EOO implies that the wholesale products that BT offers to its wholesale customers should be comparable to those that it offers to its own retail activities, but the product and processes need not be exactly the same so long as any differences are not material. However, an undue discrimination remedy would, by its very nature (taking into account our Discrimination Guidelines³⁹⁴ and its application to a vertically integrated provider with SMP) allow for certain discriminatory conduct – compliance with that obligation needs to establish in particular whether the discrimination in question is undue.

6.179 For the reasons set out at paragraphs 6.54 to 6.80 we have concluded that it is appropriate and proportionate to impose EOI on BT to address the competition concerns we have identified in Market A. The EOI obligation will not apply to network access BT is already providing at the date the SMP conditions enter into force and therefore, for the reasons set out in paragraph 6.80, a no undue obligation will apply in respect of the provision of such network access.

Legal tests

6.180 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:

- objectively justifiable as it provides a safeguard to prevent BT from favouring its own retail business, to the disadvantage of its competitors, and to prevent BT from favouring particular CPs over others who lack any available substitutes;
- not unduly discriminatory as it is imposed on BT and BT is the only operator which has been found to hold SMP in Market A;
- proportionate in that it will enable CPs to compete effectively with BT at the retail level for the benefit of consumers, and BT will not incur any further costs in complying with the condition, given that it already supplies network access on an EOI basis; and
- transparent in relation to what it is intended to achieve as it is clear that the intention of the condition is to prevent undue discrimination.

6.181 We have considered our duties under section 3, and all the Community requirements set out in section 4, of the 2003 Act.

6.182 Given our finding that BT has SMP in the provision of WBA in Market A, BT controls a key input into a range of downstream services, principally asymmetric broadband internet access. Together with an obligation to provide network access, the obligation will in particular encourage the provision of network access and service interoperability for the purpose of efficiency and sustainable competition in downstream markets by ensuring that BT does not unduly discriminate. This will ensure a level competitive playing field, leading to the promotion of competition and the interests of consumers through the maximisation of choice in downstream markets.

³⁹⁴ Ofcom, *Undue discrimination by SMP providers – How Ofcom will investigate potential contraventions on competition grounds of requirements not to unduly discriminate imposed on SMP providers*, 15 November 2005, <http://stakeholders.ofcom.org.uk/binaries/consultations/undsmp/statement/contraventions4.pdf>.

6.183 Therefore, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition in accordance with section 3 of the 2003 Act.

6.184 Further, under section 4 of the 2003 Act, the condition in particular promotes 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 of broadband internet access services.

6.185 In reaching our decision we have taken utmost account of the Costing and Non-Discrimination Recommendation and the BEREC Common Position on WBA.

6.186 In relation to achieving the objective of a level playing field, the BEREC Common Position on WBA identifies, amongst other things, as best practice that:

“**BP13** NRAs should impose an obligation on SMP CPs requiring equivalence, and justify the exact form of it, in light of the competition problems they have identified.

BP13a NRAs are best placed to determine the exact application of the form of equivalence on a product-by-product basis. For example, a strict application of EOI is most likely to be justified in those cases where the incremental design and implementation costs of imposing it are very low (because equivalence can be built into the design of new processes) and for certain key legacy services (where the benefits are very high compared to the material costs of retro-fitting EOI into existing business processes. In other cases, EOO would still be a sufficient and proportionate approach to ensure non-discrimination (e.g. when the wholesale product already shares most of the infrastructure and services with the product used by the downstream arm of the SMP operator).”

6.187 In reaching our decision, we have also taken into consideration the Costing and Non-Discrimination Recommendation in which, in particular, the EC proposes that effective non-discrimination is best achieved by the application of EOI where proportionate.

6.188 We note that BT argues that, in proposing an SMP EOI remedy on BT in wholesale fixed access markets, we have failed to meet the standard recommended in the Costing and Non-Discrimination Recommendation. We believe that BT is incorrect in this assessment.

6.189 Point 7 of the Costing and Non-Discrimination Recommendation recommends:

“Where NRAs consider that the imposition of a non-discrimination obligation on SMP operators under Article 10 of Directive 2002/19/EC is appropriate, proportionate and justified pursuant to Article 16(4) of Directive 2002/21/EC and Article 8(4) of Directive 2002/19/EC, they should examine whether it would be proportionate to require SMP operators to provide relevant wholesale inputs on an EOI basis. In doing so, NRAs should consider, among other things, whether the compliance costs, for example due to the re-design of existing systems, are outweighed by the envisaged competition

benefits. In doing so, the NRA should take into account in the proportionality assessment, inter alia, the following considerations: (i) incremental costs of compliance with EOI are likely to be low when new systems are being designed, (ii) the potentially linked non-imposition of regulated wholesale access prices on NGA networks as recommended in points 48 and 49, (iii) the potentially positive effect the application of EOI might have on innovation and competition, (iv) any voluntary commitment by the SMP operator to provide wholesale inputs to access seekers on an EOI basis, as long as such a voluntary offer meets the conditions set out in this Recommendation and (v) the number and size of the SMP operator(s)."

- 6.190 It is our view that the approach we have adopted is consistent with the position set out in the Costing and Non-Discrimination Recommendation. Contrary to BT's assertion, having found that it is appropriate, proportionate and justified to impose an obligation under Article 10 of Directive 2002/19/EC, we have gone on to undertake a proportionality assessment of imposing EOI on BT (set out above) which takes into account the considerations set out in the Costing and Non-Discrimination Recommendation.
- 6.191 The Costing and Non-Discrimination Recommendation is clear that where the proportionality assessment is met it is recommended that "*EOI should be applied at the most appropriate level(s) in the value chain to those wholesale inputs which the SMP operator provides to its own downstream businesses*" unless it is clear that there is no demand for a particular wholesale input. We consider that the approach we have taken is consistent with this recommendation.
- 6.192 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Transparency obligations

- 6.193 We have concluded that BT will be subject to a set of obligations aimed at promoting transparency and ensuring non-discrimination. The obligations, which we discuss in more detail below, are:
- an obligation to publish a reference offer setting out prices, terms and conditions;
 - an obligation to give 28 days notice of changes to prices, terms and conditions for network access;
 - an obligation to notify technical information within 90 days of network access;
 - an obligation to publish quality of service information, as directed by Ofcom; and
 - an obligation to account separately.
- 6.194 These requirements are designed to support the network access and non-discrimination obligations. As noted above, they are designed to ensure that a vertically integrated incumbent such as BT does not use non-price discrimination to restrict competition in downstream markets.
- 6.195 In our view, since their imposition as a result of the 2010 WBA Statement, these SMP obligations have been on the whole effective in supporting the non-discrimination

obligation to address BT's ability and incentive to engage in anti-competitive discriminatory practices.

6.196 We are therefore re-applying these obligations to BT. We discuss each of the transparency obligations in more detail in the sub sections below.

Requirement to publish a reference offer (setting out prices, terms and conditions)

6.197 Section 87(6)(b) of the 2003 Act authorises the setting of SMP services conditions which require a dominant provider to publish information for the purpose of securing transparency in such manner as Ofcom may direct. Section 87(6)(c) of the 2003 Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract. Section 87(6)(d) permits the setting of SMP services conditions requiring the dominant provider to include specified terms and conditions in the reference offer. Finally, Section 87(6)(e) permits the setting of SMP services conditions requiring the dominant provider to make such modifications to the reference offer as may be directed by Ofcom from time to time.

6.198 Where we require a reference offer to be published, this should 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;
- information relating to technical interfaces and points of interconnection. Such information should ensure that providers are able to make full and effective use of all the services provided;
- conditions relating to maintenance and quality (service level agreements and guarantees). The inclusion of service levels, as part of the contractual terms of the 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; and
- terms, conditions and charges that are fair and reasonable. This will ensure that products are offered on terms and conditions as they would be in a competitive market.

Aim of regulation

6.199 We have concluded that it is appropriate to impose a requirement on BT to publish a reference offer. The main reasons for the publication of a reference offer are to assist transparency for the monitoring of potential anti-competitive behaviour and to give visibility to the terms and conditions on which other providers are able to purchase wholesale access services.

6.200 The requirement to publish a reference offer complements the network access conditions to secure freedom of choice for wholesale customers of BT and allow CPs to make informed decisions about future entry into the relevant market. Further, the obligation will promote the interests of purchasers of WBA by enabling them to adjust

their downstream offerings in competition with BT, in response to changes in BT's terms and conditions. Finally, the obligation will make it easier for Ofcom and other CPs in the relevant market to monitor any instances of discrimination.

- 6.201 Overall, the publication of a reference offer will help to ensure stability in markets and ensure that incentives to invest are not undermined.

Changes to the existing condition

- 6.202 In the 2010 WBA Statement, we required BT to include information relating to network components and usage factors in the reference offer. However, in the 2013 WBA Consultation, we proposed to remove this specific obligation.

- 6.203 EE said that it was concerned about our proposal to remove the transparency obligation requiring BT to include information relating to network components and usage factors. EE said it was worried that this may make it difficult for WBA customers to distinguish between the two types of WBA ancillary charges referred to at paragraph 7.68 of the July 2013 Consultation (those passed through directly and those subject to a mark-up above Openreach charges), given the different regulatory approach adopted by Ofcom in these two cases. EE also said that it does not consider anything has changed to make this information any less important to assist CPs in monitoring for potential anti-competitive behaviour and providing transparency than Ofcom determined in the last market review.

- 6.204 We have decided not to require BT to include information relating to network components and usage in the reference offer, on the basis that:

- a) it will continue to be required to publish FAC in its RFS, which must include reporting by network components and usage factors;
- b) requiring BT to provide this information on a more granular level in the reference offer is not necessary to assist CPs in monitoring for potential anti-competitive behaviour by BT, or to provide transparency that will allow them to make better informed decisions regarding purchasing WBA products; and
- c) in demonstrating compliance with the charge control remedy, BT has to take account of the two types of ancillary charges to which EE referred.

Legal tests

- 6.205 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:

- objectively justifiable in that it requires that terms and conditions are published allowing competing providers the ability to ensure they are receiving offers that do not unduly discriminate in favour of BT's own retail operations therefore ensuring that competition develops to the benefit of consumers. In particular, the reference offer will enable operators to make full and effective use of network access;
- not unduly discriminatory as it is imposed on BT and BT is the only operator which has been found to hold SMP in Market A;
- proportionate in that only information that is necessary to ensure that there is no material adverse effect on competition is required to be provided; and

- transparent as it is clear the obligation is designed to ensure that potential competitors have sufficient information to make investment decisions about entry into this market.
- 6.206 We have considered our duties under section 3, and all the Community requirements set out in section 4, of the 2003 Act.
- 6.207 The publication of a reference offer will secure freedom of choice for wholesale customers of BT and will mean that other CPs will have the necessary information readily available to allow them to make informed decisions about future entry into the market. It will also, in combination with a requirement not to discriminate unduly, facilitate service interoperability and secure freedom of choice for the customers of CPs. Further, the obligation will promote the interests of purchasers of WBA by enabling them to adjust their downstream offerings in competition with BT, in response to changes in BT's terms and conditions. Finally, the obligation will make it easier for Ofcom and BT's competitors to monitor any instances of discrimination.
- 6.208 Therefore, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition in accordance with section 3 of the 2003 Act.
- 6.209 Further, the condition meets the Community requirements set out in section 4 of the 2003 Act. In particular it promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.
- 6.210 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objectives "Transparency" (BP21 and BP22); "Reasonable quality of access product – technical issues" (BP23 and BP24); "Reasonable quality of access product – operational quality" (BP25 and BP26).
- 6.211 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Requirement to notify charges, terms and conditions

- 6.212 Section 87(6)(b) of the 2003 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 2003 Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract (e.g. by the publication of a reference offer).

Consultation proposals

- 6.213 In the 2013 WBA Consultation we proposed to impose on BT in Market A an obligation to give 28 days notice of changes to prices, terms and conditions for network access.

Consultation responses

- 6.214 EE in its response to the 2013 WBA Consultation said we should adopt a consistent approach with the 2013 FAMR Consultation by requiring a notice period of 28 days where BT is notifying new terms and conditions or a price decrease, and 90 days for price increases. It said our proposal for 28 days' notice for all changes would unduly discriminate against providers who consume WBA services rather than purchasing LLU directly, in violation of Ofcom's obligations under the 2003 Act.
- 6.215 BT also said that we should follow the approach in the 2013 BCMR Statement and set different notice periods for price increases and price decreases. It considered that a notice period of 28 days is appropriate for price increases and that 14 days is appropriate for price decreases, enabling customers to benefit from lower prices sooner than might otherwise be the case.

Our conclusions

- 6.216 With regard to the comments made by EE and BT, we do not consider that it is appropriate for us to impose different notice periods for price increases and price decreases, including for reasons of consistency with the fixed access market review.
- 6.217 In previous market reviews, Ofcom has generally set notice periods for access products at 90 days or 28 days, dependent upon what is appropriate in the relevant market. This is consistent with the approach set out in the Access Guidelines.³⁹⁵
- 6.218 The notice periods which we have decided to impose on BT in the 2014 FAMR Draft Statement are 90 days and/or 28 days, depending on the nature of each defined market. We consider they allow sufficient time for downstream providers to make necessary changes to their downstream products and services in each of the markets.
- 6.219 In Market A, we remain of the view, as communicated in the 2004 WBA Statement, that 28 days is the minimum period necessary to allow competing providers to plan for changes to prices, terms and conditions for network access.
- 6.220 We have therefore decided to impose on BT in Market A an obligation to give 28 days' notice of any such changes.
- 6.221 This obligation will not apply to the first change of the price control period provided that the only changes being proposed are reductions in charges and no other changes to the terms and conditions on which BT provides network access are being proposed. The purpose of this limited exception is to recognise the approach that BT has taken to pricing of IPstream in the period between 1 April 2014 (when the charge control imposed in the 2011 WBA Charge Control Statement expired) and 1 July 2014 (when the new charge control will come into effect). In a letter dated 19 March 2014³⁹⁶, BT informed Ofcom that its approach to pricing during this period aims to ensure that BT Wholesale and its customers will be in the same position as if the control had started on 1 April 2014 rather than 1 July 2014. To achieve this, BT proposed to leave prices unchanged between 1 April and the 30 June 2014 and then

³⁹⁵ Annex 3, Oftel, *Imposing access obligations under the new EU Directives*, 13 September 2002, www.ofcom.org.uk/static/archive/oftel/publications/ind_guidelines/acce0902.pdf.

³⁹⁶ Letter from BT (Steve Best) to Ofcom (David Clarkson), 19 March 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/wba-review-update/Interim_arrangements_BT_letter.pdf.

to set prices on 1 July 2014 for IPstream such that the weighted average price for these services over the Financial Year 2014/15 will be the same as if the charge control had become effective on 1 April 2014. This means that the cost to BT's customers over this period is the same as it would have been had the new charge control taken effect on 1 April 2014.

- 6.222 In light of the fact that it has been BT's practice to introduce new charges for IPstream on the 1 July 2014 and that the price reductions to be made by BT will be to ensure compliance with the new charge control, in a letter dated 20 March 2014³⁹⁷ Ofcom agreed to amend the legal conditions so as to allow BT to make price changes on 1 July 2014 without giving 28 days' notice (provided such changes are reductions and do not involve other changes to the terms and conditions on which BT provides network access). The exceptional disapplication of the usual notice period will allow BT's customers to benefit from price reductions sooner than would otherwise be the case.

Aim of regulation

- 6.223 The notification of charges, terms and conditions at the wholesale level has two main purposes:
- first, it allows CPs to consider whether these changes require amendments to their own retail offerings; and
 - second, it assists transparency for the monitoring of potential anti-competitive behaviour and to give advanced warning of changes to competing providers purchasing wholesale access services, facilitating service interoperability and securing freedom of choice for the customers of CPs.
- 6.224 The latter is important to ensure that competing providers have sufficient time to plan for such changes, as they may want to restructure their own offerings in response to changes at the wholesale level. Notification of charges, terms and conditions therefore helps to ensure stability in markets and without it incentives to invest might be undermined and market entry less likely.
- 6.225 We consider that it is appropriate to impose a requirement on BT as a result of its SMP to notify any planned changes to charges, terms and conditions in advance of those changes taking place. The main benefit of this in wholesale markets is that other CPs will have the opportunity to consider whether these changes necessitate a change in their retail offerings. This will then create a 'ripple effect' that passes any wholesale changes down to end-users.

Legal tests

- 6.226 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:
- objectively justifiable in that general and reliable visibility of a dominant operator's charges, terms and conditions is needed to enable competitors to set charges, terms and conditions for their services that are based on purchasing the regulated inputs and it also allows Ofcom and competitors to monitor BT's charges, terms and conditions for possible anti-competitive behaviour;

³⁹⁷ Letter from Ofcom (David Clarkson) to BT (Steve Best), 20 March 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/wba-review-update/Interim_arrangements_Ofcom_letter.pdf.

- not unduly discriminatory as it is imposed on BT and BT is the only operator which has been found to hold SMP in Market A;
- proportionate in that a 28 day notification period achieves the purpose of allowing other CPs a sufficiently long period to plan for changes to charges, terms and conditions and to adjust their own offerings, whilst not being unduly burdensome for BT;
- transparent as it is clear the intention is to ensure that BT notifies those who purchase its services of changes to charges, terms and conditions.

6.227 We have considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the 2003 Act.

6.228 The condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition, in accordance with section 3 of the 2003 Act.

6.229 The condition meets the Community requirements set out in section 4 of the 2003 Act. In particular the condition promotes competition in relation to the provision of electronic communications networks, and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.

6.230 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies on notice periods (BP16) and the best practice remedies falling under the objective “Transparency” (BP21 and BP22).

6.231 For all the reasons set out above, we the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Requirement to notify technical information

6.232 Section 87(6)(c) of the 2003 Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract. Section 87(6)(b) of the 2003 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.

Consultation proposals

6.233 In the 2013 WBA Consultation we proposed an obligation requiring BT to notify technical information at least 90 days in advance of BT entering into a contract to provide network access or making changes to existing network access unless Ofcom consents otherwise.

Consultation responses

6.234 BT said in its response to the 2013 WBA Consultation that the condition should be revised to provide it with the flexibility to introduce technical changes in fewer than 90 days in circumstances where all purchasers to a product agree to the change, thereby avoiding consumer harm in the form of delayed improvements or enhancements to service. It said this would be preferable to seeking a waiver of the

notification obligation, as in its experience this has been a cumbersome and unwieldy solution to the issue.

- 6.235 BT told us, following its response to the 2013 WBA Consultation, that in cases where a large number of CPs were affected, it would not be possible for it to provide Ofcom with confirmation that all CPs were in agreement for a technical change to be implemented in less than 90 days from notification. It said this would only be possible where a few CPs were affected.³⁹⁸

Our conclusions

- 6.236 We have decided that BT will be required in Market A to publish any new or modified technical characteristics, points of network access and technical standards at least 90 days in advance of BT either entering into a contract to provide new network access or making technical changes to existing network access unless Ofcom consents otherwise.
- 6.237 This will enable other CPs to ensure that their systems are interoperable with any changes to technical specifications that would be likely to affect their business.
- 6.238 We have decided not to amend the condition to enable BT to introduce technical changes in fewer than 90 days in circumstances where wholesale purchasers agree to the change. The main reason for this is that, according to information provided by BT, it might not always be possible for BT to provide us with confirmation that every affected CP had agreed to a reduced notice period.
- 6.239 Additionally, while BT provided us with one hypothetical scenario, it was not able to provide details of any circumstances that are likely to arise during the next market review period in which it considers it would be beneficial for BT to have an ability to introduce technical changes in fewer than 90 days.
- 6.240 We also note that no other stakeholder has requested that we amend the condition.

Aim of regulation

- 6.241 In Market A, BT will be required to publish any new or modified technical characteristics, points of network access and technical standards at least 90 days in advance of BT either entering into a contract to provide new network access or making technical changes to existing network access unless Ofcom consents otherwise.
- 6.242 The main benefit of this in wholesale markets is that other CPs can ensure that their systems are interoperable with any changes to technical specifications that are likely to affect their business.

Legal tests

- 6.243 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:
- objectively justifiable in that it enables competing operators to make full and effective use of network access; the period allows CPs time to react to proposed changes without imposing an unnecessarily long notification period on BT that may restrict their ability to develop and deploy new features or products;

³⁹⁸ Emails dated 16 October 2013 and 21 October, respectively, from BT to Ofcom.

- not unduly discriminatory as it is imposed on BT and BT is the only operator which has been found to hold SMP in Market A;
- proportionate in that in most circumstances 90 days is the minimum period necessary to allow competing providers to modify their networks and any extension will be required only where it is reasonable to do so;
- transparent in that it is clear in its intention that BT notifies technical information.

6.244 We have considered our duties under section 3 of the 2003 Act. We consider that, by ensuring that CPs are given sufficient time to make any changes to technical specifications likely to affect their businesses, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition.

6.245 We have also considered the Community requirements as set out in section 4 of the 2003 Act. The condition in particular promotes 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 of broadband internet access services.

6.246 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedy on notice periods (BP16) and the best practice remedies falling under the objective “Transparency” (BP21 and BP22).

6.247 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Transparency as to quality of service

6.248 Section 87(6)(b) of the 2003 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 as Ofcom may direct for the purpose of securing transparency.

Aim of regulation

6.249 Vertically integrated operators have the ability to favour their own downstream business over third party CPs by differentiating on price or terms and conditions. This discrimination could also take the form of variations in quality of service (either in service provision and maintenance or in the quality of network service provided by the dominant provider to external providers compared to its own retail operations). This has the potential to distort competition at the retail level by placing third party CPs at a disadvantage in terms of the services they can offer consumers to compete with the downstream retail business of the vertically integrated operator.

6.250 In light of this, we consider that it is appropriate to impose a requirement on BT, as a result of its SMP, to publish information related to transparency as to quality of service. The main benefit of this in wholesale markets is that other CPs could ensure that the service they receive from BT is equitable to that provided by BT to its own retail divisions.

6.251 The obligation will require BT to publish information as directed by Ofcom, rather than requiring BT to publish specific information from the date of the imposition of the obligation. This is the same as the condition imposed in previous reviews.

Legal tests

6.252 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:

- objectively justifiable in that it enables competing operators to make full and effective use of network access and to ensure that, in purchasing this access, they are not unduly discriminated against and where concerns arise about quality of service provided by BT, it allows Ofcom to react quickly to impose additional transparency requirements;
- not unduly discriminatory as it is imposed on BT and BT is the only operator which has been found to hold SMP in Market A;
- proportionate as it only requires BT to publish information as directed by Ofcom in line with the aim of this obligation; and
- transparent in that it is clear that the intention of the condition is to require BT to publish quality of service information, as directed from time to time.

6.253 We consider that, in ensuring the network access that third party CPs receive from BT is equal to that provided by BT to its own retail divisions, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition in accordance with section 3 of the 2003 Act.

6.254 Further, the condition meets the Community requirements in section 4 of the 2003 Act and in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.

6.255 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objective “Transparency” (BP21 and BP22).

6.256 We have considered whether we should impose a requirement on BT to provide Key Performance Indicators (KPIs). In reaching our view, we have taken utmost account of BP27 of the BEREC Common Position on WBA, as well as due account of points 19 to 25 of the Costing and Non-Discrimination Recommendation. These provide that NRAs should impose a generic requirement on SMP operators to provide KPIs as a means to monitor compliance with a non-discrimination obligation.

6.257 We recognise that, in the absence of KPI data, it may be difficult for CPs to assess whether to raise complaints regarding the provision of services on a non-discriminatory basis. However, we are also mindful that any requirement on BT to publish information should be applied proportionately in response to a specific competition concern.

6.258 The transparency as to quality of service obligation we are imposing allows for the imposition of such reporting requirements on BT, where they are warranted. We do not consider they are warranted at present, as BT currently provides its WBA services on an EOI basis in Market 1 and Market 2 and this provision of service is

subject to review by the Equality of Access Office.³⁹⁹ As such, we expect concerns relating to the provision of these services in a non-discriminatory fashion to be raised via this alternate reporting mechanism. Therefore, it is not proportionate to require BT to publish KPI information at the current time.

6.259 With regard to point 26 of the Recommendation, we would intervene if we had reasonable grounds to suspect that BT was not complying with its EOI obligation.

6.260 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Requirement to account separately

6.261 Sections 87(7) and 87(8) of the 2003 Act authorise Ofcom to impose appropriate accounting separation obligations in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities.

Aim of regulation

6.262 The accounting separation obligation requires dominant providers to report separately for each of the relevant markets and services, and account separately for internal and external 'sales'. This provides a higher level of detail of information (and therefore transparency) than that derived from the statutory financial statements of the notified operator, and allows Ofcom and third party CPs to monitor the activities of BT to ensure that it does not discriminate in favour of its own downstream business.

Regulatory Financial Reporting

6.263 On 20 December 2013 we published our proposals to change the framework for BT's regulatory financial reporting from the current framework which was first implemented in 2004.⁴⁰⁰

6.264 These proposals amended those which we set out in the 2013 WBA Consultation in relation to regulatory accounting obligations on BT in Market A.

6.265 Our 2014 Regulatory Financial Reporting Statement⁴⁰¹ sets out our considerations (in light of stakeholder responses to our proposals) and conclusions on the policy changes to BT's regulatory financial reporting framework and also our reasoning in relation to the specific form of the SMP conditions we are imposing on BT.

Legal tests

6.266 We supplement our reasoning by reference to the 2014 Regulatory Financial Reporting Statement in which we set out our further considerations and decisions on the specific form of the accounting separation requirements we have decided to impose on BT and how the SMP conditions at Annex 2 meet the relevant legal tests.

³⁹⁹ See the Equality of Access Office reporting of BT product KPIs for WBA products: <http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Ourundertakings/KeyPerformanceIndicators/KeyProductPerformanceIndicators/ipstream.htm>.

⁴⁰⁰ Ofcom, *Regulatory Financial Reporting – a review*, Consultation, 20 December 2013, <http://stakeholders.ofcom.org.uk/binaries/consultations/bt-transparency/summary/BTRFS.pdf>.

⁴⁰¹ Ofcom, *Regulatory Financial Reporting – a review*, Statement, 20 May 2014, <http://stakeholders.ofcom.org.uk/consultations/regulatory-financial-reporting/statement/>.

6.267 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:

- objectively justifiable in that it ensures the obligation to not unduly discriminate is met which provides a safeguard to prevent BT from favouring its own retail business to the disadvantage of its competitors;
- not unduly discriminatory as it is imposed on BT and BT is the only operator which has been found to hold SMP in Market A;
- proportionate as it is necessary as a mechanism to allow Ofcom and third parties to monitor potentially discriminatory behaviour by BT in Market A;
- transparent as it is clear the intention is to monitor compliance with specific remedies and the particular accounting separation requirements of BT are clearly documented.⁴⁰²

6.268 We have considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the 2003 Act. In particular, the imposition of an accounting separation obligation is specifically justifiable and proportionate to promote competition in relation to the provision of electronic communications networks and services; to ensure the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of an accounting separation obligation will ensure that obligations designed to curb potentially damaging leverage of market power can be effectively monitored and enforced. In addition the imposition of an accounting separation obligation will allow Ofcom to monitor the profitability of BT in Market A.

6.269 For these reasons, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition in accordance with section 3 of the 2003 Act.

6.270 Under section 4 of the 2003 Act, the condition in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.

6.271 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

6.272 In our 2014 Regulatory Financial Reporting Statement we provide further detail as to how the specific form of accounting separation requirements we have decided to impose on BT (in the form of the SMP conditions in Annex 29) meet the relevant legal tests. This reasoning supplements the considerations set out above.

Charge control and cost accounting

6.273 We set out in Section 7 the aim of regulation and legal tests in respect of the charge control and cost accounting obligations we are imposing on BT in Market A.

⁴⁰² Ofcom, *The regulatory financial reporting obligations on BT and Kingston Communications, Final Statement and notification: Accounting separation and cost accounting*, 22 July 2004, www.stakeholders.ofcom.org.uk/binaries/consultations/fin_reporting/statement/finance_report.pdf.

Market B

- 6.274 In the 2013 WBA Consultation we proposed not to impose any regulation in respect of Market B, including any transitional arrangements on exchanges which move from Market 1 or Market 2 to Market B.
- 6.275 EE, Virgin and BT agreed with our consultation proposals. [3<] disagreed with our proposal not to require a period of notice for the withdrawal of existing regulatory obligations. It argued that this could allow BT to engage in discriminatory behaviour in wholesale business broadband, and therefore requested that SMP operators should be required to provide a minimum of 6 months' notice of any detrimental changes as a result of the removal of the regulations.
- 6.276 As set out in Section 5, we have found that no operator holds a position of SMP in Market B. Where a market has been found to be competitive, the framework requires that no remedies be imposed or maintained and any existing SMP remedies imposed in previous reviews be withdrawn, subject to an appropriate notice period.
- 6.277 In the 2010 WBA Statement, we identified 349 exchanges that moved from Market 1 or Market 2 to Market 3. In these exchanges, we removed regulation as per the framework but imposed a period of notice of 12 months during which BT would continue to be required to provide network access on reasonable request to its existing customers in these exchanges.
- 6.278 The objective of this period of notice was to provide existing WBA customers of BT with sufficient time to make alternative arrangements for their customers so as to avoid consumer detriment.
- 6.279 In the period since the last review was concluded, LLU roll-out has progressed. We note that 853 exchanges that were in Market 1 or Market 2 at the time of the 2010 WBA Statement now fall within the definition of Market B. However, we have decided not to impose a period of notice, similar to that in the last review, in relation to these exchanges. This is because POs seeking network access are already likely to have commercial arrangements with BT for the supply of WBA products in exchanges in de-regulated areas and so it is unlikely that any CPs will need a significant period to renegotiate contracts for supply in these specific exchanges. For this reason, we do not agree with [3<] that not requiring a period of notice for the withdrawal of existing regulatory conditions could allow BT to engage in discriminatory behaviour.

Remedies considered – the Hull Area

Assessment of competition problems in the Hull Area

- 6.280 As set out in Section 5, we have concluded that KCOM has SMP in the Hull Area throughout the next market review period. We have also concluded that the competition problems in the Hull Area are broadly the same as those in Market A and that national and EU competition law remedies are insufficient to address those competition problems. Our reasoning is the same as that discussed above with regard to BT in Market A. As such we do not repeat it here.
- 6.281 Given our conclusion, an absence of regulation would be unlikely to result in the development of effective competition in downstream services (in terms of price, roll-out, service quality and product differentiation). Other providers would be unlikely to enter to provide downstream services as they would require access to be provided by KCOM and, in the absence of regulation, KCOM would have little incentive to provide

services to them. The consequence of this would be a restriction of competition in the Hull Area and in the provision of downstream broadband services.

6.282 In light of our market analysis, in particular our SMP assessment and our assessment of the insufficiency of national and EU competition law remedies to address the competition problems we have identified, we consider that, over the course of the review period, competition would be ineffective in the Hull Area. In order to address the competition problems we now turn to our assessment of the appropriate remedies.

General access, non-discrimination and transparency obligations

Consultation proposals

6.283 In the 2013 WBA Consultation we proposed to impose on KCOM in the Hull Area the following general access, non-discrimination and transparency obligations on KCOM:

- Requirement to provide network access on reasonable request;
- Requirement not to unduly discriminate;
- Transparency obligations;
 - Requirement to publish a reference offer;
 - Requirement to notify charges, terms and conditions;
 - Requirement to notify technical information;
 - Transparency as to quality of service; and
- Requirement to account separately.

Consultation responses

6.284 KCOM and [3<] agreed with our proposal to impose general access and non-discrimination remedies on KCOM in relation to the WBA market in the Hull Area. KCOM said the imposition of a similar set of remedies in the last market review has given it the ability to develop other commercial arrangements which offer alternative ways of providing access for competing CPs which are less burdensome but still provide the service and functionality required.

6.285 [3<] added that mobile broadband could provide a competitive remedy against KCOM's de facto dominance if wholesale remedies in the mobile broadband market existed.

6.286 TalkTalk said that it is disproportionate for Ofcom to spend any material regulatory efforts on regulation of WBA in the Hull Area.

Our conclusions

6.287 For the same reasons we provide in relation to Market A, we have decided to impose the general access, non-discrimination and transparency obligations listed in paragraph 6.282 on KCOM in the Hull Area.

- 6.288 Whilst we have not seen any significant entry into the Hull Area based on provision of services based on KCOM's regulated wholesale offers, we consider it is important that these offers are available on non-discriminatory terms so that, should another provider wish to enter the market, they are able to compete with KCOM in the downstream retail market.
- 6.289 Given our conclusion in Section 3 that mobile broadband falls outside the relevant product market, we do not address further the point raised by [3<].

Price controls

Consultation proposals

- 6.290 In the 2013 WBA Consultation, we proposed not to impose a charge control and/or cost orientation on KCOM in the Hull Area. However, we did propose that as part of the general access remedy, KCOM would be obliged to provide network access on such terms and conditions, including charges, as we may from time to time direct.

Consultation responses

- 6.291 KCOM agreed with our proposals, arguing that the imposition of a price remedy on KCOM would not have the effect of encouraging others to enter the market. [3<], on the other hand, suggested that the lack of success of such remedies in the past is evidence that they are ineffective and more radical measures should be considered, though it did not specify what the "radical measures" should be.

Our conclusions

- 6.292 In addition to the general remedies set out above, we have considered the appropriateness of imposing a charge control and/or cost orientation on KCOM in the Hull Area in light of the comments made by KCOM and [3<].
- 6.293 In Hull, there is unlikely to be LLU roll-out due to the very small size of the market and the cost to each LLU operator of establishing processes and systems that interface with KCOM. It does not appear to us that the lack of a charge control is a key consideration in CPs' investment decisions in relation to the Hull Area. We do not consider cost orientation/charge control remedies would be effective in promoting entry by other CPs at the retail level. There does not appear to be demand from CPs to enter the Hull Area based on a wholesale broadband product from KCOM.
- 6.294 We are of the view that the best approach is to impose general access remedies so that CPs can request a product on non-discriminatory terms in order to enter the broadband market – if they choose. If we impose additional regulatory burdens on KCOM, the costs of these would need to be recovered from its own retail customers if no wholesale demand emerged. Even if we only imposed a cost orientation obligation, KCOM would still face the additional burden of more detailed reporting and, it is unlikely this data would be particularly useful because as long as KCOM is the only purchaser of its wholesale products, its pricing and cost allocations to specific products and organisational units are relatively artificial.
- 6.295 We have considered the Community requirements set out in section 4 of the 2003 Act. A condition requiring KCOM to comply with a cost orientation or charge control obligation for WBA would not meet the criteria set out in Section 88 of the 2003 Act. Section 88 allows Ofcom to impose cost orientation and charge control obligations if we consider that there is sufficient risk of adverse effects arising from price distortion.

We must also consider if the setting of the condition promotes efficiency, promotes sustainable competition and confers the greatest possible benefits on end users. We must also take account of the extent of investment made by the dominant provider.

- 6.296 It is unlikely that either a cost orientation or charge control obligation would promote sustainable competition, given that third parties have not indicated to us that, during the market review period, they are likely to enter the market in the Hull Area.
- 6.297 We have considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the 2003 Act and consider that our decision not to impose a price control on KCOM in the Hull Area is consistent with these. In particular, we do not consider that a price control imposed in this market would act to further the interests of citizens and consumers in the relevant markets by the promotion of competition nor would it be likely to encourage the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services.

Conditions in the Hull Area

- 6.298 Based on the above, we conclude that the following conditions are required to address our competition concerns:
- Requirement to provide network access on reasonable request (including an obligation to provide access on fair and reasonable terms, conditions and charges);
 - Requirement not to unduly discriminate;
 - Transparency obligations;
 - Requirement to publish a reference offer;
 - Requirement to notify charges, terms and conditions;
 - Requirement to notify technical information;
 - Transparency as to quality of service; and
 - Requirement to account separately.

6.299 We discuss each of these specific conditions below.

Requirement to provide network access on reasonable request, including an obligation to provide access on fair and reasonable terms, conditions and charges

- 6.300 Section 87(3) of the 2003 Act authorises Ofcom to set SMP services conditions requiring the dominant provider to provide such network access as it may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for new forms of network access are made and responded to, and for securing that conditions are complied with within the periods and at the times required by or under the conditions.
- 6.301 When considering the imposition of such conditions, Ofcom must have regard to the six factors set out in section 87(4) of the 2003 Act, including, inter alia, the technical

and economic viability of installing other competing facilities, the feasibility of the proposed form of network access, the investment made by the person initially providing the network (taking account of any public investment made) and the need to secure effective competition (including, where it appears to Ofcom to be appropriate, economically efficient infrastructure based competition).

Aim of regulation

- 6.302 The condition will require KCOM as a result of its SMP to meet reasonable requests for network access. The condition will also require KCOM to provide network access in response to such a reasonable request on fair and reasonable terms and conditions, including charges. KCOM will also be obliged to provide network access on such terms and conditions, including charges, as Ofcom may from time to time direct.
- 6.303 The aims and effects of the condition to provide network access in the Hull Area are the same as those discussed above in Market A. As such, we do not repeat those discussions here.

Legal tests

- 6.304 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:
- objectively justifiable as it will secure effective competition by ensuring third parties are able to require WBA where they are unable to replicate KCOM's network;
 - not unduly discriminatory as it is imposed on KCOM and KCOM is the only operator which we have found holds SMP in the Hull Area;
 - proportionate as it is directly targeted at addressing the market power which we have found KCOM holds in this market and it does not require KCOM to provide access where it is not technically feasible or reasonable; and
 - transparent in relation to what it is intended to achieve as it is clear that the intention of the condition is to ensure that KCOM provides access to its networks in order to facilitate competition.
- 6.305 We have also taken into account the factors set out in Section 87(4) of the 2003 Act. In particular, the obligation requires KCOM to meet requests that are reasonable only, by which it is meant, *inter alia*, that the terms of access are technically and economically viable, and feasible. The requirement on KCOM only to meet reasonable network access requests also ensures that due account is taken of the investment made by KCOM initially in providing the network whilst ensuring that effective competition is secured in the long term.
- 6.306 We are also required to ensure that the condition satisfies the tests set out in section 88 of the 2003 Act as the requirement places controls on network access pricing, insofar as charges are required to be fair and reasonable.
- 6.307 Section 88(1)(a) of the 2003 Act requires that Ofcom must not impose price control conditions unless it appears to them from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. We have discussed above that, in the absence of price

regulation requiring prices to be ‘fair and reasonable’, KCOM may price excessively or engage in a margin squeeze, and therefore there is such a risk.

6.308 Section 88(1)(b) of the 2003 Act provides that Ofcom must not set a price control condition unless it appears to them that the setting of the condition is 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.

6.309 We consider that fair and reasonable charges will prevent KCOM from passing on any inefficiently incurred costs to other wholesale providers through excessively high prices. In this way, this condition supports the aim of improved efficiency.

6.310 We also consider that the provision of network access on fair and reasonable terms will promote sustainable competition by ensuring that other CPs can effectively compete at the retail level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end users of the services.

6.311 We are also required, under Section 88(2) of the 2003 Act, to consider KCOM's investment. We believe that fair and reasonable charges will allow KCOM's costs to be taken into account and will also provide for common cost recovery. This condition is therefore an appropriate basis upon which to control KCOM's prices.

6.312 We have considered our duties under section 3 of the 2003 Act and consider that the condition will further the interests of citizens and consumers in relevant markets by the promotion of competition.

6.313 We have also considered the Community requirements as set out in section 4 of the 2003 Act. We consider the condition in particular promotes 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 markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.

6.314 In addition, we consider that the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objectives “Assurance of access” (BP1 to BP9) and “Assurance of co-location at delivery points” (BP10).

6.315 We are not imposing any remedies on KCOM to reflect the best practice remedy BP28, which states that “NRAs should impose obligations on SMP operators in order to ensure wholesale switching processes are speedy and efficient”. This is because switching between wholesale suppliers has so far not been significant in the UK. To the extent that it does occur it relies on migration processes in the upstream LLU market. Furthermore, since Market A and the Hull Area together represent only a small proportion of premises, migration processes in the competitive Market B, which we do not intend to regulate, will be the more important factor in switching.

6.316 For the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Requirement not to unduly discriminate

6.317 Section 87(6)(a) of the 2003 Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons, or against a particular description of persons, in relation to matters connected with the provision of network access.

Aim of regulation

6.318 We consider that, in order to meet our objective to promote efficient and sustainable competition at the wholesale level, it is appropriate to impose a requirement on KCOM not to discriminate unduly in the provision of network access. In the absence of such a requirement, KCOM could favour its own downstream businesses which would adversely affect competition.

6.319 Based on the particular characteristics of the Hull Area, it is not appropriate to impose a requirement on KCOM to provide network access on an EOI basis, given there is limited uptake of WBA products by competing providers in the Hull Area and given the absence of an existing EOI obligation similar to that to which BT is subject pursuant to the BT Undertakings. Imposing an EOI requirement as an SMP condition in the Hull Area would be unduly onerous as it would require KCOM to re-engineer existing systems and processes in order to comply with the condition.

6.320 In circumstances where we rely on the no undue-discrimination requirement (rather than an EOI obligation) to remedy the incentive and ability for an operator with SMP to engage in discriminatory pricing and/or non-pricing practices, we refer in particular to Chapter 3 of our Access Guidelines. In this section, we explain that the aim of a no undue-discrimination condition is to ensure that a vertically integrated SMP operator does not treat itself in a way that benefits itself, its subsidiaries or its partners in such a way as to have a material adverse effect on competition. Furthermore, we explain in the Access Guidelines that:

“In order to ensure compliance with its obligations as regards non-discrimination under the AID [Access and Interconnection Directive], in general, an SMP operator should ensure that:

a) it applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services and provides services and information to others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners; and

b) it can objectively justify any differentiation.”

6.321 In imposing a no-undue discrimination condition on KCOM, we have considered the Costing and Non-Discrimination Recommendation⁷ which provides that:

- NRAs should ensure that the SMP operator provides wholesale inputs on at least an EOO basis; and
- as a minimum, technical replicability of the SMP operator’s new retail offers should be ensured.

- 6.322 We consider that our proposed no-undue discrimination obligation, as described above and with reference to the Access Guidelines, is consistent with the Costing and Non-Discrimination Recommendation.
- 6.323 EEO requires the provision of all wholesale inputs to access seekers in a manner which is comparable, in terms of functionality and price, to those the SMP operator provides to its own downstream businesses, albeit using potentially different systems and processes. It is our view that our proposed no undue discrimination obligation is consistent with EEO in that it requires the SMP operator to provide wholesale inputs to third parties in a manner which is comparable in terms of functionality and price to those the SMP operator provides to itself. Whilst a no undue discrimination obligation does allow for the possibility of objectively justifiable differences, this is more consistent with allowing different systems and processes to be used whereas the circumstances in which an objective justification could be raised to justify the SMP operator providing wholesale inputs in a manner which is not comparable in terms of functionality and price to those the SMP operator provides to itself would be very limited. This is reinforced by the fact that the Access Guidelines make clear that there is a rebuttable presumption that a vertically integrated SMP operator discriminating in favour of its own downstream business would have a material adverse effect on competition.
- 6.324 We note that the Costing and Non-Discrimination Recommendation envisages the application of a technical replicability test, whether undertaken by the SMP operator and passed to the NRA or undertaken by the NRA itself, in order that the ability of access seekers to technically replicate new retail offers of the downstream business of the SMP operator can be ensured.
- 6.325 With regard to KCOM, we observe that currently there is little interest amongst providers in seeking network access in the Hull Area notwithstanding that KCOM has been and continues to be subject to general network access obligations. It is therefore premature to consider imposing detailed technical replicability requirements on KCOM and, to do so, would increase the regulatory burden without any significant prospect that it would result in benefits to competition.

Legal tests

- 6.326 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:
- objectively justifiable as it provides a safeguard to prevent KCOM from favouring its own retail business, to the disadvantage of its competitors, and to prevent KCOM from favouring particular CPs over others who lack any available substitutes;
 - not unduly discriminatory as it is imposed on KCOM and KCOM is the only operator which has been found to hold SMP in the Hull Area. As explained above, we have taken a different approach with regard to non-discrimination as between KCOM and BT, in that the requirement for KCOM in the Hull Area is not to discriminate unduly, whereas BT must provide access in Market A on an EOI basis. We do not consider this difference of approach is discriminatory given there is limited uptake of WBA products by competing providers in the Hull Area, unlike in Market A, and given the absence of an existing EOI obligation similar to that to which BT is subject pursuant to the BT Undertakings;

- proportionate in that it will enable CPs to compete effectively with KCOM at the retail level for the benefit of consumers whilst being no more intrusive than necessary since it only prevents behaviour which is unduly discriminatory; and
- transparent in relation to what it is intended to achieve as it is clear that the intention of the condition is to prevent undue discrimination.

6.327 We have considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the 2003 Act.

6.328 In particular, as KCOM will be required to provide network access, the no undue discrimination obligation will encourage the provision of network access and service interoperability for the purpose of efficiency and sustainable competition in downstream markets by ensuring that KCOM does not unduly discriminate. This is necessary to ensure that there is a competitive level playing field. As we have found that KCOM has SMP in the provision of WBA in the Hull Area, it controls a key input into a range of downstream services, principally asymmetric broadband internet access. We consider that an obligation designed to prevent undue discrimination will promote competition and the interests of consumers and maximise choice in downstream markets.

6.329 For the above reasons, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition, in accordance with section 3 of the 2003 Act.

6.330 Further, we consider that, under section 4 of the 2003 Act, the condition in particular promotes 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 of broadband internet access services.

6.331 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objective “Level playing field” (BP11 to BP14).

6.332 In reaching our conclusions, we have also taken into consideration the Costing and Non-Discrimination Recommendation in which the EC recommends, amongst other matters, that effective non-discrimination is best achieved by the application of EOI, where proportionate, and that where EOI is disproportionate NRAs should ensure that SMP operators provide access at least on an EEO basis.

6.333 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Requirement to publish a reference offer

6.334 Section 87(6)(b) of the 2003 Act authorises the setting of SMP services conditions which require a dominant provider to publish information for the purpose of securing transparency in such manner as Ofcom may direct. Section 87(6)(c) of the 2003 Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract. Section 87(6)(d) permits the setting of SMP services conditions requiring the dominant provider to include specified terms and conditions in the reference offer. Finally, Section 87(6)(e) permits the setting of SMP

services conditions requiring the dominant provider to make such modifications to the reference offer as may be directed by Ofcom from time to time.

Aim of regulation

- 6.335 We have concluded that it is appropriate to impose a requirement on KCOM as a result of its SMP to publish a reference offer. The main terms of the reference offer are summarised above in relation to Market A. The main reasons for the publication of a reference offer are to assist transparency for the monitoring of potential anti-competitive behaviour and to give visibility to the terms and conditions on which other providers would be able to purchase wholesale access services.
- 6.336 The aims and effects of the requirement to publish a reference offer in the Hull Area are the same as those discussed above in Market A. As such we do not repeat those discussions here.

Legal tests

- 6.337 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:
- objectively justifiable in that it requires that terms and conditions are published allowing competing providers the ability to ensure they are receiving offers that do not unduly discriminate in favour of KCOM's own retail operations therefore ensuring that competition develops to the benefit of consumers. In particular, the reference offer will enable operators to make full and effective use of network access;
 - not unduly discriminatory as it is imposed on KCOM and KCOM is the only operator which has been found to hold SMP in the Hull Area;
 - proportionate in that only information that is necessary to ensure that there is no material adverse effect on competition is required to be provided; and
 - transparent as it is clear the obligation is designed to ensure that potential competitors have sufficient information to make investment decisions about entry into the Hull Area.
- 6.338 We have considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the 2003 Act.
- 6.339 In particular, the obligation encourages the provision of network access and service interoperability for the purpose of securing efficiency and sustainable competition and the maximum benefit for customers of CPs. The requirement to publish a reference offer will, in combination with a requirement not to discriminate unduly, facilitate service interoperability and secure freedom of choice for potential wholesale customers of KCOM. Other CPs will have the necessary information readily available to allow them to make informed decisions about entry into the market. Finally, the obligation makes it easier for Ofcom and KCOM's potential competitors to monitor any instances of discrimination.
- 6.340 For the above reasons, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition, in accordance with section 3 of the 2003 Act.

- 6.341 The condition, in accordance with section 4 of the 2003 Act, in particular promotes 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 of broadband internet access services.
- 6.342 The condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objectives “Transparency” (BP21 and BP22); “Reasonable quality of access product – technical issues” (BP23 and BP24); “Reasonable quality of access product – operational quality” (BP25 and BP26).
- 6.343 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Requirement to notify charges, terms and conditions

- 6.344 Section 87(6)(b) of the 2003 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 2003 Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract (e.g. by the publication of a reference offer).

Aim of regulation

- 6.345 We have concluded that it is appropriate to impose a requirement on KCOM as a result of its SMP to notify any planned changes to charges, terms and conditions in advance of those changes taking place. The main benefit of this in wholesale markets is that other CPs will have sufficient notice to consider whether these changes necessitate a change in their retail offerings.
- 6.346 The aims and effects of the condition to notify charges, terms and conditions in the Hull Area are the same as those discussed above in Market A. As such we do not repeat those discussions here.

Legal tests

- 6.347 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:
- objectively justifiable in that general and reliable visibility of a dominant operator’s prices is needed to enable competitors to set prices for their services that are based on purchasing the regulated inputs and it also allows Ofcom and competitors to monitor KCOM’s prices for possible anti-competitive behaviour;
 - not unduly discriminatory as it is imposed on KCOM and KCOM is the only operator which has been found to hold SMP in the Hull Area;
 - proportionate in that a 28 day notification period achieves the purpose of allowing other CPs a sufficiently long period to plan for changes to terms, conditions and charges and adjust their own offerings, whilst not being unduly burdensome for KCOM; and

- transparent as it is clear the intention is to ensure that KCOM notifies those who purchase its services of changes to charges, terms and conditions.
- 6.348 We have considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the 2003 Act.
- 6.349 For the above reasons, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition, in accordance with section 3 of the 2003 Act.
- 6.350 The condition meets the Community requirements set out in section 4 of the 2003 Act. In particular the condition promotes 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 of broadband internet access services.
- 6.351 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objective “Transparency” (BP21 and BP22).
- 6.352 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, under section 87(1) of the 2003 Act.

Requirement to notify technical information

- 6.353 Section 87(6)(c) of the 2003 Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which it is willing to enter into an access contract. Section 87(6)(b) of the 2003 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.

Aim of regulation

- 6.354 As a result of our finding that KCOM has SMP in the Hull Area, it is appropriate to require KCOM to notify any changes to technical information 90 days in advance of making such changes to existing network access unless Ofcom consents otherwise.
- 6.355 The aims and effects of the condition to notify technical information in the Hull Area are the same as those discussed above in Market A. As such we do not repeat those discussions here.

Legal tests

- 6.356 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:
- objectively justifiable in that it enables competing operators to make full and effective use of network access; the period allows CPs time to react to proposed changes without imposing an unnecessarily long notification period on KCOM that may restrict their ability to develop and deploy new features or products;
 - not unduly discriminatory as it is imposed on KCOM and KCOM is the only operator which has been found to hold SMP in the Hull Area;

- proportionate in that in most circumstances 90 days is the minimum period necessary to allow competing providers to modify their networks and any extension would be required only where it was reasonable to do so;
- transparent in that it is clear in its intention that KCOM notifies technical information.

6.357 We have considered our duties under section 3 of the 2003 Act. We consider that, by ensuring that CPs' systems are given sufficient time to make any changes to technical specifications that would likely affect their businesses, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition.

6.358 We have also considered the Community requirements as set out in section 4 of the 2003 Act. The condition in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.

6.359 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objective "Transparency" (BP21 and BP22).

6.360 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Transparency as to quality of service

6.361 Section 87(6)(b) of the 2003 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 as Ofcom may direct for the purpose of securing transparency.

Aim of regulation

6.362 We have concluded that it is appropriate to impose a requirement on KCOM, as a result of its SMP, to publish information related to transparency as to quality of service. The main benefit of this in wholesale markets is that other CPs could ensure that the service they receive from KCOM is equitable to that provided by KCOM to its own retail divisions. The obligation will require KCOM to publish information as directed by Ofcom, rather than requiring KCOM to publish specific information from the date of the imposition of the obligation. This is the same as the condition imposed in previous reviews. As we have not considered it necessary to issue any such direction based on concerns that KCOM may be discriminating in the quality of service it provides, we are of the view that it is appropriate to continue this approach.

6.363 The aims and effects of the condition to provide transparency as to quality of service in the Hull Area are the same as those discussed above in Market A. As such we do not repeat those discussions here.

Legal tests

6.364 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:

- objectively justifiable in that it enables competing operators to make full and effective use of network access and to ensure that, in purchasing this access, they are not unduly discriminated against and where concerns arise about quality of service provide by KCOM, it allows Ofcom to react quickly to impose additional transparency requirements;
- not unduly discriminatory as it is imposed on KCOM and KCOM is the only operator which has been found to hold SMP in the Hull Area;
- proportionate as it only requires KCOM to publish information as directed by Ofcom in line with the aim of this obligation; and
- transparent in that it is clear that the intention of the condition is to require BT to publish quality of service information, as directed from time to time.

6.365 We have considered our duties under section 3 of the 2003 Act. In ensuring the network access CPs receive from KCOM is equal to that provided by KCOM to its own retail divisions, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition.

6.366 The condition meets the Community requirements in section 4 of the 2003 Act and in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.

6.367 In addition, the condition is consistent with the BEREC Common Position on WBA, including the best practice remedies falling under the objective “Transparency” (BP21 and BP22).

6.368 It is not appropriate to impose a requirement on KCOM to provide KPIs, as recommended in BP27 of the BEREC Common Position on WBA and in the Costing and Non-Discrimination Recommendation (see, for example paragraphs 19 to 26). This is because there is currently no proven demand for network access by other CPs in the Hull Area.

6.369 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

Requirement to account separately

6.370 Sections 87(7) and 87(8) of the 2003 Act authorises Ofcom to impose appropriate accounting separation obligations in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities.

Aim of regulation

6.371 Given our finding of SMP, KCOM should be required to account separately for internal and external sales to provide monitoring of its other SMP services conditions in this market, notably those requiring KCOM to not unduly discriminate.⁴⁰³

Legal tests

6.372 The condition meets the criteria set out in section 47(2) of the 2003 Act. It is:

- objectively justifiable in that it ensures the obligation to not unduly discriminate is met, which provides a safeguard to prevent KCOM from favouring its own retail business to the disadvantage of its competitors;
- not unduly discriminatory as it is imposed on KCOM and KCOM is the only operator which has been found to hold SMP in the Hull Area;
- proportionate as it is necessary as a mechanism to allow Ofcom and third parties to monitor potentially discriminatory behaviour by KCOM in the Hull Area; and
- transparent as it is clear the intention is to monitor compliance with specific remedies and the particular accounting separation requirements of KCOM are clearly documented.⁴⁰⁴

6.373 We have considered our statutory obligations and the Community requirements set out in Sections 3 and 4 of the 2003 Act. In particular, the imposition of an accounting separation obligation is specifically justifiable and proportionate to promote competition in relation to the provision of electronic communications networks and services; to ensure the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition and the maximum benefit for any future customers of KCOM. This is because the imposition of an accounting separation obligation will ensure that obligations designed to prevent potentially damaging leverage of market power can be effectively monitored and enforced. In addition the imposition of an accounting separation obligation will allow Ofcom to monitor the profitability of KCOM in the Hull Area.

6.374 For the above reasons, the condition in particular furthers the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition, under section 3 of the 2003 Act.

6.375 Under section 4 of the 2003 Act, the condition in particular promotes 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 of broadband internet access services.

6.376 For all the reasons set out above, the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.

⁴⁰³ Note that we did not propose any changes to the financial reporting obligations for KCOM in the 2014 Regulatory Financial Reporting Statement.

⁴⁰⁴ *'The regulatory financial reporting obligations on BT and Kingston Communications, Final Statement and notification: Accounting separation and cost accounting'*, 22 July 2004, http://www.ofcom.org.uk/consult/condocs/fin_reporting/fin_report_statement/.

Conclusion on remedies in the Hull Area

- 6.377 In the absence of regulatory obligations on KCOM to meet reasonable requests for WBA, and on terms that are not unduly discriminatory, competition in the provision of broadband services in the Hull Area might not develop.
- 6.378 The regulatory remedies will not, however, secure competition in the provision of downstream broadband services in the Hull Area in the event that other CPs do not consider it to be economically viable to supply customers in the Hull Area. Nonetheless, the regulatory remedies will enable other CPs to enter the Hull Area and compete with KCOM, should they choose to do so.
- 6.379 We consider, however, that the potential for entry might be enhanced should KCOM be required to show that it does not discriminate in the level of service offered to its downstream business and other CPs in the Hull Area.
- 6.380 Ofcom recognises that at the present time there is no demand for a wholesale product from KCOM and as such monitoring the relative level of service offered to its downstream business and other CPs would have no meaning. Ofcom therefore considers that a proportionate remedy will only require KCOM to publish quality of service information in the event that demand was to materialise.

Conclusion on remedies

- 6.381 We have set out above the general access, non-discrimination and transparency remedies we are imposing on BT in Market A and on KCOM in the Hull Area. We set out in Section 7 the price control and cost accounting remedies we are imposing on BT in Market A. We consider that this package of remedies is the most appropriate to address the SMP which we have identified in these markets.

Section 7

Charge control framework for WBA Market A services

Summary of our decision

We are going to charge control BT's IPstream Connect product

- 7.1 We are imposing this charge control on the IPstream Connect Max and Max Premium products only (referred to, together, below as IPstream Connect⁴⁰⁵). IPstream Connect is supplied over legacy technology and is the product most used by end users in Market A. We conclude therefore that charge controlling this product directly protects most consumers in Market A and constrains BT from excessive charging on the other products available in Market A.

We are implementing a CPI - X charge control, with a single charge control basket, running until March 2017

- 7.2 We are implementing a CPI - X charge control. We believe that it will protect users by preventing BT from exploiting its SMP to increase prices and will provide BT with incentives to adopt new technologies where it is efficient to do so and to seek efficiency savings whilst also providing benefits to consumers.
- 7.3 We are implementing a charge control regime up to 31 March 2017. This period of just less than three years is consistent with the forward look period considered in this market review.
- 7.4 We are implementing a single control basket with a safeguard cap on certain services within the basket. Details of the charge control basket and sub-caps are set out in Table 7.1.

We have adopted a simpler approach to our charge control model than used in the 2011 WBA Charge Control and have used an anchor pricing approach

- 7.5 The approach we have taken is less complex than the approach we took in the 2011 WBA Charge Control. We have used a simpler set of data, at a higher level of aggregation. In the 2011 WBA Charge Control Statement we used a bottom-up approach to assess DSLAM and bandwidth costs on a per exchange basis. In this market review we instead started from BT's reported costs.
- 7.6 We have based our model on an anchor pricing approach, whereby we calculate the price of services assuming they are all provided over the technology used to provide BT's IPstream Connect service. In reality, BT may introduce services on new technologies such as WBC or fibre based services, if it finds it profitable to do so. These will not be subject to the charge control, except in the exceptional cases where IPstream Connect is withdrawn (see paragraphs 7.73), but the price BT is able to charge for these services will be constrained by the price of the old service and is subject to the requirement to provide network access on fair and reasonable terms

⁴⁰⁵ We recognise there are other options such as IPstream Connect Home and IPstream Connect Office. Unless specifically stated, these services are not included within our charge control.

and conditions, including charges. This approach means that we avoid the risk of regulatory error that may arise from making complex judgments about modern efficient asset technology (see paragraphs 7.138 – 7.143). If BT does find it efficient to use an alternative technology, consumers will not be made worse off than if BT had continued to use the old technology since the service will still be available at the price that would have prevailed had BT not adopted the new technology, and they may be better off if they prefer to use the new services available on new technology.

We have used 2012/13 as the base year (based on BT's 2011/12 allocation methodologies) and have made some adjustments to ensure our cost model is consistent

7.7 We have used BT's 2012/13 costs as the basis of our calculations. This 2012/13 data is consistent with the data we considered in our analysis of BT's component costs (to check that BT had not unduly allocated costs to Market A) and reconciles with the published 2013 RFS October Report. It excludes all BT's new allocation methodologies set out in its 2013 RFS.

7.8 We have made the following adjustments to ensure that our cost model is consistent:

- We have only included costs relevant to the 20CN technology we have modelled.
- We have made a hypothetical ongoing network (HON) adjustment, consistent with our anchor pricing approach. This adjustment increases BT's actual costs by adding capital employed and depreciation into the model. This estimates the costs which BT would incur were it to continue to serve customers using only IPstream Connect. We have revised our estimate of Gross Replacement Costs (GRC) following a more detailed consideration of DSLAM costs. We have maintained the NRC:GRC ratio (Net Replacement Cost: GRC) at 50% to reflect the fact that, if BT were to operate IPstream Connect on an ongoing basis, on average, assets should be half way through their lives, and we have set the assumed asset lives of all the components used in the HON adjustment to 13 years.
- We have made adjustments where BT's allocations were inconsistent with our modelling approach.
- We have revised our one-off non-recurring cost adjustments, in light of further information from BT.
- We have used BT's 2013 RFS DSLAM cost allocation data to allocate DSLAM costs to bandwidth.
- We have not made a market size adjustment to reflect the fact that BT's data refers to Market 1 not Market A, as we believe that the level of IPstream Connect costs in Market 1 is a good proxy for the costs that would be incurred by all WBA customers within Market A assuming they consume IPstream Connect services.

We have made a number of forecast assumptions

7.9 We have made the following forecast assumptions:

- We have forecast that the volume of BT connections in Market A will reduce over the period as growth from increased market penetration will be off-set by growth in LLU take-up and take-up of BDUK fibre services.

- We have forecast bandwidth per end user will grow, albeit at a diminishing rate, with first year growth of 30% falling to 15% in the final year.
- We have set the asset and cost volume elasticity assumptions at 0.80 for end user rentals and 0.66 for bandwidth (based on LRIC/FAC ratios).
- We have forecast an efficiency assumption of 5% (per annum / over the period).
- We have forecast input cost inflation to be 3.0% (per annum / over the period).
- The relevant WACC is the Rest of BT WACC, which is 10.8% (pre-tax nominal).

We are implementing a charge control of CPI – 10.7%

7.10 We are implementing a charge control of CPI – 10.7%. The control is within the range of values published in our 2014 WBA Consultation.

7.11 In addition, we are imposing sub-caps for a number of services within the basket. We are also setting cease charges to zero. Details of the control for the basket and sub-caps are set out in Table 7.1 below.

Table 7.1 Summary of the charge control⁴⁰⁶

Basket	Services within scope	Main control	Sub-caps
IPstream Connect	IPstream Connect Max and Max Premium End User Access – Connection	CPI – 10.7%	
	IPstream Connect Max and Max Premium End User Access – Rental		CPI – 4.7%
	IPstream Connect Max and Max Premium End User Access - IPstream Connect EU bandwidth charge per month		
	IPstream Connect Contracted Bandwidth per Mbit/s per node rental		CPI – 7.7%
	IPstream Connect End User Re-grade		CPI – 4.7%
	IPstream Connect End User Migration ⁴⁰⁷		CPI – 4.7%
	IPstream Connect ADSL Cancellation		CPI – 4.7%
	IPstream Connect Communication Provider (CP) Handover		
	IPstream Connect 20C Interconnect Links 1Gbit/s and 10Gbit/s		
Cease	End User Cease Services: i.e. any service required to disconnect an end user in Market A from any wholesale broadband access product provided in Market A	Cease charge set to £0	

⁴⁰⁶ This table refers to the services as currently being named in Section 44: Wholesale Broadband Services, Part 8: BT IPstream Connect of BT Wholesale's website (https://www.btwholesale.com/pages/static/Library/Pricing_and_Contractual_Information/Part_8_BT_IPstream_Connect/index.htm). The description of services included in the charge control is in the 2013 WBA Consultation, Annex 6.

⁴⁰⁷ IPstream Connect End User Migration is also known as IPstream Connect End User Transfer.

Introduction

The 2013 WBA Consultation proposals

- 7.12 In our 2013 WBA Consultation we proposed an inflation - X control to cover a three year period with a single charge control basket. We proposed to charge control BT's IPstream Connect Max and Max Premium products within Market A and apply sub-caps to some of the services within the basket, using a simplified modelling approach using anchor pricing. In this consultation we proposed a value of X in the range -7% to -1% with a central estimate of -4%.

The 2014 WBA Consultation proposals

- 7.13 In our 2014 WBA Consultation we proposed to revise our base year costs to:
- use 2012/13 as the base year for cost modelling purposes but to exclude all BT's new allocation methodologies set out in its 2013 RFS;
 - include only costs relevant to the 20CN technology we are modelling;
 - make a HON adjustment but with revised asset lives;
 - use BT's 2013 RFS DSLAM cost allocation data;
 - update our market size adjustment;
 - make some adjustments to two cost allocations in the data provided by BT to correct anomalies; and
 - update our one-off non-recurring cost adjustments.
- 7.14 We also proposed to make changes to the compliance formulae to reflect relevant Equivalence of Input (EOI) charges for upstream inputs subject to separate charge controls, to include a requirement to make re-payments in the event BT earns excess revenue within the year, change the definition of cease charges that are to be set to £0, and to amend a pricing error identified in the charge control model.
- 7.15 In light of the changes we proposed a value of X in the range -15.2% to -8.7% with a central estimate of -12.3%.

Stakeholder responses

- 7.16 We received six responses to the charge control section (Section 7) and Annexes 11 and 12 of our 2013 WBA Consultation and four responses to our 2014 WBA Consultation. A full list of respondents is included in Annex 1 of this statement, and all non-confidential responses are published on our website.
- 7.17 In the following sections, we respond to the comments made by stakeholders. These comments have informed our final decision on the design and methodology of the WBA Market A charge control. In reaching our decisions, we also explain how our approach meets our legal duties.

We have set this charge control in light of our legal framework

- 7.18 The regulatory framework for electronic communications is set out in Section 2, paragraphs 2.53 to 2.65. In considering the charge control, we have taken due account of the Costing and Non-Discrimination Recommendation. The Costing and Non-Discrimination Recommendation advocates the adoption of a bottom-up long run incremental costs-plus (BU LRIC+) costing methodology and states that NRAs should implement the recommended costing methodology by 31 December 2016.
- 7.19 Where Ofcom decides not to follow such a recommendation it is required to notify the European Commission of its reasons. In light of the specific characteristics of this market in the UK, we have not adopted a BU LRIC+ costing methodology based on the Modern Equivalent Asset (MEA) based on a fibre network.⁴⁰⁸ Market A covers less than 10% of the country in what are generally rural exchange areas that are not necessarily contiguous. Our view is that assessing the costs to develop a bottom-up model to reflect these conditions would be susceptible to error. Our proposal to adopt an anchor pricing approach is designed to minimise regulatory error and therefore uncertainty and provide a clear framework for investment over the next few years.⁴⁰⁹ This is analogous to the objective in the Costing and Non-Discrimination Recommendation of “*the need to ensure stability without significant fluctuations when setting cost orientated prices*”.⁴¹⁰ We have considered whether this position is appropriate in light of our duty to take due account of the Costing and Non-Discrimination Recommendation and consider that it is.
- 7.20 We also consider our charge control is consistent with the aims of the Costing and Non-Discrimination Recommendation in that we deal appropriately and consistently with the impact of declining volumes caused by the transition from copper to NGA networks. In particular, we have considered the impact of potential declining volumes due to the rollout of fibre over the period.⁴¹¹ Further our proposed prices are based on current cost accounting fully-allocated costs (CCA FAC), which is a form of LRIC+.⁴¹²

Disclosure of data and model disclosure

- 7.21 In light of our statutory duties, in particular our duty to consult, and our framework for disclosure of charge control models, we published a non-confidential version of the model in July 2013 with our 2013 WBA Consultation and in January 2014 reflecting our 2014 WBA Consultation. We took account of BT's position on confidentiality of data for the purpose of disclosure of data. We believe that the methodology we followed ensured that stakeholders were able to respond effectively to the consultation.
- 7.22 In line with the transparency framework principles, we will be publishing the non-confidential version of the charge control model used to determine the value of X imposed in this statement.

⁴⁰⁸ See paragraphs 30 to 32 of the Costing and Non-Discrimination Recommendation.

⁴⁰⁹ See paragraphs 7.138 to 7.143.

⁴¹⁰ See point 38 of the Costing and Non-Discrimination Recommendation.

⁴¹¹ See paragraphs 7.265 to 7.269 and Annex 7, paragraphs A7.3 to A7.55.

⁴¹² See paragraphs 7.117 to 7.122.

Structure of the remainder of this section

7.23 The remainder of this section sets out our decisions for the WBA charge control in Market A. These decisions are discussed in the following order:

- the form and duration of the charge control;
- the charge controlled WBA products;
- the modelling approach;
- the base year costs and adjustments;
- forecasting of costs for the duration of the control;
- the need for one-off adjustments to starting charges;
- the calculated value of X; and
- whether the charge control in Market A is consistent with the legal tests and duties set out in the Act.

7.24 In addition:

- Annex 2: includes our Notification under the 2003 Act in which we set out Conditions which constitute the legal instrument for imposing the charge control obligations; and
- Annex 7: includes further analysis in support of our assumptions relating to volume forecasts, cost inflation forecasts, AVEs/CVEs, efficiency and cost of capital.

Form of the charge control

Consultation proposals

7.25 In our 2013 WBA Consultation we proposed an inflation minus X control.

Consultation responses

7.26 Four respondents commented on whether inflation minus X is the most appropriate form of charge control.

7.27 BT, EE, [3<] and Virgin were broadly supportive of an inflation minus X type of charge control in the WBA market. BT stated it is a well-established mechanism that has been used successfully by Ofcom across a range of products because it provides the best incentives to improve efficiency and deliver benefits for the consumer.

7.28 However, EE was concerned that the structure of the control may cause a margin squeeze situation in Market A. Given the proposed X range of -7% to -1%, EE considered it was likely that wholesale prices in Market A could rise. If there was no corresponding increase in retail prices supplied by BT in Market A, this situation could make it “impossible for any other retail broadband provider consuming WBA

input products to compete in Market A”.⁴¹³ EE suggested the introduction of a “safety-net” retail-minus price cap, to only apply in the event that the margin between BT’s retail pricing in Market A and the CPI-X price cap was too small.

Our conclusions

- 7.29 In our 2013 WBA Consultation we identified a number of different forms of charge control. We proposed an Inflation minus X control as this is an established and transparent mechanism which will provide sustained incentives for efficiency and innovation. Also, it provides an “arms-length” regulatory mechanism, as regulatory approval for price changes within the cap is not required.
- 7.30 In response to EE’s concern that the structure of the control may cause a margin squeeze situation in Market A (noted in paragraph 7.28) we note that the proposed X (which is discussed below in paragraphs 7.305 to 7.314) will require wholesale prices to fall on the whole in Market A. We also note that we have imposed an obligation that charges should be fair and reasonable to address concerns relating to margin squeeze (see paragraphs 6.141 to 6.149). We therefore have adopted an inflation minus X control.

We have used CPI as the relevant inflation index

Consultation proposals

- 7.31 We proposed the use of CPI as the relevant inflation index in the 2013 WBA Consultation. We also noted in paragraph A12.91 of the 2013 WBA Consultation that in principle the choice of glide path should not matter in terms of the end point for nominal charges. Forecasts of end charges are not dependent on the choice of index, but the X would vary depending on the measure of inflation.

Consultation responses

- 7.32 Two respondents (BT and Virgin) proposed RPI should be retained as the relevant inflation index, one respondent, [3<], agreed that CPI is the most appropriate inflation index and EE stated that it did not have firm views on which index was appropriate.
- 7.33 Two respondents (BT and EE) believed that there should be consistency between the different charge controls. EE stated that if a change of inflation index is deemed necessary it should be expressed as a wider policy intention which would apply across all of the price controls in the electronic communications sector.
- 7.34 EE believed that our cost causation assessment is too narrow and urged Ofcom to include in its assessment the need to ensure that distortions between inflation factors applied to costs compared to those applied to charges do not arise.
- 7.35 Virgin was opposed to a change of inflation index given that the future of inflation statistics remains unclear and therefore suggested that it may not be the correct time to switch metric in this control.

⁴¹³ EE, Review of the wholesale broadband access markets, Consultation on market definition, market power determinations and remedies, Non-confidential version, 25 September 2013, <http://stakeholders.ofcom.org.uk/binaries/consultations/review-wba-markets/responses/EE.pdf>, response to Question 7.1.

- 7.36 BT questioned the extent to which CPI is relevant to key input costs for this control and provided details on pay, accommodation and energy costs (outturn and forecasts) as evidence that RPI is more relevant to key input costs.

Our conclusions

- 7.37 We have used CPI as the relevant inflation index for this WBA charge control.
- 7.38 Given that stakeholders agreed that the CPI and the RPI were the main options for indexing the charge controls, we focus our attention on these two indices. Our rationale for adopting the CPI is the same as that of our 2014 FAMR Draft Statement published on 20 May 2014.⁴¹⁴
- 7.39 In summary, we considered five factors when we assessed the CPI and RPI, these were:
- Official status: We consider that the ONS's conclusion that the RPI does not meet international standards and the subsequent declassification of the RPI as a National Statistic are relevant factors for us to take into account, even if it is the case that forecasters adjust for known biases in the RPI.
 - Cost causality: We consider an important part of the rationale behind indexing charge controls is to compensate for forecast error in how costs might evolve over time. To this end, the choice of index should take into account the extent to which the index reflects likely changes in the input costs of the regulated services. However it is not clear whether RPI or CPI might better track the costs of providing WBA services. We have revised our operating cost inflation assumption to be 3.0% over the period.⁴¹⁵ This lies between forecasts of CPI and RPI, though closer to RPI. However we have kept asset prices flat in nominal terms. Capital costs (depreciation plus a return on mean capital employed) account for more than 50% of the total WBA costs we are considering. The net effect of our operating cost inflation and asset price assumptions will therefore be to produce an overall cost inflation assumption closer to CPI.
 - Exogeneity: An important consideration is that the index cannot be influenced by the regulated firm (or individual customers of that firm). Since the RPI and the CPI are both macroeconomic variables and are calculated by the ONS, each is exogenous to the actions of BT or its customers.
 - Availability of independent forecasts: We typically use forecasts of inflation that are compiled by an independent body. Since the RPI and the CPI are widely used in the UK economy, they are regularly forecast by analysts.
 - Regulatory predictability: Regulatory predictability is important for dynamic efficiency. However, regulatory predictability does not mean doing the same thing at every market review. Instead, it requires that regulatory decisions are clearly reasoned, consulted on, and that stakeholders are given sufficient notice of changes to regulation.

⁴¹⁴ The 2014 FAMR Draft Statement, <http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/specific-conditions-entitlement/market-power/fixed-access-market-reviews-2014/statement/>

⁴¹⁵ See paragraphs 7.284 to 7.286 below and Annex 7, paragraphs A7.70 to A7.119 for further details on operating cost inflation.

- 7.40 Having compared the CPI and the RPI, we conclude that on balance, it would be more appropriate to use the CPI to index the WBA charge control. There is little difference in the way that the two indices perform against most of the factors considered above, but in relation to “official status” in particular, we consider that the CPI is preferable.

We have used an upstream input approach to set the charge control

Consultation proposals

- 7.41 A WBA service is made up of three elements: the end user access, backhaul and handover. BT is structured in such a way that its upstream division (Openreach) provides various inputs when delivering its WBA services. Some of these Openreach inputs are services that are themselves subject to a charge control. These charge controlled input costs from Openreach are “EOI charges” within BT’s RFS.⁴¹⁶
- 7.42 For example, BT’s WBA products are based on SMPF and BT is required to self-supply SMPF on the same terms as those available to other CPs. These rental and connection charges are therefore input costs that BT’s WBA products need to recover. However, the SMPF charges are themselves subject to separate charge control conditions.
- 7.43 In the 2013 WBA Consultation we considered two options for modelling costs for the charge control and how we take into account upstream regulation:
- End to end approach: Model the end to end costs for the WBA cost components in the SMP area. This would result in costs that were specific to the SMP area.
 - Upstream input approach: Use the charges from the upstream charge control (i.e. Openreach input charges) as inputs to modelling the WBA costs. This would reflect the regulated charges that BT Wholesale is charged for the upstream inputs from Openreach.
- 7.44 We proposed an upstream input approach to setting the charge control in the 2013 WBA Consultation.

Consultation responses

- 7.45 All the respondents that commented (BT, Virgin, [3] and EE) agreed that an upstream input approach is the most appropriate form of control.
- 7.46 BT stated Openreach’s charges are regulated on a national basis and subject to a charge control. To include this Openreach input in the WBA charge control would be imposing a charge control on a charge control. Virgin said that an upstream input approach will provide consistency of regulation.

Our conclusions

- 7.47 We have concluded that we should use the upstream input approach because:
- this was the approach adopted for the 2011 WBA Charge Control Statement;

⁴¹⁶ For example page 75 of BT’s 2012 RFS shows the EOI input unit costs for various services in WBA Market 1 in 2010/11.

- an end-to-end approach would not be consistent with the charge control in upstream markets. WBA services consume Openreach products which are charge controlled on a national average basis. Using an assessment of the costs of supplying these upstream services in Market A, rather than the charges set by Openreach, could lead to an incorrect assessment of the end-to-end costs of WBA services; and
- the scope of EOI charges has increased since the previous charge control was set.

The charge control will be in force until 31 March 2017

Consultation proposals

7.48 We proposed a three-year duration for the next WBA charge control.

Consultation responses

- 7.49 All respondents that commented on the duration of the charge control (BT, EE, [3] and Virgin) agreed that a duration of three years is appropriate.
- 7.50 BT stated it remains of the view that longer charge controls have better incentive properties and offer more certainty. However, it acknowledged that the European Framework prescribes that market reviews should normally be undertaken by national regulators every three years and that this has now become the norm. Virgin agreed that the charge control should span the life of the forward look period and until such time as the next market review occurs.
- 7.51 [3] agreed with a three-year charge control duration but suggested that it would be useful for future resourcing if it was not co-terminus with the WLA charge control.
- 7.52 BT also stated in response to the 2014 WBA Consultation that the legal instrument has been drafted on the assumption that the charge control will start on 1 April 2014. In the event that a different start date is implemented, corresponding adjustments to the number of days in the First Relevant Year and Second Prior Year should be made.

Our conclusion

- 7.53 Due to the delay in completing this market review, the charge control we are now setting will take effect from 1 July 2014, rather than from 1 April 2014 as we anticipated in the 2013 WBA Consultation (see paragraph 7.50 to 7.54) and implicitly in the 2014 WBA Consultation. We have therefore amended condition 7 as necessary to reflect the later start date, including adjusting the number of days in the First Relevant Year and the Second Prior Year.
- 7.54 We have adopted a control that will be in place until 31 March 2017 (and therefore run for two years and nine months) because it allows us to synchronise the charge control remedy with the forward look period in this market review and the period over which we have made our assessment. It also provides appropriate efficiency incentives, in that it will not unduly disrupt the balance between dynamic and allocative efficiency effects.

- 7.55 We acknowledge BT's commitment made in its letter to industry on 19 March 2014⁴¹⁷, to ensure that it and its customers will be in the same position as if the control had started on 1 April 2014 by committing to leave prices unchanged between 1 April and the 30 June 2014 and then to set prices on 1 July 2014 for IPstream Connect such that the weighted average price for these services over the financial year 2014/15 will be the same as if the charge control had become effective on 1 April 2014. This means that the cost to BT's customers over this period is the same as it would have been had the new charge control taken effect on 1 April 2014.
- 7.56 In light of BT's commitment we have amended the legal condition so as to allow BT to make price changes on 1 July 2014 without the need to notify the market 28 days prior to the price change as set out in our letter dated 20 March 2014⁴¹⁸ (see paragraph 3). This will allow BT to change its prices in line with its usual practices and to offer lower prices to customers in line with the charge control without delay.
- 7.57 In response to [§], we believe that an effective consultation means allowing all those interested in the outcome of a particular decision to have their say before we make that decision.⁴¹⁹ We therefore always seek to ensure that respondents are given sufficient information and time to respond to our consultations in light of the complexity and the potential impact of our proposals and our wider ongoing programme of work. In this particular case, carrying out the reviews concurrently, as recommended by the European Commission, allows for consistency of regulatory approach, given the close relationship between the WLA and WBA markets (and charge controls).

The charge control will control IPstream Connect and the relevant ancillary services

Consultation proposals

- 7.58 We proposed that the charge control would cover the IPstream Connect Max and IPstream Connect Max Premium services within Market A.
- 7.59 We also proposed that the ancillary service charges that should be controlled by the charge control were those set out in Table 7.2 below.

Table 7.2: The relevant ancillary service charges

Ancillary service	Description
End user Migration Charges ⁴²⁰	End user migrates from one Customer to another without change of product and speed. Available to all BT IPstream ADSL end users.
	End user migrates from one customer to another with change of

⁴¹⁷ Letter from BT (Steve Best) to Ofcom (David Clarkson), 19 March 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/wba-review-update/Interim_arrangements_BT_letter.pdf.

⁴¹⁸ Letter from Ofcom (David Clarkson) to BT (Steve Best), 20 March 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/wba-review-update/Interim_arrangements_Ofcom_letter.pdf.

⁴¹⁹ Ofcom, *Consultation Guidelines November 2007, How will Ofcom consult?* <http://stakeholders.ofcom.org.uk/consultations/how-will-ofcom-consult>.

⁴²⁰ Migration Charges are currently known as Transfer Charges in BT's current Price List (https://www.btwholesale.com/pages/static/Library/Pricing_and_Contractual_Information/Part_8_BT_IPstream_Connect/index.htm).

	product and speed. Available to all BT IPstream product family end users. A single charge is raised (re-grade and migration). When an end user requests a change of product - this will be subject to a re-grade order, subsequent and separate to the migration order.
End User Re-grade Charges	Re-grade charges for IPstream Connect are applicable when end users move from IPstream Connect Max to Max Premium service (and vice versa).
End User Cancellation Charges	Where a customer requests cancellation of an End User Access order, as defined within the Conditions of Service, a one-off Single Payment Charge will be levied. The charge will be calculated on the number of Working Days between the date the Customer requests the cancellation and the Original Delivery Date (ODD). ODD is the initial agreed installation date.
Communication Provider (CP) Handover	Charges for any services related to the connection by the communication provider to IPstream, such service currently being known as IPstream Connect Communications Provider (CP) Handover.
20C Interconnection Links 1Gbit/s and 10Gbit/s	Charges for any service provided by BT to connect between any of the handover points for IPstream and the communication provider's network, such service currently being known as IPstream Connect Interconnect Links.

Consultation responses

- 7.60 Four respondents (BT, EE, Virgin and [S&C]) commented on the appropriate products to charge control.
- 7.61 BT and Virgin agreed that IPstream Connect is the appropriate service to charge control. BT noted that IPstream Connect is the overwhelmingly dominant product in the proposed Market A and that it will necessarily act as a constraint on WBC pricing for the reasons outlined by Ofcom, principally that BT has an obligation to provide network access on fair and reasonable terms which would be assessed in relation to the regulated IPstream Connect prices. BT also noted that it is the underlying principle of anchor product pricing where the interests of the consumer are protected by a benchmark product with a regulated price.
- 7.62 EE believed that the charge control regulation in Market A should be technology neutral and capture all WBA products offered by BT in Market A.
- 7.63 EE also believed that the price of BT's WBC and WBC FTTx services in Market A, even when provided in conjunction with IPstream Connect services, should be regulated to prevent gaming by BT. EE stated that the current proposal (the obligation will only apply if/when BT removes the supply of IPstream Connect at an exchange), will create clear gaming incentives for BT to leave this service in place merely to avoid regulation of its WBC and WBC FTTX services. EE stated that the fair and reasonable provision is inadequate to promote competition and protect the best interests of consumers.
- 7.64 EE believed that an explicit SMP obligation should be imposed on BT to supply at least an equivalent product to IPstream Connect at the charge controlled price in any Market A exchange in which BT has withdrawn its IPstream Connect products. EE was concerned that the obligation does not currently appear to be reflected in the draft legal instruments. EE would expect to see this legal obligation clearly reflected in BT's SMP conditions.

- 7.65 [3<] argued that Ofcom's assessment that NGA does not need a control is not correct, that the charge control does not address the needs of the business market concentrated in metropolitan areas and that the absence of a charge control for a dominant provider in an emerging market gives that provider a competitive advantage.
- 7.66 No respondents to the WBA consultations commented on the ancillary products to be charge controlled.

Our conclusions

- 7.67 BT offers the following WBA products:
- i) DataStream: a legacy service based on asynchronous transfer mode (ATM). From 30 June 2012, no new end user connections have been supported and BT has announced this product will be retired in due course.⁴²¹
 - ii) IPstream Connect Max and IPstream Connect Max Premium services: IP-based services based on ADSL1 technology, with a theoretical maximum downstream speed of 8Mbit/s.⁴²²
 - iii) WBC (ADSL2+): an IP based service using ADSL2+ technology with a theoretical maximum downstream speed of 24Mbit/s.
 - iv) WBC FTTx: WBC also provides access to BT's NGA deployments, providing services over Fibre to Cabinet (FTTC) with a headline speed of up to 80Mbit/s and Fibre to Premise (FTTP) with a headline speed of up to 330Mbit/s download.
- 7.68 WBC FTTx was offered in Market 1 (as defined in the 2010 WBA Statement) in 2012/13, but the volumes were small. Table 7.3 below sets out the current volumes and shares for the remaining services in Market 1 as reported in BT's 2013 RFS, which shows that IPstream Connect accounted for the majority of volumes in 2012/13. The proportion was even higher in Market A.

Table 7.3: WBA product volumes and shares in WBA Market 1 for year ending 31 March 2013

Product	Volumes	Share
DataStream	4,560	0.2%
IPstream Connect	1,801,382	83.4%
WBC (ADSL2+)	354,092	16.4%

Source: BT.⁴²³

- 7.69 We continue to believe that we need to set the control so that it will protect all consumers in Market A, where SMP has been found.

⁴²¹ https://www.btwholesale.com/pages/static/Products/Broadband/BT_Datastream/index.htm

⁴²² BT also offers other IPstream services over its ADSL1 technology, such as IPstream Connect Home and IPstream Connect Office. These offer lower speeds than IPstream Connect Max and Max Premium and we do not consider these to be significant services.

⁴²³ WBC ADSL/ADSL2+ and IPstream Connect volumes from BT's 2013 RFS, page 112, DataStream volumes from schedule AFI 21, Additional Financial Information provided to Ofcom as part of BT's regulatory reporting regime.

- 7.70 Protecting all consumers within the market does not necessarily mean that all service variants or technologies need to be directly controlled. We can achieve our objective by controlling the service that is most widely used within Market A – other services will be constrained through a chain of substitution, as discussed in Section 3.
- 7.71 It remains our view that it would not be appropriate for the charge control to directly control WBC. We have adopted an anchor pricing approach for this charge control for the reasons set out at paragraphs 7.128 to 7.145 below. Under an anchor pricing approach only the anchor product is controlled so as not to deter investment in the rollout of new technologies. It would therefore be inappropriate under such a model to also directly control WBC and commercial deployment of fibre by BT. We would also expect that the conditions on which BDUK state aid funding is provided would include terms related to pricing (though, as noted in Section 4, there is some uncertainty as to the specific pricing terms). Therefore we do not consider it necessary to control prices of services other than IPstream Connect under our anchor pricing approach.
- 7.72 We also note the Commission's recommendation that wholesale access prices for WBA fibre services on NGA networks should not be charge controlled where suitable non-discrimination obligations are imposed pursuant to Article 10 of Directive 2002/19/EC.⁴²⁴
- 7.73 When and if BT does deploy further WBC and/or WBC FTTx during the control period, it will initially do this as an overlay and keep IPstream Connect running. WBC and WBC FTTx services in Market A will be subject to the obligation that they are provided on fair and reasonable terms and conditions, including charges. Over time, it is possible BT will seek to remove IPstream Connect. Where IPstream Connect is withdrawn, we would ordinarily expect to interpret the fair and reasonable condition on WBC and/or WBC FTTx as meaning that BT will need to ensure that an equivalent (or better) product to IPstream Connect is available at a price that complies with the charge control in order to satisfy the condition. This will ensure consumers are not made worse off by the removal of the existing product, consistent with our anchor pricing approach.
- 7.74 However, we do not believe that it is appropriate or proportionate to include an explicit SMP obligation on BT to supply the equivalent product to IPstream Connect, as proposed by EE. BT is required to provide network access on reasonable request. Where it retires IPstream Connect because it has deployed WBC and or WBC FTTx, it would be required to provide an equivalent product to IPstream Connect if this is reasonable. In addition, we would expect BT would also provide better products (in terms of, for example, headline speeds) given the nature of the WBC and WBC FTTx networks. This, taken together with the obligation to ensure there is a product available that complies with the charge control, will provide proportionate protection for purchasers of WBA services in Market A.
- 7.75 Finally, we do not agree that requiring BT to offer an equivalent service obligation (only in the absence of IPstream Connect) will create gaming incentives for BT. We believe that the price that customers will be willing to pay for products offered alongside IPstream Connect will be constrained by the price of IPstream Connect. This suggests limited scope for BT to charge a higher price for other services where IPstream Connect is available. As set out above, where IPstream Connect is withdrawn, an alternative product that offers at least the same capabilities will need to be made available in compliance with the charge control. BT currently provides

⁴²⁴ Costing and Non-Discrimination Recommendation, point 48.

products in addition to IPstream Connect (WBC and WBC FTTx). Because we consider there is a chain of substitution between lower and higher speed products, we consider the anchor pricing is sufficient to constrain pricing of higher speed products. In any case, we expect that the withdrawal of IPstream Connect in Market A over the period is likely to be small so the scope for artificially suppressing the withdrawal further is very minimal.

Ancillary services

- 7.76 In addition to the main service charge for IPstream Connect Max and IPstream Connect Max Premium, there are further ancillary charges to be paid when purchasing WBA services.
- 7.77 For the 2011 WBA Charge Control, the relevant WBA ancillary charges were split by:
- Any BT charge specific to the WBA market without an associated Openreach charge, and
 - Any charge where BT applies a mark-up above the charges set by Openreach.
- 7.78 Charges where BT passes through Openreach charges with no mark-up will be excluded from the scope of the control (as discussed above in paragraphs 7.41 to 7.47). As in 2011 we have considered these Openreach charges as part of the LLU / WLR charge control ("LLU / WLR CC"). To the extent that BT continues to pass these charges through without a mark-up, it is not necessary to include them in the WBA charge control.
- 7.79 Of the relevant ancillary services, we have decided to exclude the broadband availability checker charge from the control. The WBA product allows use of the checker free of charge up to a quota. As stated in the 2013 WBA Consultation we believed that any usage above the set quota (which CPs consider is required to allow them to use the service on a reasonable basis), should in the first instance be discussed with BT. We continue to believe that this is appropriate and therefore have excluded the use of the checker above the quota from the charge control.
- 7.80 Therefore the ancillary services that will be controlled under this charge control are those set out in Table 7.2 above.

The charge control services will be controlled within one basket with sub-caps on certain services

Consultation proposals

- 7.81 We proposed that charge control services should be controlled within one basket with sub-caps on certain services (rather than other forms of regulation, for example cost orientation).

Consultation responses

The use of a single basket

- 7.82 BT, Virgin and EE supported a single basket approach. [36] did not believe that baskets are the most effective form of charge control.

- 7.83 BT agreed that the single basket approach adopted for these services in the 2011 WBA Charge Control Statement should continue. It believed that setting separate controls would be disproportionate and unnecessarily constrain BT's ability to price efficiently.
- 7.84 EE had no major concerns with Ofcom's proposals to place all of the services in a single basket, provided that the sub-caps are set at the appropriate level.
- 7.85 [3<] stated that unless all the elements of the basket make up a cohesive and individual product, the end result can be cross subsidy between different products that have different retail and wholesale market dynamics.
- 7.86 TalkTalk noted that we had rightly considered that homogeneity in terms of competitive conditions is necessary if the basket is to be wide (and, if the basket was heterogeneous, a narrower basket would be needed to prevent pricing abuse). However, TalkTalk also believed that Ofcom needs to consider the risk of pricing abuse if the rate of internal and external use of different products differs materially.

The use of subcaps

- 7.87 BT, Virgin and [3<] supported a sub caps approach.
- 7.88 BT agreed in principle that the use of sub-caps to constrain BT's pricing flexibility within the basket are a more appropriate way of addressing concerns with the structure of BT's prices than a cost orientation requirement.
- 7.89 [3<] welcomed the use of sub-caps as a method of preventing gaming of baskets by BT.
- 7.90 TalkTalk noted that Ofcom had stated that one of the reasons to use sub-caps instead of cost orientation obligations was that they can be adapted / targeted at particular products. TalkTalk believed that this is not a valid reason since cost orientation could similarly be adapted/targeted.

Our conclusions

A single basket

- 7.91 A single basket approach was adopted for the same services in the 2011 WBA Charge Control Statement. There does not appear to have been significant developments within the market that would suggest a different approach should be adopted.
- 7.92 In general, we consider that BT is better placed to create efficient pricing structures for services. We believe that a single basket approach provides reasonable flexibility to BT over how it efficiently recovers costs and, in particular, would allow BT flexibility over how to recover the end user access and bandwidth charges. We would however be concerned about a single basket if there were significant differences in competitive conditions between services in the basket, or if there was different internal and external use of services within the basket.
- 7.93 In this case, we will use a single basket structure because:
- i) We do not believe that there are significant differences in competitive conditions between any of the services, all of which are required to provide retail broadband

products. Where there are differences we propose to use sub-caps to reduce the scope for anti-competitive pricing; and

- ii) In relation to TalkTalk's point regarding the potential for pricing abuse where internal and external use of services in the basket are different, we do not consider that there is any significant difference in the use of IPstream Connect services by BT as opposed to external CPs, particularly, in relation to the biggest services in terms of revenue (i.e. end user rental and bandwidth). To the extent that BT does use these services differently, we consider the sub-caps provide sufficient protection against prices for these services being set in a way that could disadvantage external CPs.

Sub-caps

7.94 Pricing flexibility is beneficial, as noted above at paragraph 7.92, but we need to set some limits on this flexibility, to prevent it being used to distort competition. We will therefore constrain the prices of some of the services in the basket on an individual basis using sub-caps in light of our competition concerns in this market. We consider this to be appropriate and proportionate for the following reasons:

- Sub-caps can be targeted. In this market we have a relatively small number of products, so we are able to design a set of targeted sub-caps to address our competition concerns in relation to the specific services;
- Sub-caps will provide more certainty than a cost orientation obligation in this market. They are clearly defined by the control formulae, simple to understand and do not require a detailed knowledge of BT's costs to make projections in relation to the path of prices or to monitor compliance. This difference is illustrated by the significant fluctuations in BT's reported cost figures in its RFS. For example, the FAC and DSAC for external bandwidth services in Market 1 decreased by 59% and 44% respectively between 2010/11 and 2011/12 but then increased by 14% and 50% respectively between 2011/12 and 2012/13.⁴²⁵

7.95 We are setting sub-caps on the following services: end user rental, bandwidth charges and certain ancillary charges. The end user rental charge (for the End User Access service component) and the contracted bandwidth charge (for the backhaul component) make up the bulk of the charge paid by CPs and so we consider it necessary to limit BT's pricing flexibility on these two charges.

7.96 In considering the level of the sub-cap on bandwidth, we expect growth in bandwidth per user significantly to exceed growth in the number of users. The charge control uses prior year weighting (i.e. the relevant proportion of revenue for each service in the prior year is used in compliance for the current year to provide transparency and certainty as discussed below in paragraphs 7.123 to 7.127). With prior year weights, as bandwidth grows (and other significant services such as end user rentals do not) this would imply an incentive to make reductions primarily to the rental charge, whose weight in the basket we expect to fall over time. This allows the price of bandwidth to be set relatively higher. Therefore, we are setting a sub-cap on bandwidth charges to limit this flexibility to an appropriate level.

⁴²⁵ Wholesale costs only. See BT's 2012 RFS pages 75 to 80 and BT's 2013 RFS pages 112 to 115. Note that these unit costs include contributions from 21CN components that have been excluded from the WBA cost model.
http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2012/RFS_2012.pdf.

- 7.97 Given the greater incentive to increase bandwidth charges, we do not expect the rental charge to increase significantly. In the first two years of the 2011 WBA Charge Control, BT only made modest changes to its rental charge, though it increased it by approximately 15% in July 2013. We therefore propose a less restrictive constraint on rental charges, as a safeguard.
- 7.98 In relation to ancillary services, there is a need to apply individual price constraints to some of the ancillary services, namely end user migration, re-grade and cancellation for end user access charges. Whilst overall the revenues for these services are smaller than for bandwidth and end user rentals, these services are significant for downstream competition in the market. For example, a large increase in the cost of migration charges may discourage migration, impeding the competitive process.

Cease charges will be set to £0

Consultation proposals

- 7.99 In our 2013 WBA Consultation we proposed cease charges for only IPstream Connect Max and Max Premium should be set to £0. In our 2014 WBA Consultation we proposed to extend this proposal to cover all cease charges in Market A.

Consultation responses

- 7.100 BT accepted Ofcom's proposal to change the definition of cease charges that are to be set to zero, but was concerned that there is no provision for the recovery of efficiently incurred "left in jumper" costs.
- 7.101 EE supported Ofcom's proposals to set to £0 the cease charges for all WBA provided in Market A and agreed that it is an important step in reducing costs and keeping switching charges between operators to a minimum, thus promoting competition within Market A.
- 7.102 Prospect argued that although the charges might be relatively small they do reflect that there are some costs to BT involved with customers switching providers and that there is no evidence that such charges constitute a barrier for switching.

Our conclusions

- 7.103 We will keep cease charges for all products offered by BT in Market A at £0. This includes cease charges for all variants of IPstream Connect (including IPstream Connect Home and IPstream Connect Office) and WBC services or any equivalent product offered by BT in Market A. Cease charges (rather than other switching charges) are more likely to be passed directly on to retail customers than charges which are related to customers joining a CP.
- 7.104 Further to BT and Prospect's responses to the 2014 WBA Consultation we have further investigated the costs for ceases to BT Wholesale. As stated in our 2014 WBA Consultation, the costs incurred to cease WBA services (regardless of the product being ceased) are generally only data changes to BT's systems and therefore require minimal or no marginal activity on the part of BT, except for EOI cease charges. BT has provided two approaches to estimating EOI cease costs:

- BT initially provided data based on the 2013 RFS that indicated approximately £2.8m of EOI cease costs in Market 1 in 2012/13.⁴²⁶ BT derived this figure by calculating an average cease charge and multiplying this by the number of ceases in Market 1. BT calculated the average cease charge based on the number of ceases, jumper removals and cancel orders across **all** markets (Markets 1, 2 and 3 as defined in the 2010 WBA Statement) it was charged for by Openreach, and the Openreach charges for these services in 2012/13. These charges were not split by WBA market. Further, Openreach did not raise cease charges in 2012/13 as the cease charge then was £0 so BT's calculation reflects the number of jumper removal and cancel orders, not the number of WBA lines ceased. BT then multiplied this average cost by the number of WBA ceases in each WBA Market. This process resulted in an over-recovery of Openreach charges from Markets 1, 2 and 3 so a balancing credit was made to the Wholesale residual business area in the 2013 RFS.⁴²⁷
- On request for further information, BT suggested an alternative approach would be to allocate the total Openreach charges for ceases, jumper removals and cancel orders based on the number of cease orders in each market. This revised approach would have resulted in £1.4m of EOI charges in Market 1.⁴²⁸

7.105 We note these two approaches produce markedly different cost estimates. In our view, neither of these approaches provides a good estimate of the cost of ceases in Market 1 or Market A as neither reflects the activities nor the respective costs of the activities that are undertaken. When lines are ceased with Openreach they can be soft-ceased and jumpers are left in place. The connection of the customer's line to the DSLAM of the CP providing service (in this case, BT Wholesale) remains in place. Where the customer subsequently re-starts service with that CP, the existing line can be quickly brought back into service. Where the customer re-starts the service but using a different CP, a standard provision is required to remove the existing jumpers and replace them with jumpers to the new CP.

7.106 However, left in jumpers (LIJs) mean that the DSLAM port cannot be used for other customers. It also means jumpers are left in the frame when they are not providing service. As such, there may be cases where the LIJs are removed, either to free-up DSLAM ports or to tidy up the frame.

7.107 We accept that there will be a need to cease lines within Market A. However, given the low forecast market growth over the period of the review (i.e. the number of new lines is likely to be small), we do not consider there will be significant new connections and so it is less clear to what extent it is necessary to remove LIJs in Market A to allow existing DSLAM ports to be re-used. It is also not clear from BT's data what percentage of the ceases in Market 1 relate to soft-ceases where jumpers were left-in place but subsequently removed, as opposed to where the line was re-provided using the existing connection including the LIJ.

7.108 Therefore while we accept there could be some EOI cease charges in Market A, we expect these costs, where efficiently incurred, would be very small (and significantly lower than either figure provided by BT). In addition, in the absence of more accurate data on the geographical location of EOI cease costs we would be concerned that

⁴²⁶ Q.A1, BT response to S135 notice under the Communications Act dated 20 August 2013.

⁴²⁷ Email from BT (Edward Pigott) of 15 April 2014 in response to follow-up question on BT's answer to question A1 of BT response to S135 notice under the Communications Act dated 20 August 2013.

⁴²⁸ Email from BT (Edward Pigott) of 15 April 2014 in response to follow-up question on BT's answer to question A1 of BT response to S135 request under the Communications Act dated 20 August 2013.

the method for allocating costs to markets used by BT could lead to costs incurred in Market B being recovered via the Market A charges. Our view is that including efficiently incurred cease costs would not have a material effect on the value of X, and so we have not included these costs within our cost base.

We will control IPstream Connect migration and connection charges

Consultation proposals

- 7.109 In our 2013 WBA Consultation we proposed to control migration charges from IPstream Connect to IPstream Connect and from IPstream Connect to other products (for example to WBC) within Market A. We also proposed to impose a sub-cap on these migration charges.
- 7.110 In addition, we proposed to control BT's connection charges for IPstream Connect Max and Max Premium within Market A but with no sub-cap. We did not propose to control migration and connection charges of other services (e.g. WBC).
- 7.111 In our 2014 WBA Consultation we again proposed it was appropriate to control the migration and connection charges for IPstream Connect. We considered again whether other migration and connection charges within Market A should be controlled and subject to the relevant sub-caps (in addition to the charges for migrations from IPstream Connect Max and Max Premium to other products within Market A and for the connection of IPstream Connect Max and Max Premium within Market A) but did not propose to control these charges.

Consultation responses

- 7.112 EE disagreed with Ofcom that the risk of regulatory failure of not directly controlling WBC connection and migration charges is low and proposed that an express charge control price cap should be set on both Market A WBC connection and migration charges.

Our conclusions

- 7.113 In relation to migration charges from IPstream Connect to IPstream Connect and from IPstream Connect to other products (for example to WBC) and connection charges for IPstream Connect Max and Max Premium, we include these charges in the overall charge control basket, because they are key elements of the service. In addition, we will impose a sub-cap on the migration charges, given the important role these charges play in supporting competition (as discussed above in paragraph 7.98).
- 7.114 Of the IPstream Connect Max or Max Premium connection charge, 88%⁴²⁹ of the charge is the EOI charge (a charge from Openreach). This charge is included within the charge controlled services within the 2014 FAMR Draft Statement. We therefore do not consider that an individual sub-cap is required on this service.
- 7.115 In relation to other charges (for example, for WBC connection and migration), we do not consider a charge control is necessary. BT currently charges £11 for a migration from IPstream Connect Max or Max Premium (or £0 for a bulk migration). It also charges £11 for a migration from WBC services to other services within Market 1 (or

⁴²⁹ See for example page 112 of BT's 2013 RFS.

£0 for a bulk migration).⁴³⁰ In addition, BT currently charges £37.29 for a connection to IPstream Connect Max or Max Premium.⁴³¹ Connections to WBC are £39.79.⁴³² Reported relevant revenues are relatively small, with revenues net of EOI charges of just over [£] for both migration charges and connection charges in 2012/13.⁴³³

- 7.116 Where BT provides services not directly controlled by the charge control in Market A (for example WBC or an equivalent product offered in the situation where IPstream Connect Max and Max Premium have been withdrawn from the market), these services will be subject to the obligation that they are provided on fair and reasonable terms and conditions, including charges. The activities required to migrate customers from WBC services are broadly the same as those required to perform migrations from and to IPstream Connect. We therefore believe that the WBC migration charge in Market A should be similar to the IPstream Connect Max and Max Premium migration charge.

We will use current cost accounting, fully allocated costs (CCA FAC) as our cost standard

Consultation proposals

- 7.117 We proposed the use of current cost accounting, fully allocated costs (CCA FAC) as our cost standard. Under this approach, all the firm's costs are distributed among the services it provides. Under the CCA accounting convention, assets are valued and depreciated according to their current replacement cost.⁴³⁴

Consultation responses

- 7.118 [X] was of the view that CCA FAC is unsuitable for use in a market where some of the assets are heavily or fully depreciated and that LRIC should be a more suitable model. It accepted, though, the need for a degree of regulatory certainty and consistency, and so in the current case it suggested that a glidepath that ends at a point between CCA FAC and LRIC should be more appropriate.

Our conclusions

- 7.119 Under a charge control, we set charges to allow BT to recover the incremental costs of service provision plus an appropriate mark-up to allow for the recovery of common

⁴³⁰ BT IPstream Connect, Price List, https://www.btwholesale.com/pages/static/Library/Pricing_and_Contractual_Information/Part_8_BT_IPstream_Connect/index.htm and BT Wholesale Broadband Connect, Price List https://www.btwholesale.com/pages/static/Library/Pricing_and_Contractual_Information/Part_7_BT_Wholesale_Broadband_Connect_WBC_/index.htm.

⁴³¹ BT IPstream Connect, Price List, https://www.btwholesale.com/pages/static/Library/Pricing_and_Contractual_Information/Part_8_BT_IPstream_Connect/index.htm.

⁴³² BT Wholesale Broadband Connect, Price List, https://www.btwholesale.com/pages/static/Library/Pricing_and_Contractual_Information/Part_7_BT_Wholesale_Broadband_Connect_WBC_/index.htm.

⁴³³ Latest provisional compliance report, Email from BT to Ofcom dated 29 November 2013, 11:38, Subject: WBA Compliance Statement update.

⁴³⁴ An alternative to CCA would be HCA convention, where assets are valued and depreciated according to their historical purchase cost.

costs.⁴³⁵ In the context of determining the apportionment of common costs for this charge control, we will use CCA FAC.

7.120 We have selected CCA FAC for the following reasons.

- The use of CCA FAC is consistent with the approach we have adopted for other recent charge controls. Consistency across the regulation of different services in BT ensures that all common costs can be recovered, whilst avoiding double recovery.
- A charge control based on CCA FAC data can be reconciled to BT's RFS, which are audited and are in the public domain.

7.121 Our use of CCA FAC was reviewed by the CC in the appeal of the 2009 WLR Charge Control. In its determination, the CC found that we did not err in adopting a CCA FAC approach in that case.⁴³⁶

7.122 In response to [3<], we do not agree that moving from a CCA FAC cost base (which is a form of LRIC+) to LRIC is the appropriate way to take account of heavily or fully depreciated assets. We believe it is appropriate to allow BT to recover its efficiently incurred costs and in the case of WBA this would include a contribution to costs which are common to different products and services. A LRIC cost base may not correctly take into account these common costs. We explain how we have taken account of the depreciated assets when we discuss our HON adjustment in paragraph 7.222 to 7.235.

We propose to use prior year weights

Consultation proposals

7.123 In our 2013 WBA Consultation we proposed to use prior year weights.

Consultation responses

7.124 No respondents to the WBA consultations commented on the use of prior year weights.

Our conclusions

7.125 The charge control will limit the weighted average increase in BT's charges to a maximum of CPI - X. Under a basket approach it is necessary to calculate the basket weights that are used in the calculation of the values of X and to assess BT's compliance with the controls. Regulators who have applied this form of control have generally used one of two main methods of calculating these weights: "prior year revenue weights" or "current year revenue weights".

7.126 Under the prior-year weighting approach, basket weights are set equal to the proportions of basket revenues accruing to the relevant services in the year prior to

⁴³⁵ Common costs are those which arise from the provision of a group of services, but which are not incremental to the provision of any individual service.

⁴³⁶ Competition Commission, *The Carphone Warehouse Group plc v Office of Communications*, Case 1149/3/3/09: http://www.competition-commission.org.uk/appeals/communications_act/wlr_determination.pdf. See, for instance, paragraph 3.161.

the one in which the price change occurs. Under the current year weighting approach, the weights are set equal to the proportion of current year basket revenues accounted for by each service as a proportion of total current year revenues. A current year weighted control may take the form of a control on average revenue (total revenues divided by total service volumes).

- 7.127 Ofcom has generally preferred prior year weighting, and in the 2011 WBA Charge Control we used the 'prior year revenue weight' method. This is primarily because current year weights cannot be calculated with certainty until after the end of the price control year in which compliance is being assessed, because current year revenues will only be known with a significant time lag. This means that, to decide how far to reduce prices, the firm has to make forecasts of weights, with the consequential need for retrospective adjustment for forecast errors. By contrast, a prior year weighted control relies on revenue information which is already known when setting prices to comply with the control. We therefore have decided to continue to use prior year weights.

We have used an anchor pricing approach to model the charge control

Consultation proposals

- 7.128 In our 2013 WBA Consultation we proposed adopting an anchor pricing approach to modelling the costs of serving Market A, rather than an MEA approach.
- 7.129 Under our approach to anchor pricing for this charge control, the price of existing services is based on the legacy technology, even if the services are actually provided over new technology. As a result, consumers would not be made worse off as a result of BT changing the technology that it uses to provide the regulated service in Market A.
- 7.130 Our approach to anchor pricing ensures that BT has an incentive to undertake investment required to improve service characteristics which are directly related to customers' willingness to pay for improvements in quality, and as a result it will not deter efficient investment in WBC or fibre in Market A.
- 7.131 Using our anchor pricing approach, we modelled the cost of efficiently supplying services using existing IPstream Connect technology over the period of the control. We therefore assumed in the model that BT's WBA Market A customers used IPstream Connect services over the control period, even if in reality these customers migrate onto other services (e.g. WBC). So, for example, our demand forecasts included customers who will migrate to BT's WBC services in Market A. However, it excluded customers who migrate to other CP's networks using both VULA and LLU based services. We also excluded migration to BDUK volumes from our model, on the basis that the rollout of BDUK fibre was not BT's decision, but an exogenous event, determined by Government.
- 7.132 The charges that are allowed under the charge control are intended to be sustainable over time. In order to establish a cost base that results in sustainable charges, the value of the assets allowed under the charge control must be consistent with their replacement over time, rather than using costs related to fully, or nearly, depreciated values. We refer to this as the HON approach (which we discuss further in paragraphs 7.222 to 7.235 below). In applying the HON approach we said we made an assessment of how to allocate forward looking fixed IPstream Connect costs

common to both Market A and Market B between the markets. We accepted the allocation of these costs in BT's RFS which allocates these costs according to measures of IPstream usage. We noted that the reduction in IPstream Connect volumes in Market B meant that a greater proportion of costs were born by Market A.

Consultation responses

- 7.133 BT supported Ofcom's approach to set a charge control on the basis of an anchor product, with a single basket and sub-caps. It supported the use of anchor pricing as the most appropriate way of providing appropriate incentives for investment, and agreed with our exclusion of BDUK volumes.
- 7.134 Prospect argued that Ofcom had not satisfactorily demonstrated the incentive qualities of anchor pricing – particularly in the context of the Costing and Non-Discrimination. Prospect stated that the volume of IPstream Connect business is likely to fall as a result of consumers in Market A being switched to fibre and for this reason it argued that an approach which bases prices for continuing services on a declining business would not reflect accurately the costs of providing those services throughout the charge control period given that such volumes are dropping. Prospect further suggested that it is possible to create a glidepath from IPstream Connect to fibre-based products which would reflect the investment made in transitioning customers in regulated markets to the latter and which would follow the timelines for doing so.
- 7.135 Sky considered that the approach adopted by Ofcom in setting charge controls for WBA services in Market A did not and would not enable sustainable competition and was not in favour of the end-users. It argued that a key reason for the excessive levels of wholesale charges for these services was Ofcom's decision to use an anchor pricing approach, based on the costs of a hypothetical on-going network using legacy technologies, for the maximum wholesale charges that BT is permitted to set. For that reason Sky argued that setting charges based on a MEA approach would be more appropriate and that Ofcom had rejected this option for inappropriate reasons.
- 7.136 EE stated that it had no major objections to Ofcom's proposals to use an anchor pricing approach rather than a MEA approach. It further agreed with Ofcom that it was imperative that adjustments were made to BT's proposed allocation methods where these would otherwise result in costs being attributed to Market A that were not relevant to serving Market A customers.
- 7.137 EE disagreed with our proposals in the 2014 WBA Consultation to allocate a greater proportion of forward looking fixed IPstream Connect costs to Market A due to the migration of customers in Market B from IPstream to WBC and fibre services. We address this point in paragraphs 7.177 to 7.181 when we discuss our base year costs. EE also strongly disagreed with our exclusion of BDUK volumes which we consider in detail below.

Our conclusions

- 7.138 In our 2013 WBA Consultation we considered whether we should adopt an anchor pricing or MEA approach to modelling the costs of serving Market A.
- 7.139 We explained how the MEA approach sets charges on the basis of what is believed to be the most efficient available technology that performs the same function as the old technology. The MEA approach in this case would consider whether costs should

be based on a copper access network using ADSL2+ plus Ethernet backhaul (as used by BT in its WBC product) rather than the ADSL and SDH technology used in IPstream Connect, or on an access network fully or partly provided over fibre.

- 7.140 We have reconsidered Sky's argument that we should adopt a MEA approach. We believe it is unclear that WBC would provide lower costs than IPstream Connect across the whole of Market A. This is because the **backhaul** for WBC uses Ethernet. In the majority of the country (Market B in the WBA review) there are economies of scale arising from the large number of consumers per exchange and because other services, notably leased lines, share the network. By comparison, in Market A, the exchanges are small and there is little or no use of Ethernet for leased lines so that the economies of scale that reduce Ethernet costs are not present. In Market A, the costs of deployment and the ongoing costs of delivery of Ethernet would need to be covered by the relatively small number of broadband customers whereas the current IPstream Connect service shares network infrastructure with voice services. The information we have received on the extent of deployment of fibre broadband also suggests further reductions in the economy of scale available in deploying an ADSL2+ based service in Market A.⁴³⁷
- 7.141 With respect to **exchange equipment costs** we consider in paragraphs 7.230 to 7.235 below the costs of DSLAMs used to provide IPstream Connect. Based on data provided by BT we consider the costs we have used in our model reflect the current costs of DSLAMs and these are largely the same as the costs of the MSANs BT uses to provide WBC.
- 7.142 In addition, as set out in the 2013 WBA Consultation there would be significant challenges to cost an MEA based on WBC in Market A. There has been relatively little roll-out of ADSL2+ or fibre technology in Market A, so there is little data on which to base costs for any MEA modelling exercise. Unit costs are likely to be higher in Market A than in Market B, since the number of customers at each exchange will be much smaller and the exchanges are more remote than in Market B. Reliably estimating the cost curve based on existing data would therefore be very difficult. We would also need to consider how, if it all, the costs of the MEA technology should be compared to the existing technology (for example how the greater functionality should be abated).
- 7.143 Therefore, the costs of WBC deployment (and fibre rollout) across Market A are uncertain, and not clearly lower than the costs of the current network used to provide IPstream Connect. We therefore do not consider we could base our charge control on a MEA approach where WBC is taken as the MEA.
- 7.144 In its response to the 2014 WBA Consultation, Prospect suggested that we could create a glidepath from IPstream Connect to fibre-based products which would reflect the investment made in migrating customers in regulated markets to fibre. This appears to suggest that we would assume fibre is the MEA, and we should aim to bring prices to the MEA level. However, for the reasons explained above, we are not adopting an approach where we consider fibre to be the MEA.
- 7.145 Under our anchor pricing approach, we include WBA volumes provided by BT in market A. This includes all lines BT provides over copper access lines (via IPstream Connect and WBC). It also includes lines BT provides over commercially deployed

⁴³⁷ See paragraph A7.37 to A7.45 for data on fibre rollout in Market A.

fibre, via WBC FTTx.⁴³⁸ Our forecast excludes lines provided by other CPs using LLU or VULA provided on BT's commercial fibre deployments. It also excludes BDUK volumes for the reasons discussed below.

Customers moving to BDUK funded fibre in Market A

- 7.146 In the 2013 WBA Consultation, we proposed that in order to be consistent with our anchor pricing approach, we must exclude all WBA fibre volumes that are based on BDUK funding. We stated that BDUK rollout is very different from a normal commercial decision on whether to invest in new technology by BT. We considered that the loss of economies of scale to BT as a result of BDUK rollout is not an effect that BT has much influence over, as it is not its commercial decision to roll out the BDUK funded fibre. Given this, we believed it was appropriate to remove BDUK volumes from our charge control, and model the forward looking cost of serving the remaining customers in Market A using the IPstream technology.
- 7.147 EE made a number of objections to this approach. It stated our approach is inconsistent with the principle that anchor pricing is designed to deal with precisely the major technological change represented by a shift from delivery of broadband services over DSL to fibre in Market A. Moreover, EE argued that it was wrong to characterise BDUK as an event independent of and external to BT's own commercial decision making. Rather, BT was intimately involved in bidding for the relevant BDUK funding, scoping the projects, and contributing its funds. It provided quotes from public documents in which BT noted it was working with Government bodies to take fibre to new areas, and had pledged investment. EE stated that removing BDUK funded volumes makes the WBA charge control subject to uncertainties about fibre growth, which anchor pricing is intended to reduce.
- 7.148 We use anchor pricing when there is uncertainty about what technology is most efficient for a SMP operator to use to deliver a service (or where there is significant uncertainty about the costing of that service). However, in this case, Government has made a decision that fibre will be rolled out to a large proportion of Market A. This was not a commercial decision made by BT (although BT was the chosen contractor and so is involved in delivering the fibre, as the quotes EE provides indicate). The concern that we are allowing BT to recover the costs of a potentially inefficient investment decision, which might arise where there is uncertainty over the MEA, does not apply here. Our charge control model therefore aims to estimate the efficiently incurred costs of serving the rest of the market (and we believe the price for BDUK fibre will be constrained by this charge control). In building this model, we have used an anchor pricing approach, and assumed that IPstream Connect will be used to serve the remaining proportion of the market. While we agree there is uncertainty about fibre growth, this is not a factor in our assessment of whether or not it is correct to exclude BDUK fibre volumes in principle. As explained above, the reason we exclude BDUK fibre volume is that BDUK rollout is the result of a government decision rather than a commercial investment by BT. As explained in paragraph 7.265 we have taken a view on potential BDUK volumes in order to assess the impact of this on BT's cost in Market A.
- 7.149 EE also believed that our approach breaches the fundamental tenet of anchor pricing that consumers of the legacy anchor product should be protected by paying prices no higher than they would have paid if the new technology had rolled out. In the case

⁴³⁸ In the 2013 WBA Consultation we assumed all fibre rollout in Market A would be based on BDUK and so did not take account of commercial fibre. However, as explained in Annex 7 paragraph A7.38, we have updated data that shows some commercial fibre deployment in Market A.

where the SMP operator has the choice over the technology used to deliver a service, anchor pricing implies that customers are not worse off as a result of the SMP operator's choice. In the case of BDUK, however, Government, not BT, has taken the decision that fibre should be rolled out. This Government decision has the effect of reducing volumes of the copper network and creating a loss of economies of scale, which may have the effect of raising prices to those that do not use the new technology under our approach to anchor pricing. However, this is not a result of BT's decisions and would equally have been the case if another contractor had won the bid. If BT is to recover the efficiently incurred costs of serving the rest of the market, our charge control must reflect this loss of scale.

- 7.150 Finally, EE also raised concerns that our proposed approach mitigated BT's risk of fibre investment. We acknowledge that the result of excluding BDUK volumes is that the unit costs we model on BT's copper network increase, making the X in our model less negative. However, as above, this reflects the fact that BT will, indeed, face reduced economies of scale on its copper network as a result of BDUK. If we included BDUK volumes in the WBA charge control, making the X in our model more negative, BT would be unable to recover the costs of the reduced economies of scale on its copper network from its copper pricing.
- 7.151 EE also stated that our approach departs from the principle of modelling an efficient HON because we assume the current level of Market A 20CN costs are essentially maintained, in spite of assumed materially lower volumes of services over which those costs are allocated. We consider that this is an issue about AVEs/CVEs not about whether we should exclude BDUK. Once we have decided to remove BDUK volumes from our charge control, it is the AVEs and CVEs which determine the extent to which costs are reduced to reflect lower volumes.
- 7.152 Based on our assessment and the consultation responses we received, we have concluded that it is appropriate to exclude all WBA fibre volumes that are based on BDUK funding.

We have used a simplified approach to model the charge control

Consultation proposals

- 7.153 In our 2013 WBA Consultation we proposed a simplified approach to modelling the charge control.

Consultation responses

- 7.154 Three respondents commented on the use of a simplified model. Two were supportive (BT and EE), while one ([redacted]) raised concerns.
- 7.155 [redacted] stated whilst a simplified approach is arguably more transparent and accessible, the bottom-up approach used in the last control removed the reliance on BT's reported data which is of questionable accuracy. Further to that, the anonymous respondent suggested that if its argument on business broadband succeeds, some of the objections or issues raised by Ofcom may become less material as the number of exchanges in the affected Market increases, in which case there may be a need for a more accurate bottom up approach.

Our conclusions

- 7.156 The approach we have taken is less complex than the approach we took in the 2011 WBA Charge Control Statement. We have used a simpler set of data, at a higher level of aggregation. In the 2011 WBA Charge Control Statement we used a bottom-up approach to assess DSLAM and bandwidth costs on a per exchange basis. In this market review we instead started from BT's reported costs.
- 7.157 In the 2013 WBA Consultation, we noted that it would be possible to produce a more detailed model, as previously. In particular, in the previous review we developed a detailed model to dimension equipment on an exchange by exchange basis. In this review, we have determined asset volumes by applying AVE and CVE assumptions on a market-wide basis, rather than carrying out detailed modelling. Our view is that carrying out more detailed modelling would not significantly improve the outcome.
- 7.158 Both approaches are limited by the accuracy of our assumptions. For example, in the case of this review, we note there is uncertainty over our volume forecasts, particularly in relation to the rollout and take-up of BDUK-based fibre (whereas BDUK was not a significant concern in the last charge control). We have considered whether we could improve our forecasts but, in our view, gathering further data or carrying out further analysis would not improve their robustness. Taking a more detailed modelling approach would require us to make assumptions on, for example, BDUK rollout and take-up at the exchange level, but this would lead to the results being much more susceptible to errors in these assumptions. Given the uncertainty and the additional assumptions we would need to make, we do not consider that carrying out more detailed and resource intensive modelling would lead to a significantly better outcome than a simpler approach.
- 7.159 We have therefore adopted a simplified model to produce our X value.

We have used 2012/13 as the base year but have used BT's 2011/12 allocation methodologies

Consultation proposals

- 7.160 In our 2013 WBA Consultation, we consulted on the basis of BT's 2011/12 cost data and 2012 RFS.⁴³⁹ In our 2014 WBA Consultation, we proposed to update our analysis to use 2012/13 as the base year for cost modelling purposes but to exclude all BT's new allocation methodologies set out in its 2013 RFS.
- 7.161 As explained in paragraph 7.132 above, in our 2014 WBA Consultation we said we had made an assessment of how to allocate forward looking fixed IPstream Connect costs common to both Market A and Market B between the markets. We accepted the allocation of these costs in BT's 2013 RFS. We noted that the reduction in IPstream Connect volumes in Market B meant that a greater proportion of costs were born by Market A.

Consultation responses

- 7.162 BT and Prospect believe that the most appropriate starting point for the WBA charge control is the published 2013 RFS.

⁴³⁹ BT Group plc, Regulatory financial statements 2012, <http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2012/index.htm>.

- 7.163 EE agreed with Ofcom's approach to use the 2013 RFS as the base year with the 2011/12 allocation methodologies but it disagreed with "*Ofcom's proposals to allocate a greater proportion of its forward looking fixed IPStream costs to Market A, purely because BT has chosen to migrate customers in Market B off of its IPstream network and on to its WBC and fibre networks*".⁴⁴⁰ It said this was inconsistent with an anchor pricing approach and that the reduction in volumes in the competitive market (Market 3 in the 2013 RFS data and Market B as defined in this review) should not be allowed to impact on the price of IPstream in the charge controlled area (Market 1 in the 2013 RFS and Market A in this review).
- 7.164 Prospect stated that by the end of the review, the use of the 2013 data on the basis of the 2012 methodology will be out of date and consistency of approach with WLR / LLU CC is not a valid argument for taking the same line in this review.
- 7.165 EE stated that it strongly agrees with Ofcom's conclusion that it should adopt a consistent approach across the WBA, WLA and Wholesale Fixed Analogue Exchange Lines (WFAEL) markets. EE considered that this is necessary in order to avoid any inadvertent discrimination against or distortion of competition between operators using different technologies to supply voice and broadband services.
- 7.166 BT stated that using the published 2013 RFS is the most up to date and relevant data and its use is consistent with Ofcom's standard practice. It stated that there has been extensive engagement from BT with Ofcom on the 2012/13 methodology changes, with Ofcom being provided with an independent report setting out the merits for each change and the 2013 RFS received an audit approval by PWC. BT stated that Ofcom's blanket dismissal of all 2012/13 methodology changes fails to give proper and appropriate consideration to the merits of each individual change and the detailed information supplied by BT.
- 7.167 In response to both consultations BT argued that Ofcom should in particular take into account the correction in the 2013 RFS in relation to 'specialised accommodation' and 'DSLAM costs'. It stated that the revised allocation of specialised accommodation costs into WBA markets align RFS reporting with planning rules and best engineering practice. It also argued that we should take into account the specific change related to the fixed/variable nature of DSLAM costs, with some costs varying with the number of customers.

Our conclusions

- 7.168 We have used 2012/13 as the base year but have excluded all BT's new allocation methodologies set out in its 2013 RFS. Further to the 2014 WBA Consultation, BT has re-provided 2012/13 base year cost data such that it is consistent with the data we considered in our analysis of BT's component costs (to check that BT had not unduly allocated costs to Market A) and reconciles with the published 2013 RFS October Report. This updated base year cost data is only very slightly different from the base year cost data we used in our 2014 WBA Consultation.
- 7.169 As set out in our 2014 WBA Consultation, and like the LLU / WLR CC, we want to use the best available information to forecast BT's relevant costs over the charge control period, and we note that more up to date data on the use of different WBA services in different geographic markets will be included in the 2012/13 data, compared to the 2011/12 data.

⁴⁴⁰ Page 9, EE response to the 2014 WBA Consultation.

- 7.170 BT published its 2013 RFS on 31 July 2013. The 2013 RFS was therefore the most up to date RFS information at the time of our 2014 WBA Consultation. However, the 2013 RFS contains a number of material changes in cost allocation methodologies when compared to the 2012 RFS and the basis for the 2013 WBA Consultation.
- 7.171 Having regard to our duties and objectives when setting charge controls, and to be consistent with the LLU / WLR CC we proposed to use 2012/13 as the base year but to reject BT's revised 2013 RFS cost allocation methodologies because we were concerned with:
- the potential for material over-recovery from other regulated markets (this was at the core of the concerns for the LLU / WLR CC);
 - the other material reallocations between the WLA and WFAEL markets and to those markets from unregulated services, specifically:
 - that the suite of methodological changes made by BT in its 2013 RFS (and their effects) are potentially interdependent;
 - that the changes do not represent a balanced approach to the review of allocations; and
 - the fact that we did not feel our duties would be best achieved (in particular in the context of the WLR / LLU CC) by undertaking a detailed evaluation of each allocation change as to do so would lead to a material delay in the implementation of the revised controls, without necessarily producing a better outcome in terms of cost allocation.
- 7.172 Having considered the responses to the 2014 WBA Consultation we do not believe it is appropriate to change our base year costs.
- 7.173 Subsequent to our 2013 December LLU WLR Charge Control Consultation, we have decided to revert to using 2011/12 data for base year costs in the LLU / WLR CC. We found that due to the identification of errors in the 2013 RFS, which were not discovered until towards the end of the review process, we would not have sufficient confidence in using the 2012/13 data prepared on the 2012 RFS allocation methodologies in the LLU / WLR CC cost model without introducing an unacceptable period of delay in the imposition of those charge controls contrary to legal and regulatory certainty. This was due to the significant changes to the data that BT identified as necessary following requests for clarifications and material inconsistency in the information provided. The checks we have performed on the relevant WBA data have however not uncovered any need for material adjustments over and above those relatively minor changes we made in the 2014 WBA Consultation.
- 7.174 In addition, in our 2014 WBA Consultation, to be consistent with the LLU / WLR CC, we consulted on using 2012/13 as the base year for cost modelling purposes and excluding all BT's new allocation methodologies set out in its 2013 RFS. However, unlike the LLU / WLR CC we rebased our model on this data and consulted on a new range of X values. To revert to using the 2012 RFS or the 2013 RFS in their entirety would require significant further work, delaying the delivery of our conclusions in this market review.
- 7.175 Since our 2014 WBA Consultation and in light of BT's response in particular we have further considered whether a detailed evaluation of each allocation change would make a difference to the value of X. We have not made any evaluation as to the

appropriateness of each of the changes in allocation methodology for WBA Market 1 services. However, for the reasons summarised below we believe that even if we updated all the cost allocation methodologies for the modelled CCA costs the impact on the value of X would be negligible:

- The October 2013 RFS Report details the impact of updating the 2013 RFS with 2013 cost allocation methodologies.
- The total impact on CCA costs is to increase costs by £5 million (1.5% of the total WBA Market 1 CCA costs). This is shown in the October 2013 RFS Report⁴⁴¹.
- We note that this includes a cost allocation change related to 21CN and core director costs which adds £6 million of costs.
- In this charge control, we exclude 21CN and core director costs, thus, this methodology change is likely not to be appropriate for our input base year costs⁴⁴².
- By excluding this allocation methodology change the impact on the total CCA costs of updating the cost allocation methodologies is negligible. (i.e. Total change = + £5 million; 21CN/core director = -£6 million, net effect is less than -£1 million).

7.176 For the reasons above, and those previously consulted on, we conclude that we should continue to use 2012/13 as the base year and to exclude all BT's new allocation methodologies set out in its 2013 RFS. We believe that this represents the best available information to forecast BT's relevant costs for the charge controlled products over the charge control period.

Allocation of costs between Market A and Market B

7.177 In the 2014 WBA Consultation, we explained (in paragraph 4.29) that in Market B, BT is increasingly serving its customers using WBC and fibre rather than IPstream. Prices in Market B are determined by competition with other LLU providers who may serve their customers only using similar technology to WBC. Therefore, BT may be unable to set prices in Market B which reflect the forward looking costs of running an IPstream network as well as the costs of running WBC. For this reason, we said we had apportioned the forward looking fixed costs of IPstream between Market A and Market B according to measures of IPstream usage, such as the number of end-users, the bandwidth they consume, and/or direct asset volumes used to serve those customers. Given the reduced volume of IPstream in Market B, this means that a greater proportion of these forward looking fixed costs fall on Market A.

7.178 As explained in paragraph 7.163 above EE disagreed with us re-apportioning more cost to Market A due to the migration of IPstream customers in Market B. In response to EE, IPstream is used in both regulated and non-regulated areas and there are costs which are common to serving these different areas. In its RFS, BT allocates these costs in line with measures of IPstream usage, such as the number of end-users, the bandwidth they consume, and/or direct asset volumes used to serve those customers. In our 2013 WBA Consultation, we proposed a similar approach to that used in the 2011 WBA Charge Control Statement by proposing to use BT's allocation of common costs in our model. In the 2014 WBA Consultation we also proposed to

⁴⁴¹ See page 18 of the October 2013 RFS Report.

⁴⁴² See paragraphs 7.213 to 7.221 for our treatment of 21CN costs.

use BT's allocation of common costs, albeit updated to be based on 2012/13 cost data. That is, whilst paragraph 4.29 of the 2014 WBA Consultation said we had apportioned forward looking costs between Market A and Market B, our proposal used BT's 2012/13 costs in Market A without any additional apportionment of costs from Market B to Market A in the base year or any forecast of further re-apportionment of costs from Market B to Market A during the charge control period.

- 7.179 We do not consider that our proposed approach is inconsistent with our general approach to charge controls or anchor pricing. In this charge control we have taken BT's restated 2013 RFS as our base data. We explain in paragraphs 7.168 to 7.181 that we consider this is the most appropriate base data to use. Where BT's cost allocations appear to us to be reasonable we do not, in general, make changes. We have considered whether there may be a case to re-allocate costs in this charge control but have concluded there is not. BT has not changed the approach to allocating costs between Markets 1, 2 and 3 between the 2012 RFS and the restated 2013 RFS, and these use essentially the same approach as used in the base year data on which the previous charge control was based in the 2011 WBA Charge Control Statement.
- 7.180 However, we do not believe it is appropriate to allow BT to recover costs which were incremental to providing IPstream Connect in Market B from Market A. In particular, we do not believe it appropriate for BT to recover from Market A the costs of any DSLAMs which, due to the migration to WBC in Market B, are no longer in use. These are not part of the efficient forward looking costs of the IPstream Connect network. BT's commercial decision to switch from using IPstream Connect to WBC in Market B should have taken into account the requirement to write off assets associated with the old technology which will no longer be needed and replace them with new technology, as any other provider in Market B would have to do. It would distort BT's investment incentives in Market B if we allowed it to recover these costs from Market A. As explained in our 2014 WBA Consultation we have considered BT's cost components such that we are confident we have only modelled the quantity of assets (and associated costs) that are needed to provide the volume of the service required in Market A (for example we have checked that our cost data does not appear to include any stranded assets from Market B).
- 7.181 We therefore conclude that, as in the 2014 WBA Consultation, we should use the allocation of IPstream common costs between Market A and Market B in the restated 2013 RFS with no further adjustment.

We have made some adjustments to BT's base year costs in relation to the costs of SG&A Broadband and ATM Network Interface, Switching and Transmission

Consultation proposals

- 7.182 In our 2014 WBA Consultation we proposed to make some adjustments to two cost components in the October 2013 RFS Report. Our analysis highlighted some data anomalies for SG&A Broadband and ATM Network Interface, Switching and Transmission costs within the October 2013 RFS Report. BT had allocated 2012/13 restated costs using forecasts of revenues and volumes rather than actual revenues and volumes, which we considered to be the appropriate basis for allocation.

Consultation responses

- 7.183 EE agreed with our proposals to reject BT's proposed allocations according to forecast rather than actual revenues and volumes. However, it also expressed the concern that, in an environment where the number of customers served using IPstream Connect is expected to continue to fall, the current charge control calculation methodology may cause material fluctuations in the costs recoverable from BT's Market A competitors.
- 7.184 BT agreed with Ofcom's proposed adjustments because it believed they were designed to ensure the cost allocations are, as far as possible, based on usage. However, it argued that the making of these adjustments seemed inconsistent with the treatment proposed for Accommodation costs and again requested that Ofcom should revisit this methodology change implemented in 2013 RFS in relation to accommodation costs and the detailed information supplied by BT.

Our conclusions

- 7.185 As noted in paragraph 7.168 above, we have updated the base year input costs. This revised base year data provided by BT in March 2014 again did not adjust the costs of SG&A Broadband and ATM Network Interface, Switching and Transmission; therefore we have repeated the adjustments we made in our 2014 WBA Consultation for these cost components.
- 7.186 Based on data supplied by BT⁴⁴³ we have updated both bases to reflect actual revenues and volumes. The SG&A adjustment reduces Market 1 operating costs by £1.5m and MCE by £2m. The ATM adjustments reduce Market 1 operating costs by £1.3m and MCE by £5m.⁴⁴⁴
- 7.187 We believe that EE's concern regarding the fluctuations in costs recoverable from BT's Market A competitors due to the reduction in IPstream Connect customers is addressed by our anchor pricing approach which assumes that existing customers will continue to be served using IPstream Connect, even if in fact they are served by BT using another form of technology.
- 7.188 For the reasons set out at paragraphs 7.168 to 7.176 we do not think it is appropriate to take into account any of the new 2013 RFS costing allocation methodology, as proposed by BT.

We have updated our one-off non-recurring cost adjustments

Consultation proposals

- 7.189 In our 2013 WBA Consultation we proposed to make a series of one-off non-recurring cost adjustments to our base year data (which was 2011/12 data in that consultation). In our 2014 WBA Consultation we updated our base year to use 2012/13 data and so we made our one-off non-recurring cost adjustments to this data.
- 7.190 The majority of these one-off non-recurring cost adjustments relate to current cost accounting (CCA) adjustments. In our 2013 WBA Consultation and 2014 WBA Consultations we proposed to deduct all CCA adjustments that BT categorised as

⁴⁴³ BT response to s.135 notice of 18 November 2013.

⁴⁴⁴ BT response to s.135 notice of 16 January 2014.

‘other’ and include CCA adjustments that BT categorised as supplementary depreciation or holding gain/loss.

Consultation responses

- 7.191 BT agreed with Ofcom’s proposal to update the one-off non-recurring cost adjustments. It did however believe that Ofcom had not “normalised” its treatment of CCA holding gains consistently with the removal of one-off non-recurring cost items. It claimed this meant that the modelling included no compensating adjustment to future depreciation costs through an increase to depreciation or the capital employed. BT suggested that the simplest way to correct this was to substitute a nil value.
- 7.192 BT also claimed that in recent charge controls⁴⁴⁵, Ofcom has adopted the approach of removing the reported holding gain/loss in the base year costs and replacing this with a value recalculated on a basis consistent with a forecast of the future asset price changes. However, in making the adjustment to exclude 21CN costs in the 2014 WBA Consultation (which we discuss below in paragraphs 7.213 to 7.221), Ofcom had only removed the HCA costs and had failed to remove the relevant CCA adjustments (i.e. Holding Gain and Supplementary Depreciation associated with the 21CN components from the base year costs).
- 7.193 EE expressed no objection to Ofcom’s continued proposal to remove £1.2m in Market 1 operating costs categories as “Other CCA adjustments”.

Our conclusions

- 7.194 In our 2013 WBA Consultation and 2014 WBA Consultation we excluded “other” CCA adjustments but not those relating to supplementary depreciation and holding gains/losses. We have reviewed our treatment of all CCA adjustments in light of BT’s comments. As a result we have decided to remove all of the CCA adjustments included in our base year input costs. This ensures that the modelled costs represent a ‘normal’ steady state level of costs from which to project the model forward.
- 7.195 Table 7.4 below shows all of the CCA adjustments made to IPstream Connect services in Market 1 in BT’s 2013 RFS. Most of these adjustments related to the costs of 21CN components.

Table 7.4: RFS 2013 (re-presented with 2011/12 cost accounting methodologies) CCA adjustments included⁴⁴⁶

Product (in £'000)	CCA supplementary depreciation	Holding Gains and Losses	Other CCA adjustments
IPstream Connect End User Rentals	[X]	[X]	[X]
IPstream Connect Bandwidth Services	[X]	[X]	[X]
Total	[X] [-8,900]	[X] [-4,700]	[X] [4,900]

⁴⁴⁵ BT referred to the Leased Lines Charge Control Consultation, 5 July 2012 (the 2012 LLCC Consultation) and the Business Connectivity Market Review Statement of 28 March 2013 (2013 BCMR Statement). The 2013 BCMR Statement concluded on the issues consulted upon in the 2012 LLCC Consultation. Para 3.6, BT response to the 2014 WBA Consultation.

⁴⁴⁶ Question A3, BT response to S135 Notice under Communications Act of 20 March 2014.

7.196 BT has now provided a fuller explanation of the underlying costing issues that led to these adjustments.⁴⁴⁷ We are now satisfied that these are, in the context of our modelling approach, one-off cost items that should not be included in our forecast. We therefore exclude all of the CCA adjustments given in Table 7.4 above for the following reasons:

- We exclude the costs of 21CN components in line with the approach identified in paragraphs 7.213 to 7.221 below. As BT stated we did not remove all such costs, notably the associated CCA adjustments, in the 2014 WBA Consultation cost model, an error that we have now rectified.
- Our modelling approach effectively resets the value of non 21CN assets to the value that we believe is reasonable for a forward looking HON. We forecast depreciation and mean capital employed based on these reset values. There is then no reason to include any supplementary depreciation for these assets.
- Under our simplified modelling approach we do not forecast any asset price changes in our model and so should not be forecasting any holding gains, losses, or supplementary depreciation that may arise from asset price changes. It is therefore wrong to embed any such cost items in our base year costs and thus implicitly forecast them forward.

We have used Market 1 IPstream Connect cost data without a market size adjustment

Consultation proposals

7.197 In the 2013 WBA Consultation we adjusted the input costs from the RFS to reflect the different coverage of Market A compared with Market 1.⁴⁴⁸

7.198 For the 2014 WBA Consultation we updated our analysis of which exchanges fell within Market A using more recent information on CPs' LLU roll-out plans, updated information from Virgin on its cable roll-out as well as better mapping of the premises it serves to exchange areas. The result of these updates was a very small change in the size of Market A in terms of total UK premises, decreasing the coverage, from 9.7% to 9.5% of premises.

7.199 However the 2013 RFS showed that the mix of customers in Market 1 had changed significantly in 2012/13. There were on average 1.8m IPstream Connect customers and 354,000 WBC customers in 2012/13 in Market 1, compared to 2.2m IPstream Connect customers and only just over 7,000 WBC customers⁴⁴⁹ in 2011/12.

7.200 Our 2014 WBA Consultation did not propose any adjustment in the charge control model for the revised market size. We believed that the level of restated IPstream Connect costs in the October 2013 RFS Report was a good proxy for the cost that would be incurred by all WBA customers within Market A assuming they consume IPstream Connect services.

⁴⁴⁷ Question A3, BT response to S135 Notice under Communications Act of 20 March 2014.

⁴⁴⁸ See paragraphs A11.29 to A11.32 of the 2013 WBA Consultation.

⁴⁴⁹ See for example pages 112-114 of BT's 2013 RFS. WBC customers in 2011/12 from BT's Additional Financial Information Schedule 21 supplied to Ofcom as part of regular regulatory financial reporting requirements.

Consultation responses

- 7.201 BT agreed with the approach proposed in the 2014 WBA Consultation, but was of the opinion that Ofcom's volume forecasts were "overly optimistic", given its view that recent data suggested that volumes had declined within Market 1. BT's response and our conclusions on volume forecasting are considered below at paragraph 7.262 to 7.269 and in Annex 7, paragraphs A7.3 to A7.55.
- 7.202 EE stated that it was not in a position to comment on Ofcom's proposal not to make any adjustment for revised market size from Market 1 to Market A in its charge control model, but, in general, it agreed with Ofcom that the aim under Ofcom's anchor pricing approach was to achieve a reasonable estimate of the costs that would be incurred by all WBA customers within Market A assuming they consume IPstream Connect services.

Our conclusions

- 7.203 Under our anchor pricing approach we are modelling the costs of serving all customers within Market A assuming that they are using the anchor products of IPstream Connect. This requires two different adjustments to the 2013 RFS data:
- i) Remove all Market 1 IPstream Connect customers served by exchanges that are outside Market A. This adjustment requires the removal of all costs associated with serving IPstream Connect customers that would not be in Market A due to the exchange they are served from. This should remove the cost of all DSLAMs and backhaul connectivity to those exchanges. The remaining exchanges in Market A are likely to serve fewer customers, thus this adjustment should lead to higher unit costs.⁴⁵⁰
 - ii) Assume those customers currently using WBC, Datastream and WBA services provided over commercial fibre within Market A exchanges instead use IPstream Connect services. This adjustment adds more IPstream Connect customers to Market A exchanges. The associated costs are the incremental cost of serving these additional customers. These extra costs may include the provision of extra DSLAMs and further backhaul capacity as well as increased operating costs. This adjustment should lead to lower unit costs due to economies of scale. We did not make this adjustment in the 2013 WBA Consultation because there was minimal use of WBC and Datastream services in Market 1 or A in 2011/12, our base year for the 2013 WBA Consultation.
- 7.204 Our base year is 2012/13. The number of IPstream Connect customers in Market 1 in 2012/13 was similar but very slightly lower (by about 3.5%) than the total number of BT WBA customers in Market A at the end of September 2013.⁴⁵¹ This suggests there would be more customers associated with the second adjustment than the first. However if volumes were equal then we would expect more costs would be removed

⁴⁵⁰ We discussed the effect of making this adjustment based on the 2012 RFS in the 2013 WBA Consultation. Paragraphs A11.29 to A11.32.

⁴⁵¹ The number of IPstream Connect customers in Market 1 is reported in BT's RFS, see for example page 112 of BT's 2013 RFS. The number of customers in Market A has been constructed from data provided by BT in response to S135 Notices under Communications Act of 9 October 2013 and 18 November 2013. We have undertaken cross checks between the two data sources. IPstream Connect and WBC mid-year volume data reported in the RFS for Market 1 are very close to those in our market size database, but slightly higher, as at the end of September 2012. We assumed the number of WBA services [3<], based on data provided by BT in response to S135 Notice under Communications Act of 14 October 2013, Q2.

by the first adjustment than would be added by the second (because all infrastructure related to an exchange are removed in the first, whereas the second varies the number of customers served in exchanges which may be able to be supported to some extent on existing infrastructure). The net effect of these two adjustments is therefore likely to be small. Carrying out a more detailed analysis to attempt to make a more precise market adjustment is not warranted given the level of precision of other assumptions (such as CVEs), and would not be in keeping with our simplified modelling approach.

- 7.205 We therefore have not made any adjustment for the revised market size in the charge control model. We believe that the level of restated IPstream Connect costs in the October 2013 RFS Report is a good proxy for the costs that would be incurred by all WBA customers within Market A assuming they consume IPstream Connect services.

We have used BT's 2013 RFS DSLAM cost allocation data

Consultation proposals

- 7.206 In our 2013 WBA Consultation we adjusted the allocation of DSLAM costs. In BT's 2012 RFS, DSLAM costs were exclusively allocated to end user rental services. In our 2013 WBA Consultation we believed it was appropriate to re-allocate a proportion of DSLAM costs to bandwidth services to capture increases in DSLAM costs that may result from increases in bandwidth volumes.⁴⁵² In the 2013 RFS BT allocated a proportion of DSLAM costs to bandwidth services. Therefore in our 2014 WBA Consultation we proposed to adopt this published RFS allocation data.

Consultation responses

- 7.207 BT agreed with the DSLAM cost adjustment, but considered that Ofcom should additionally have taken into account the fixed/variable nature of DSLAM costs, with some costs varying with the number of customers, i.e. assume the 2013 RFS costing allocation methodology in relation to DSLAM costs.
- 7.208 It stated that Ofcom has not adjusted the base year costs to reflect the improved allocation of DSLAM costs justified on the basis of cost causality. Since a proportion of each DSLAM is more closely related to the number of customers, BT suggested that a proportion of the DSLAM cost should also be allocated by reference to the number of IPstream Connect end-users whilst the non-customer related cost should continue to be allocated based on the number of DSLAMs in each market. We understand this to mean that BT proposes we should use the DSLAM cost allocation methodology in the 2013 RFS.

Our conclusions

- 7.209 We continue to believe that it is appropriate for DSLAM costs to be allocated to both end user rental services and bandwidth services for charge control modelling. In the 2011 WBA Charge Control Statement we identified that as bandwidth volumes increase, DSLAM costs also increase to an extent.⁴⁵³ This is because there is a limit to the backhaul capacity that can be provided from any DSLAM. As bandwidth grows, this limit can trigger the requirement to install extra DSLAMs.

⁴⁵² This is discussed in more detail in paragraphs A11.25 to A11.28 of the 2013 WBA Consultation.

⁴⁵³ Ofcom, 2011 WBA Charge Control Statement, paragraph 5.147.

- 7.210 BT's 2012 RFS allocated all *DSLAM capital/maintenance* component costs to end-user rental services.⁴⁵⁴ To allow a percentage of DSLAM costs to change as demand for bandwidth changes, our 2013 WBA Consultation proposed reallocating some *DSLAM capital/maintenance* costs from end-user rentals to bandwidth services. On the basis of data provided by BT we estimated a percentage of DSLAM costs may be driven by changes in contracted bandwidth volumes.
- 7.211 BT has since published its 2013 RFS. This allocated approximately 8% and 14% of DSLAM costs to internal and external bandwidth services respectively.⁴⁵⁵ We have adopted these figures within the base year costs in our model.⁴⁵⁶
- 7.212 Notwithstanding this change to the DSLAM cost allocation data, for the avoidance of doubt, for the reasons set out at paragraphs 7.160 to 7.181 we do not think it is appropriate to take into account any of the new 2013 RFS costing allocation methodology, as proposed by BT.

We have only included costs relevant to the 20CN technology we have modelled

Consultation proposals

- 7.213 In our 2014 WBA Consultation we proposed to only include costs relevant to the 20CN technology we are modelling. We discussed the arguments for removing 21CN costs in some detail in Section 5 of the 2014 WBA Consultation. The data from BT that we used in our 2013 WBA Consultation included 21CN technology related costs.

Consultation responses

- 7.214 BT agreed that the exclusion of 21CN costs means the value of X should be higher than in the 2013 WBA Consultation and considered that Ofcom's approach to use costs based on 20CN technology, supplemented by a number of HON adjustments, was reasonable.
- 7.215 EE also agreed with Ofcom's proposal and argued that it would have been inconsistent with Ofcom's anchor pricing principles for BT to be able to recover the costs of 21CN assets from the charges for its regulated Market A IPstream Connect services which does not use those assets.
- 7.216 Prospect disagreed with Ofcom's approach and was of the opinion that the anchor pricing model does not encapsulate effectively the need to invest in technology, and the rewards of doing so, as would ordinarily be the case in a non-regulated market.
- 7.217 Prospect also disagreed with the exclusion of 21CN costs from the charge control and with the updating of the HON adjustment. It mentioned that the exclusion of 21CN costs risked sending the wrong signals about the importance of investment, particularly in Market A areas, and undermining any existing investment case. Further, it said that it was not consistent with Ofcom's principles of cost recovery.

⁴⁵⁴ See BT, 2012 RFS, page 114.

⁴⁵⁵ BT, 2013 RFS, page 116. Although this is a change in methodology it was not a change for which restated results were reported within the October 2013 RFS Report.

⁴⁵⁶ This will allocate a weighted average of approximately 11% of DSLAM costs to bandwidth services. This compares to the 25% of DSLAM costs we allocated to bandwidth in the 2013 WBA Consultation.

Our conclusions

7.218 We continue to believe that it is appropriate for our charge control model to exclude all costs relating the 21CN technology as our model represents a 20CN hypothetical on-going network. We disagree with Prospect's arguments on the exclusion of 21CN costs and the impact of this on signals for investment and cost recovery. The anchor pricing approach seeks to give BT the opportunity to recover its efficiently incurred costs. It allows BT to benefit from lower costs compared to the costs assumed in the control if it deploys another technology that can provide services more efficiently. We note that BT believed that the approach we proposed in the 2014 WBA consultation was reasonable.

7.219 BT explained that it had originally allocated some 21CN costs to IPstream Connect services under a 'future benefits' principle. This allocated costs relating to new 21CN technology to legacy services, such as IPstream Connect, on the basis that 21CN based services might replace these legacy technologies in the future. This is based on the idea that customers who currently use legacy services will benefit from investments in new 21CN technology once they switch to services based on the new technology.

7.220 BT's justification of its 'future benefits' principle was as follows⁴⁵⁷:

"We would expect 20CN products (for example, IPstream Connect) to migrate to 21CN (for example, WBC) in the future and it is reasonable for these 20CN products, which will eventually use 21CN, to absorb a pro-rata share of the 21CN costs."

"This approach sends the right signal for customers to migrate from 20CN to 21CN. As the 21CN costs are spread across both 20CN and 21CN products, the early adopter of 21CN is not penalised. If legacy products did not incur 21CN costs, early adopters would pick up the cost of initial spare capacity disincentivising migration to 21CN. When migration is fully complete, resulting in a fully loaded 21CN platform, the unit cost would no longer be distorted upwards by capacity earmarked for migrating 20CN volumes and this avoids step changes in the costing of 21CN products."

7.221 We have concluded that it is not appropriate to accept BT's original arguments because:

- It is not clear that Market A customers will migrate to 21CN technology, as BT suggested.
- It is not consistent with an anchor pricing approach because it means that customers in Market A may be made worse off as a result of BT's decision to use the new technology. This is because it increases the price of current services even for those customers who do not use 21CN technology in future.
- In addition, it does not deny BT the ability to recover costs of 21CN investment where this is more efficient in the long run. This is because, if 21CN technology is efficient then BT should either be able to use it to reduce costs of the charge controlled product below the charge control level or to provide new services for

⁴⁵⁷ BT's response to S135 Notice under Communications Act of 16 January 2014.

which consumers are willing to pay a premium over the charge controlled product.

- If we did include 21CN costs, we should adjust our model to exclude corresponding 20CN costs. However, it is not clear that 21CN technology is the most efficient way to deliver IPstream Connect, as it may deliver a higher quality than is necessary for that product. We therefore propose to exclude these 21CN costs.

We have made a hypothetical on-going network (HON) adjustment

Consultation proposals

- 7.222 BT's WBA assets are, in general, heavily or even fully depreciated. In our 2013 WBA Consultation⁴⁵⁸ we proposed to adopt a HON approach to modelling capital costs and we maintained this approach in the 2014 WBA Consultation. Under this approach, we model the costs of serving all Market A WBA customers using ADSL DSLAM and ATM/SDH technologies but on the basis that these assets are replaced on an ongoing basis as would be the case in a steady state network. This was consistent with the approach we adopted in the 2011 WBA Charge Control Statement.
- 7.223 The HON approach assumes that the current 20CN technology will continue to service all customers in the charge controlled area over the period of the control and beyond. In reality BT has begun to roll out newer technologies and some customers have already migrated onto these. Consequently BT has reduced investment in older technologies.
- 7.224 Our modelling approach however assumes that the existing 20CN technology will continue to service all customers in the future. It is therefore important to ensure that we adjust the actual base year data in our model to reflect appropriate levels of 20CN capital employed and capital costs. In applying this HON adjustment we ensure our forward looking capital costs are at the appropriate level. There are three elements to the HON adjustment:
- The Gross Replacement Cost (GRC): this is the cost of replacing all the assets utilised in the network. This should reflect forward looking costs and not BT's historic cost of purchasing the existing assets. These may be different if asset prices have changed over time. For WBA assets this is likely due to the general trend of falling technology asset prices. We rely on BT to provide an initial assessment of GRCs and then we make appropriate adjustments to more closely reflect our modelling approach.
 - The Net Replacement Cost (NRC) uplift: the NRC:GRC ratio reflects how much of the asset base has been depreciated. The lower the percentage, the greater the depreciation of the assets (and the longer the assets have been in use). BT's assets are heavily depreciated and thus have a low reported NRC:GRC ratio. We proposed to uplift that ratio to 50%, to simulate a situation where BT had continued to invest in its assets such that they were, on average, only half way through their lives. This is in-line with the approach adopted in the 2011 WBA Charge Control Statement.
 - Asset lives: this is the length of time we expect the assets to last. The depreciation and net replacement costs within BT's RFS are calculated using the

⁴⁵⁸ See paragraphs A11.10 to A11.16 of the 2013 WBA Consultation.

lives it uses for statutory accounting purposes. However under our approach we require a value that more closely reflects the economic lives of the assets. As accounting lives are generally quite cautious these may be different. In the 2014 WBA Consultation we carried out a detailed analysis of BT's HON adjustment⁴⁵⁹. We proposed that the asset lives of the three relevant asset categories - DSLAMs and ATM and SDH equipment - should be extended to 13 years.

Consultation responses

7.225 Both BT and EE agreed with Ofcom's proposals. EE however commented that the new proposed asset lives of 13 years may continue to allow BT to over-recover costs.

Our conclusions

7.226 We continue to believe that it is appropriate to make a HON adjustment. We have relied on BT to provide an initial assessment of the HON uplift required but have then made adjustments to BT's data where appropriate.

7.227 We did not receive any comments regarding **the uplift** of NRCs to be 50% of GRCs. Therefore we have assumed that the assets are 50% through their useful economic life, when considering a HON in this market.

7.228 Further to the responses to the 2014 WBA Consultation we conclude that the **asset lives** of all components should be uplifted to 13 years in light of the following:

7.228.1 We are modelling a hypothetical on-going network under an anchor pricing approach, and as such we need to estimate the physical life of the equipment: how long the assets will last before they can no longer be maintained.

7.228.2 We analysed additional financial data supplied by BT as part of its regular annual RFS submission over the period 2006/07 to 2012/13. This included schedules showing the capital expenditure profile. This profile reflects any write-outs of assets that may have taken place, although we understand from BT that this generally only happens as part of a triennial asset verification exercise. The last such exercise took place in 2010/11. The next will take place in 2013/14.

7.228.3 This analysis showed that some DSLAM assets that were installed in [3<] still formed part of the asset base in 2012/13 and the same assets also formed part of the asset base in 2010/11, the time of the last triennial asset verification exercise. Most ATM assets that were installed in [3<] still formed part of the asset base in 2012/13, and again most formed part of the asset base in 2010/11. Over half of the SDH assets that were installed in [3<] still formed part of the asset base in 2012/13 and were part of the asset base in 2010/11.

7.228.4 In the case of all these assets a percentage of the base has been in service for 13 years. This suggests that the relevant physical asset life for DSLAMs, SDH, and ATM assets is at least 13 years. The asset lives could potentially be longer than this, but we do not have any evidence to support longer asset lives at present.

⁴⁵⁹ See paragraphs 4.71 to 4.75 of the 2014 WBA Consultation.

- 7.229 EE argued our asset lives were at the lower end of a possible range, which may continue to allow BT to over-recover its costs. However, EE has not provided further evidence for assessment and so we have maintained our asset lives assumption at 13 years.
- 7.230 Finally on **GRCs**, in the 2014 WBA Consultation we expressed concern regarding the GRCs of DSLAM assets in the HON adjustment⁴⁶⁰ and have since requested further information from BT to enable us to investigate these costs. This highlighted that the average cost of a DSLAM was [£<]⁴⁶¹ in BT's initial assessment of the HON adjustment.
- 7.231 Subsequently BT indicated to us that the [£<] was based on its Gross Book Value of DSLAM assets, i.e. it reflected historic costs rather than a more forward looking measure. Further, BT said that this figure included contributions from older assets that were no longer in use. Removing these assets reduced the average cost per DSLAM to [£<].⁴⁶²
- 7.232 We also requested data from BT on the number of new DSLAMs recently installed and the associated capital expenditure. This showed some volatility but an average price of [£<] per DSLAM over the last three years.⁴⁶³ BT argued that this understated the true average cost because the DSLAM volumes on which it was based may have included DSLAMs moved from one location to another and these would not have incurred any capital expenditure.
- 7.233 We have also analysed data previously submitted by BT that showed when each DSLAM was added to the exchange in which it is currently installed.⁴⁶⁴ Matching this installation profile to capital expenditure as recorded by BT in its Additional Financial Schedules provides some evidence that the average cost of a DSLAM has reduced over time. BT has pointed out to us that data related to the current location may differ from where and when it was initially installed.
- 7.234 BT also told us it is [£<]. Dividing total capex⁴⁶⁵ on all DSLAMs since the first major installation of these DSLAMs in 2006/07 by the total number of DSLAMs installed since 2006/7 gives an average cost of just under [£<]. We believe these calculations provide reasonable estimates of average DSLAM costs over the last few years and that the averages will be relatively undistorted by any DSLAM moves that have affected the other calculations we have undertaken.
- 7.235 The above analysis suggests the average current cost of a DSLAM is between [£<]. Whilst there is a degree of uncertainty in all the data we have received on DSLAM costs from BT, based on the evidence we have received we have set the current cost of a DSLAM in our HON calculations to be [£<]. In particular that is consistent with our analysis of total average spend per DSLAM since 2006/07.

⁴⁶⁰ See paragraphs 4.68 to 4.70 of the 2014 WBA Consultation.

⁴⁶¹ BT's response to S135 Notice under Communications Act of 20 March 2014, follow up email from BT (Edward Pigott) dated 8 April 2014.

⁴⁶² BT's response to S135 Notice under Communications Act of 20 March 2014, follow up email from BT (Edward Pigott) dated 8 April 2014.

⁴⁶³ BT's response to S135 Notice under Communications Act of 20 March 2014, follow up email from BT (Edward Pigott) dated 8 April 2014, follow-up question A4, from BT (John Davey) dated 31 March 2014.

⁴⁶⁴ E-mail from BT (Edward Pigott) dated 7 January 2014.

⁴⁶⁵ As given by BT's AFI schedules AFI 11.

We have reflected the increased scope of EOI charges for charge-controlled upstream inputs in the compliance formulae

Consultation proposals

7.236 In the 2014 WBA Consultation we proposed to make changes to the compliance formulae to reflect relevant EOI charges for charge-controlled upstream inputs. In our 2013 WBA Consultation only certain charges were included. In the 2014 WBA Consultation we extended the compliance formulae to include additional relevant EOI charges.

Consultation responses

7.237 BT agreed that EOI charges for charge-controlled upstream inputs from Openreach should be excluded from the charge control compliance formulae as they are already subject to separate charge controls but was concerned that the resulting increase in complexity of formula was likely to create practical issues for BT in setting prices to ensure compliance (i.e. in calculating the weighted average charge and prior year weighted average charge).⁴⁶⁶

7.238 BT was also concerned that Market A will only be introduced into the RFS during the 2014/15, meaning that RFS reporting 2013/14 will not report the volume of these inputs for Market A but will show figures for Market 1.

7.239 For those reasons BT proposed that the EOI inputs issue could be simplified if the ratios were set out in the legal instrument and kept fixed throughout the charge control period, using the current ratio of EOI per rental. It argued that this would also provide additional incentives for BT to improve efficiency and network quality, allowing for lower prices in the medium to long term. BT also expressed concern that the term u_j in the legal instrument has different meanings in the formulae used to calculate the Relevant Year Weighted Average Charge and Prior Year Weighted Average Charge. BT requested that Ofcom use a different term for each so as to avoid confusion.

7.240 EE agreed with Ofcom that EOI charges which are subject to a separate charge control under Ofcom's Fixed Access Market Reviews should be excluded from the WBA charge control and suggested that this needed to be reflected in Ofcom's compliance formulae as well.

7.241 In the cases where there are multiple EOI services consumed by a single regulated WBA product, EE agreed with Ofcom that the compliance formulae should be explicit as to which charge controlled WBA products consume which EOI input services, and what the calculations should be in relation to the volumes of EOI input services consumed.

Our conclusions

7.242 In our 2014 WBA Consultation we noted that the extent of EOI charges reported by BT is now much greater than at the time of the 2011 WBA Charge Control Statement.

⁴⁶⁶ BT mentioned that for EOI inputs such as SMPF rentals and connections there is a 1:1 mapping of the SMPF input to the WBA service, however, with EOI inputs such as Special Fault Investigations and Relevant Tie Cables, the mapping is not a direct ratio and the volume per rental will vary from year to year.

In addition, BT's 2012 RFS and 2013 RFS report EOI charges for various other ancillary services.

- 7.243 Given our decision to remove 21CN costs from our cost stack it is also appropriate to remove 21CN related EOI charges from the cost stacks for WBA services. The removal of these charges means there are no EOI charges that we consider should be reflected in the compliance formulae for bandwidth services.
- 7.244 However for end-user rentals services, in addition to Openreach EOI charges for SMPF rentals⁴⁶⁷ that were included in the 2011 WBA Charge Control, BT's RFS now reports EOI charges (not related to 21CN costs) for:
- 20CN Tie cables: these connect BT's DSLAM to the MDF in an exchange. The costs of these are not included in the regulated charges for SMPF. In 2012/13 on average one tie cable was required for [X] end-user connections in Market 1.
 - Tie Cable Modifications: these are required to move connections from one DSLAM to another in the same exchange for capacity management purposes. In 2012/13 there were just over [X] tie cable modifications on an average rental base of [X] end-users.
 - Special Fault Investigations that relate to end-user rental services. (There are other special fault investigations related to some ancillary services). In 2012/13 there were around [X] such investigations.
- 7.245 The above EOI charges are subject to separate charge controls (as set out in the 2014 FAMR Draft statement) and therefore should be removed from the costs and revenues covered by this charge control. The above EOI charges are also not consumed on a one for one basis in line with end user rentals (i.e. each end user rental does not uniformly consume one special fault investigation).
- 7.246 This needs to be reflected in the compliance formulae. The charge control seeks to control revenues net of EOI charges. The compliance formulae published in our 2013 WBA Consultation therefore calculated, for each WBA service, the difference between the average annual price for that service and the average annual EOI charge for any inputs to that service which were subject to a separate charge control. However due to the non-uniform match between end user rentals and the additional EOI charges the formulae has to use a ratio for each EOI service to an end user rental. In other words, an end user rental consumes different volumes of each EOI input service, and thus for the purpose of our compliance formulae a ratio of EOI input service to an end user rental needs to be calculated for each of the three additional EOI charges.
- 7.247 We have rejected BT's proposal to keep the ratios fixed throughout the charge control period as we consider this may be to BT's benefit or disadvantage (depending on the specific use of EOI services during the control), whereas we wish to ensure that the condition is neutral. For example, the ratio for Tie Cable Modification services may decrease over time as growth in end user rentals slows. As the ratio reduces, so should EOI charges. Keeping the ratio constant as BT proposed would therefore result in the wrong average EOI charge and hence the wrong difference

⁴⁶⁷ Shared metallic path facility (SMPF)/shared access is the provision of access to the copper wires from the customer's premises to a BT MDF that allows a competing provider to provide the customer with broadband services, while the dominant provider continues to provide the customer with conventional narrowband communications.

between the overall wholesale price and the EOI input charge, which is the key measure in the compliance calculations.

- 7.248 In response to BT's comments regarding the complexity of the compliance formulae, although the requirement to reflect several EOI charges makes them more complex than in other charge controls, we do not believe the proposed compliance formulae are over-complex or that they would lead to greater difficulty for BT in terms of complying with the control.
- 7.249 In the charge control condition in Annex 2 the compliance formulae makes it explicit what the calculations should be when there are multiple input or EOI services. It calculates the weighted average EOI charge for a WBA service using prior year volumes. The charge control condition also specifies the relevant EOI input services for each charge controlled WBA product. For the avoidance of doubt where input service charges are referred to in condition 7 these relate to each and every (EOI) input charge for each charge controlled WBA product. As an example, we would expect the compliance report to include all the different types of Tie Cables that are used to supply IPstream end-user rentals services, with separate entries for rentals and connection charges. In addition, we would expect the total EOI charges on the report to be capable of being reconciled against those published within BT's RFS.
- 7.250 Consistent with compliance requirements following the 2011 WBA Charge Control we have included the EOI charge for SMPF connections. This is the only other significant EOI charge for the basket of services we are proposing to charge control that has not been included within the cost model. The remaining charges are relatively small and we have not included these within the compliance formulae.
- 7.251 Finally, in order to address BT's concern about the term u_j having different meanings in different contexts, we have amended the term u_j to u_{rj} respect of the Relevant Year Weighted Average Charge and u_{pj} in respect of the Prior Year Weighted Average Charge.

Carry-over and repayment provisions

Consultation proposals

- 7.252 In the 2014 WBA Consultation we proposed to include a carry-over and repayment provision within the legal instrument, similar to that adopted in the September 2013 Fixed Narrowband Statement⁴⁶⁸, which would require BT to repay any excess revenues to affected CPs to the extent reasonably possible and as soon as reasonably practicable (condition 7.10 of the draft conditions annexed to the 2014 WBA Consultation).

Consultation responses

- 7.253 BT accepted "*that clause 7.9 in the draft legal instrument is a reasonable approach in dealing with the carry-over of a Deficiency or Excess in adjusting the Controlling Percentage for the subsequent year in the event that price changes do not equal the Controlling Percentage in any Relevant Year*".⁴⁶⁹ However, it expressed concerns

⁴⁶⁸ See paragraphs 11.70-11.73 of Ofcom, *Review of the fixed narrowband services markets, Statement on the proposed markets, market power determinations and remedies*, 26 September 2013, <http://stakeholders.ofcom.org.uk/consultations/nmr-13/statement/>.

⁴⁶⁹ Paragraph 7.1 of BT's response to the January 2014 WBA consultation.

with regard to the repayment mechanism in clause 7.10 in the draft legal instrument, arguing that:

- *“It is impractical to implement: in a basket control it is difficult to identify what products in the basket would be subject to price changes that should or would have been implemented in order to comply”. Moreover, “such a provision is likely to lead to extensive debates and/or disputes with CPs”.*⁴⁷⁰
- *“It is disproportionate: historically, the level of over or under compliance carried forward has been tiny compared with the level of total basket revenues”.*⁴⁷¹
- *“It is discriminatory: ... it undermines the purpose of the existing carry forward provisions” and “it does not operate if BT over-complies with the control” (i.e. charges below the charge control cap).*⁴⁷²

7.254 EE argued that Ofcom’s proposals were unclear and that Ofcom, in order to assist stakeholders to provide informed responses, should have provided cross-references to the exact clauses of the proposed legal instruments intended to give effect to these proposals.

7.255 EE suggested that SMP Condition 7.13 contains a form of “carry-over” provision, in that it allows Ofcom to direct adjustments to be made after the end of the Third Relevant Year.

7.256 EE was also concerned that SMP Condition 7.10 is imprecisely drafted, requiring BT to make repayments of excess charges only “to the extent reasonably possible” and “as soon as reasonably practicable”. In order to remedy any inaccuracies, EE proposed that a hard back-stop date for completing this should be included into the SMP Condition (e.g. within the first 30 or 60 days of the end of the Relevant Year). It further suggested that Ofcom should explain in its Statement that it would only be in exceptional circumstances that Ofcom would consider it not to be “reasonably practicable” for BT to make such repayments, and to elaborate on what these may be.

Our conclusions

7.257 We do not agree with the points on practicality and proportionality raised by BT. We consider these concerns are adequately addressed in the text of the clause itself, which imposes the obligation to make repayments “to the extent reasonably possible, and as soon as reasonably practicable”.⁴⁷³ It may not always be necessary for BT to determine which products should have had a lower price. By way of example, and depending on the particular circumstances of the case in question, one approach which BT might reasonably adopt would be to determine the amount of cost over-recovered and to make repayments to the affected CPs on a pro rata basis according to the share of revenue that each CP had in the basket where over-recovery occurred. In relation to the timing of repayments, BT should ensure any repayments are made such that it can report compliance with the carry-over and repayment provision at the same time as its general reporting of compliance, pursuant to condition 7.2.

⁴⁷⁰ Paragraph 7.3 of BT’s response to the January 2014 WBA consultation.

⁴⁷¹ Paragraph 7.3 of BT’s response to the January 2014 WBA consultation.

⁴⁷² Paragraph 7.3 of BT’s response to the January 2014 WBA consultation.

⁴⁷³ See Annex 2.

7.258 In response to BT's comment that the clause is 'discriminatory' because it only operates where there is an over-charge and not where there is an under-charge, we note that the clause is indeed intentionally asymmetric. However, we do not agree that this is in any way 'discriminatory'. The concern we are seeking to address is to ensure that if BT charges above the charge control cap, it is not able to retain any of the excess revenue it obtains as a result. BT may of course always choose to price below the charge control cap and if it does so this does not cause us regulatory concern. In any event, given the use of prior year weights, BT should be able to accurately forecast the percentage changes and thus avoid over-charges and/or having to make any repayments under this provision. Also, symmetry would create unacceptable uncertainty for CPs purchasing services from BT in the sense that CPs would have to purchase products without knowing whether they would have to make additional payments to BT, i.e., without knowing the actual final prices. In any event, we consider that this asymmetry creates an incentive for BT to comply with the charge control, while simultaneously protecting CPs from price uncertainty.

We have adopted a modified medium volume growth assumption

Consultation proposals

7.259 In the 2013 WBA Consultation we proposed to model end user rentals and contracted bandwidth only. We only modelled those volumes on BT's commercial network – we excluded those volumes which would be served using BDUK fibre.

7.260 We adopted high, medium and low volume assumptions for end user growth as shown in Figure 7.5 below.

Table 7.5: Forecasts of growth in end user rental volumes

	2012/13	2013/14	2014/15	2015/16	2016/17
High	-1.0%	0.9%	2.3%	0.3%	-3.3%
Medium	-1.0%	-0.1%	-0.8%	-5.9%	-10.5%
Low	-1.0%	-0.7%	-2.3%	-9.1%	-16.5%

Source: 2012/13 growth derived from BT's response to question 2 of response to S135 Notice under Communications Act of 19 June 2013.

Similarly, we adopted high, medium and low volume assumptions for bandwidth volumes. First we forecast growth in contracted bandwidth per end-user. Table 7.6 shows our assumptions.

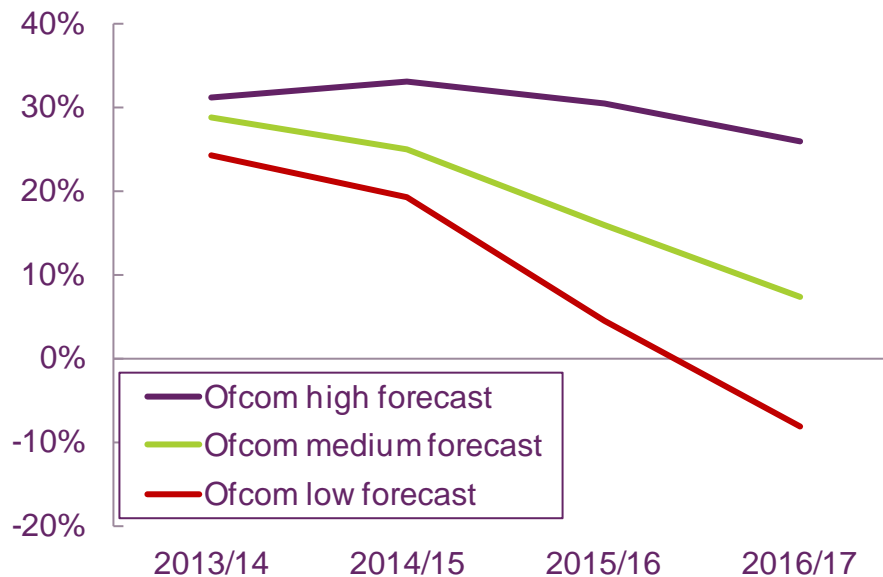
Table 7.6: Assumptions for bandwidth volumes per end user

	2012/13	2013/14	2014/15	2015/16	2016/17
High	38%	30%	30%	30%	30%
Medium	38%	29%	26%	23%	20%
Low	38%	25%	20%	15%	10%

Source: 2012/13 growth derived from BT's response to question 2 of response to S135 Notice under Communications Act of 19 June 2013.

We then combined these with our end-user rental forecasts to give total demand for contracted bandwidth, as shown by Figure 7.1.

Figure 7.1: Forecasts of growth in total bandwidth volumes



Source: 2012/13 growth derived from BT's response to question 2 of response to S135 Notice under Communications Act of 19 June 2013.

7.261 In the 2013 WBA Consultation, we noted that in the absence of strong reasons to select either end of the range of plausible volume assumptions, it would be likely we would adopt our medium volume scenario.

Consultation responses

7.262 Four respondents (BT, EE, TT and [X]) commented on our volume assumptions in response to the 2013 WBA Consultation and three respondents (BT, EE and Prospect) in response to the 2014 WBA Consultation.

7.263 BT stated that we should take into account the most recent information on volumes and current forecasts and it presented analysis that it claims demonstrates that our volume forecasts for Market 1 are “overly optimistic”. EE argued that, contrary to our view, BT does have control over the BDUK process rather than it being an exogenous event, and for that reason the volumes should be included in line with anchor pricing. TalkTalk suggested that the approach and assumptions used by Ofcom should be aligned with those used in the LLU / WLR CC. [X] suggested that the decline in the Low and Medium forecast is too aggressive and focused on residential services and Prospect seemed to be calling for an MEA approach, in order to better reflect the underlying costs and incentivise investment.

7.264 A more detailed summary of the responses to our consultations can be found in Annex 7.

Our conclusions

End user rentals / BT's WBA Connections

7.265 We have gathered further data from BT together with forecasts from Analysys Mason. These suggest that:

- Growth in BT's relevant Market A WBA volumes in 2013/14 was about [X];
- Overall Market A WBA volume growth is likely to be fairly flat, over the period 2014/15 to 2016/17, since increased penetration is likely to be (mostly if not completely) offset by LLU and VULA migration. We have therefore adopted a 0% market growth assumption.
- As in the 2013 WBA Consultation, we exclude BDUK volumes from Market A WBA volumes as explained in paragraphs 7.146 to 7.152. We understand BDUK fibre will cover around 60 – 65% of Market A by the end of the period, (with BT's commercial fibre covering around [X]), which is lower than we had assumed in the 2013 WBA Consultation (where we assumed all fibre rollout would be BDUK funded). Most of the rollout of BDUK fibre will be in the earlier part of the charge control period. Whilst fibre take-up in BDUK areas remains uncertain, we think 20% – 45% is a reasonable view by 2017. For the purposes of setting the charge control we have adopted a central estimate of 35%.

7.266 These points taken together result in a forecast of WBA volumes in Market A that are slightly higher by the end of the period compared to the medium forecast in the 2013 WBA Consultation. Our forecast is set out in Table 7.7 below.

Table 7.7 – Forecast of BT's Market A WBA growth in end users

	2013/14 (based on actuals to date)	2014/15	2015/16	2016/17
End user volume growth	[X]	-3.0%	-7.2%	-8.4%

Bandwidth forecasting

7.267 Following our 2013 WBA Consultation, we asked BT, EE, Sky, TalkTalk, Virgin and Vodafone to update the information they provided on forecasted end-user bandwidth, for each year to 2016/17. The updated forecasts by each CP were generally similar to their original submissions, with some slightly lower. In the case of a few submissions, there was no change. We have updated our bandwidth growth forecast based on this updated information. Table 7.8 below contains our final forecast for bandwidth used within our charge control model.

Table 7.8 – Forecast of bandwidth per end-users

	2013/14 ⁴⁷⁴	2014/15	2015/16	2016/17
Bandwidth growth per end user	30.0%	25.0%	20.0%	15.0%

⁴⁷⁴ 2013/14 data for bandwidth growth is based on forecasts whereas for end users this also takes account of actual data up to February 2014.

7.268 We note that for all years except 2013/14, we have a lower bandwidth per-user assumption than we did in the 2013 WBA Consultation. This change reflects the updated forecasts we received from CPs, discussed above.

7.269 Further details of our analysis and conclusions on volume forecasts for both end-user rentals and bandwidth can be found in Annex 7.

We have adopted asset and cost volume elasticity assumptions based on a LRIC/FAC ratio

Consultation proposals

7.270 Table 7.9 below shows the asset volume elasticities (AVEs) and cost volume elasticities (CVEs) we proposed to use within our charge control model in the 2013 WBA Consultation.

Table 7.9: Ofcom's CVE and AVE assumptions

	CVE	AVE
End User Rentals	0.82	0.82
Contracted Bandwidth	0.65	0.65

Consultation responses

7.271 Three respondents (BT, EE and [X]) commented on our proposed AVEs and CVEs assumptions in response to the 2013 WBA Consultation.

7.272 BT considered that the AVE and CVE used for bandwidth are appropriate but that Ofcom should use a lower AVE of 0.32 and a lower CVE of 0.49 for end-user rentals. EE mentioned that the nature of additional bandwidth costs would mean that it would expect there to be significant economies of scale in relation to AVE and CVE costs and [X] agreed with our proposal that the Cost and Asset Volume Elasticities should be closer to 1 than to 0.

7.273 A more detailed summary of the responses to our consultations can be found in Annex 7.

Our conclusions

7.274 In the 2011 WBA Charge Control we modelled equipment volumes using a bottom-up approach. We then used cost data to turn these volumes into the costs that were used within the charge control. In this charge control we have used a top-down approach which starts from BT's published costs. We then estimate how BT's costs will change as volumes change using cost (CVEs) and asset (AVEs) elasticities.

7.275 These CVEs and AVEs define how service costs change in response to changes in volume. The CVE defines how operating costs change, the AVE how capital costs change. An elasticity of 1 indicates that if volumes were to increase by 10% then costs would also increase by 10%, resulting in constant unit costs. An elasticity of 0.5 means that for the same volume increase costs would only increase by 5% resulting in reducing unit costs.

- 7.276 Whilst there may be shortcomings in using and deriving CVEs and AVEs, we believe this approach is justified in the specific case of Market A WBA services, as developing very granular (exchange level) volume and equipment forecasts is not proportionate or likely to give a more accurate outcome, as discussed above in paragraph 7.153 to 7.159.
- 7.277 We have reviewed BT's response and further analysis it has submitted in relation to AVEs and CVEs for end-user rental services. BT's argument is based largely on the modularity of DSLAM costs and that many exchanges have only one DSLAM and so, it argues, there is limited potential for scalability of DSLAM related costs as volumes decrease. For the reasons explained in Annex 7 at paragraphs A7.56 to A7.69, we have rejected this argument.
- 7.278 In response to EE and [3<] and further to our 2013 WBA Consultation and our 2014 WBA Consultation we have recalculated the LRIC/FAC ratios for the WBA services we are modelling from 2012/13 component LRIC and FAC data.⁴⁷⁵ In so doing we have ensured that these ratios are based on data that is consistent with the rest of the model – i.e. it uses data consistent with that presented in the 2013 RFS October Report, which also excludes costs for 21CN components. Table 7.10 shows the AVEs and CVEs we use in our model.

Table 7.10: Ofcom's CVE and AVE assumptions

	CVE	AVE
End User Rentals	0.80	0.80
Contracted Bandwidth	0.66	0.66

- 7.279 Further details of our analysis of the arguments on AVEs and CVEs and our conclusions can be found in Annex 7.

We have updated and used the Rest of BT rate for the cost of capital assumption

Consultation proposals

- 7.280 In the 2013 WBA Consultation we proposed that we should set the charge control on WBA services using the Rest of BT weighted average cost of capital (WACC) of 9.9% that we had estimated in the 2013 BCMR Statement. We noted however that we would review the WACC calculation prior to the statement to take account of up to date data.

Consultation responses

- 7.281 Four respondents (BT, EE, TalkTalk and [3<]) commented on our proposed WACC assumptions in response to the 2013 WBA Consultation, two of which (EE and [3<]) agreed with the use of the Rest of BT rate for the WACC assumptions. [3<] argued that the Rest of BT rate is not an acceptable proxy. BT did not comment on whether or not it was appropriate to use the Rest of BT WACC for the WBA charge control (although it provided a number of comments on how Ofcom should calculate the WACC in response to the 2013 LLU WLR Consultation, which we have addressed in Annex 14 of the 2014 FAMR Statement).

⁴⁷⁵ Question A8, BT response to S135 Notice under Communications Act of 20 March 2014.

7.282 A more detailed summary of the responses to our consultations can be found in Annex 7.

Our conclusions

7.283 We have updated our estimates of the WACC for BT Group, Openreach and the Rest of BT in the light of recent data. We have adopted the revised Rest of BT rate of 10.8% pre-tax nominal for our WACC assumption. Our conclusions are set out in Annex 7.

We have modified our assumptions on input cost inflation

Consultation proposals

7.284 Our assumptions on input price inflation set out the inflation estimates used to forecast operating costs to 2016/17 in the model. In line with our simple modelling methodology we applied one forecast inflation rate of CPI that applied to both pay and non-pay operating costs. Our choice of CPI was driven by our view that some costs were likely to increase at a faster rate than CPI and some at a slower rate than CPI. On balance we believed that CPI was a reasonable assumption.

Consultation responses

7.285 BT argued in response to both the 2013 WBA Consultation and 2014 WBA Consultations that we had understated relevant cost inflation. It provided further information on actual cost movements and projections that indicated higher inflation for specific costs, notably electricity and pay costs. It suggested that Ofcom should use more specific, cost projections to forecast costs rather than adopt CPI as a proxy. A more detailed summary of the responses to our consultations can be found in Annex 7.

Our conclusions

7.286 We believe that BT has raised some legitimate arguments on cost inflation. As a result and following further analysis we have adopted a cost inflation assumption of 3.0% per annum. This is the result of weighting our revised pay and non-pay cost inflation assumptions. Our derivation of these assumptions is discussed in more detail in Annex 7 at paragraph A7.70 to A7.119. Table 7.11 below summarises the key elements of this calculation.

Table 7.11: Ofcom assumption on Cost inflation for WBA charge control⁴⁷⁶

Cost Item	Assumption	Weights
Pay	2.5% pa	[X]
Accommodation Facilities Services	CPI	[X]
Electricity	8% pa	[X]
Cumulo	RPI	[X]
Other accommodation (predominantly rents)	3% pa	[X]
Bad debts and POLOs	0% pa	[X]
Other non pay (contract related)	0.5% pa	[X]
Other non pay items not considered above	CPI	[X]

We have adopted an efficiency assumption of 5%

Consultation proposals

- 7.287 In the 2013 WBA Consultation, we proposed a “low” efficiency assumption of 3.5% per annum and a “moderate” efficiency assumption of 5% per annum. Our base case assumption assumed efficiency gains of 5%.
- 7.288 In our 2014 WBA Consultation we stated that further to BT’s response to the 2013 WBA Consultation, BT has submitted further evidence relating to potential efficiency improvements in response to a further formal information request. We were in the process of considering this data together with the responses to the 2013 WBA Consultation at the time of this publication of the 2014 WBA Consultation. We stated that given the need to reassess the proposed efficiency target we therefore proposed to model for the purposes of the 2014 WBA Consultation both the low efficiency assumption of 3.5% and the moderate efficiency assumption of 5% per annum proposed in the 2013 WBA Consultation.

Consultation responses

- 7.289 Four CPs (BT, [X], TalkTalk and EE) commented on our efficiency target proposals in response to the 2013 WBA Consultation and three CPs (BT, EE and Prospect) commented in response to the 2014 WBA Consultation.
- 7.290 BT’s view was that a 5% efficiency target was excessive, while EE argued that Ofcom has set BT’s efficiency targets for the WBA charge control too low and [X] suggested that there is scope for further efficiency savings. TalkTalk believed that the approach and assumptions used by Ofcom should be aligned with those used in the LLU / WLR CC and Prospect’s comments were largely directed at the effect of higher efficiency targets on those of its members who are BT employees.
- 7.291 A more detailed summary of the responses to our consultations can be found in Annex 7.

⁴⁷⁶ The forecasts of CPI and RPI that we are using are the same as those within the WLR / LLU CC.

Our conclusions

- 7.292 In the 2013 WBA Consultation we proposed 5% efficiency and in the 2014 WBA Consultation a range of 3.5% to 5%.
- 7.293 BT presented a number of reports to support its argument for a number at or below the bottom of the 2014 WBA Consultation range. However:
- We consider the Deloitte report has significant limitations and accordingly we give it very low weight in our considerations; and
 - We consider the other [§<] benchmarking of limited use for helping to set an appropriate efficiency target for WBA services particularly in the light of BT's own caution about how to interpret it.
- 7.294 We have taken the following into account in considering our final efficiency assumption:
- BT's argument that the efficiency of 1.5% as set in the charge control for TI services is a relevant consideration;
 - BT's public statements identify opportunities for cost savings;
 - our analysis of TSO and BT Wholesale management accounting data identifies historic cost reductions and points to potential efficiency improvements consistent with, or even above, the high end of the range on which we consulted (i.e. 5%); and
 - our HON approach would suggest that older assets with higher operational costs would be replaced by newer equipment with lower operational costs, offering opportunity for further cost savings.
- 7.295 The efficiency assumption in the TI charge control points to an assumption at or below the bottom end of our range. However, the TI charge control is based on old data (for the period 2005/6 to 2010/11) and so whilst we think this is a relevant data point, we would not want to place too much weight on this figure.
- 7.296 The more up to date data from BT's public statements and management accounting indicates a figure towards the top end of, or above, our range. But this relates to total divisional costs rather than product specific costs and we need to take this into account when considering how much weight to place on this data.
- 7.297 Our HON approach would also suggest a higher efficiency figure compared to the efficiency in the TI charge control, though it does not provide data on which to base a specific assumption.
- 7.298 We believe that our analysis supports an efficiency assumption in the range on which we consulted and may suggest a higher rather than a lower figure, but does not clearly point to a specific value. A challenging efficiency will lead to prices of WBA services being lower, which in turn could lead to consumers being offered better value services (either through lower prices, less restricted bandwidth usage or both). Taken together with our analysis that our range of 3.5% to 5% is reasonable, this leads us to conclude that an efficiency assumption of 5% is appropriate.
- 7.299 More details on our analysis and our conclusions are set out in Annex 7.

We have not made any one off adjustments to WBA prices at the start of the control

Consultation proposals

7.300 We did not propose starting charge adjustments.

Consultation responses

7.301 Only BT and [X] commented on our proposal to not make a one-off adjustment to starting prices.

7.302 BT was supportive stating Ofcom's proposed remedies of a charge control with no one-off adjustments to starting prices provide the appropriate incentives to improve efficiency as demonstrated in numerous other charge controls. It corresponds most closely to the operation of a competitive market and provides continuity and certainty.

7.303 In contrast [X] disagreed with Ofcom's approach (the preference for glide paths rather than one off adjustments) and it argued that an SMP provider should be driven to achieve efficiencies through being denied inefficient cost recovery as opposed to being able to generate a supernormal profit at the consumer's expense.

Our conclusions

7.304 In some cases one-off adjustments could be justified at the start of the control. We have decided in this case however to adopt a "glide-path" approach, whereby the charge control will bring about a gradual convergence of prices and unit costs over the period of the control.

- This charge control is replacing a similar expiring control on the same set of services. In such circumstances, we have a strong preference for glide-paths rather than one-off adjustments as it allows the firm to retain the benefits of cost reductions made under a previous charge control for longer and thus retains strong incentive properties.
- It approximates more closely the workings of a competitive market in which excess profits are gradually eroded as rivals improve their own efficiency.
- It avoids discontinuities in prices over time and leads to a more stable and predictable background against which investment and other decisions may be taken, by both suppliers and customers in the telecoms market.

We have adopted an X value of -10.7%

Consultation proposals

7.305 In the 2013 WBA Consultation, we proposed that the value of X should be within a range of -7% to -1%, with a central case of CPI-4%.

7.306 In the 2014 WBA Consultation, given the issues raised in the consultation, we proposed a new base case range of -15.2% to -8.7% with a central case of -12.3% (medium volume and an efficiency target of 5%).

Consultation responses

- 7.307 In response to the 2013 WBA Consultation, five respondents commented on the range of X. BT, EE and Prospect responded directly on the range of X in the 2014 WBA consultation.
- 7.308 BT stated that Ofcom should be clear on what is the range of X and questioned the relevance of the 'plausible' range. It argued that in setting the WBA charge control, Ofcom had not managed to achieve the right balance between encouraging investment and consumer interests because the range of X values was too high. In response to the 2014 WBA Consultation BT believed that Ofcom's base case range should be CPI-2.5% to CPI-9%, with a central case of CPI-6.1% (when having taken all BT's points into account).
- 7.309 Similarly EE disagreed with the X ranges, given its comments on the input assumptions.
- 7.310 Virgin stated that the range of plausible X values is -10% to 0%.
- 7.311 [X] highlighted as a generic observation a range of 6% was relatively wide at what should be a relatively well evidenced economic model at this stage. It added that should there be a material departure from the base case range (regardless of what it may or may not have consulted upon) Ofcom should signal this at the earliest possible opportunity to industry to minimise the harm of "shocks" to regulated costs.
- 7.312 EE stated that there was room to significantly reduce the wholesale price of bandwidth in Market A, given the seemingly low cost of the upstream Openreach input products (and consistent with the Market 1 bandwidth costing information disclosed in BT's latest RFS).
- 7.313 Prospect stated that it did not understand the reason for the departure from the proposed range of X values Ofcom originally consulted upon in the 2013 WBA Consultation. It believed that the movement between the two ranges was substantial and that it risks undermining the credibility of the 2013 WBA Consultation.

Our conclusions

- 7.314 We note the comments above, and have revised the WBA model as discussed in this section to calculate a X value of 10.7%. This X value is based on all the assumptions discussed in this statement. It is within the range of values we published in our 2014 WBA Consultation.

We have adopted sub-caps of between CPI – 7.7% and CPI – 4.7%

Consultation proposals

- 7.315 We proposed to set sub-cap levels in the context of the overall control. We proposed sub-caps as set out in Table 7.12 below.

Table 7.12: Proposed sub-cap levels

Service	Proposed sub-cap
Contracted Bandwidth per Mbit/s per node rental	CPI + (X + 3)
End User Access Rental	CPI + (X + 6)
Ancillary services – End User Migration ⁴⁷⁷ , Re-grade and Cancellation	CPI + (X + 6)

Consultation responses

- 7.316 BT believed that the tighter sub-cap imposed on bandwidth of CPI + (X+3) were unduly restrictive. It noted that in July 2013 BT rebalanced the rental and bandwidth prices with the bandwidth price being reduced by 50%. It felt that bandwidth prices were now closely aligned with costs and therefore a sub-cap of Inflation + (X+6) would be more appropriate. It also added that it believed that the concern over volume growth in bandwidth was overstated as the price of bandwidth has now been aligned with underlying cost and the control is over total bandwidth and not bandwidth per end user.
- 7.317 EE agreed with Ofcom's assumptions that growth in bandwidth per user is likely to exceed growth in the number of IPstream Connect users. EE also agreed that, logically within a basket charge control, BT has an incentive to apply price reductions to services that are falling in volume and to apply price increases to those that are likely to increase in volume.
- 7.318 EE noted that rental charges are an unavoidable cost faced by BT's rivals in respect of every retail customer and noted that BT has chosen to increase its rental charges by a material level of 15% in the final year of the current WBA charge control, even though its end-user volumes have remained broadly flat throughout the charge control period.
- 7.319 TalkTalk stated that Ofcom had not explained how it chose the specific level of the sub-caps apart from to say it was 'regulatory judgment'. TalkTalk believed that even if regulatory judgment were to be used there must be some underlying analysis that provided direction to Ofcom and that this should be made transparent.

Our conclusions

- 7.320 We will apply sub-caps to contracted bandwidth, end user access rental and some ancillary services – namely end user migration, re-grade and cancellation for end user access charges.
- 7.321 It is important that the flexibility available to BT under the proposed charge control and sub-caps is conducive to efficient pricing and cost recovery. The single basket structure and the sub-caps provide BT with flexibility such that:
- It gives BT some pricing freedom to determine the structure of prices which meet the charge control. We believe that this pricing freedom is more likely to result in charges which recover costs, particularly fixed and common costs, in an efficient way.

⁴⁷⁷ End User Migration is also known as End User Transfer.

- It allows BT to respond to changes in demand and costs by changing relative prices and re-optimising charges for new patterns of demand, in these markets which are changing rapidly.
- It allows BT to set prices to encourage efficient migration between an old service and/or technology and a new replacement alternative.

7.322 However, this flexibility also needs to be adequately constrained, such that the control and sub-caps are an effective means of addressing the risks of excessive pricing.

7.323 The sub-caps have been targeted to address different concerns in relation to the specific services, as discussed above. In light of the concerns we are seeking to address and using our regulatory judgment we proposed the sub-cap levels in the context of the overall control.

7.324 In the 2013 WBA Consultation we stated we expect growth in bandwidth per user to significantly exceed growth in the number of users. With prior year weights, this would imply an incentive to make reductions primarily to the EUA charge, whose weight in the basket we expect to fall over time. This is why the sub-cap on contracted bandwidth is more restrictive than that for the other services. We also note that contrary to BT's assertions there is still likely to be a gap between bandwidth prices and costs once contributions from 21CN components are removed from the latter.

7.325 In considering the level of sub-caps, based on the discussion above, in the 2013 WBA Consultation we proposed a cap of $CPI-X+3\%$. Given our base case value of X of 4%, this would have resulted in a sub-cap that provided the desired flexibility but constrained bandwidth charges so they would not rise in nominal terms during the review, which we considered to be appropriate given the importance of the bandwidth service in the supply of WBA services. As set out above, we allowed for greater flexibility for the pricing of other services in the sub-caps. Whilst the value of X has changed since the 2013 WBA Consultation, we have maintained the same degree of flexibility allowed to BT by the sub-caps as compared to the overall basket.

7.326 We have therefore imposed sub-caps as set out in Table 7.13 below.

Table 7.13: Imposed sub-cap levels

Service	Proposed sub-cap
Contracted Bandwidth per Mbit/s per node rental	CPI – 7.7%
End User Access Rental	CPI – 4.7%
Ancillary services – End User Migration ⁴⁷⁸ , Re-grade and Cancellation	CPI – 4.7%

⁴⁷⁸ End User Migration is also known as End User Transfer.

We are imposing a cost accounting obligation

Consultation Proposals

- 7.327 In the 2013 WBA Consultation, we said that in addition to a charge control, an obligation requiring BT to provide cost accounting data would be appropriate in order to provide transparency of BT's costs in Market A. This would allow us and other stakeholders to monitor the effectiveness of the charge control remedy. We proposed that BT would no longer be required to publish DLRIC and DSAC information as CPs would no longer need to monitor compliance regarding cost orientation. This was consistent with our approach and reasoning on other decisions, such as the 2013 BCMR Statement.
- 7.328 However, we proposed that BT should still be required to maintain DLRIC and DSAC data. We also proposed that BT would still be required to publish FAC data.

Regulatory Financial Reporting Consultation

- 7.329 On 20 December 2013 we published our proposals to change the framework for BT's regulatory financial reporting from the current framework which was first implemented in 2004.⁴⁷⁹
- 7.330 These proposals amended those which we set out in the 2013 WBA Consultation in relation to regulatory accounting obligations on BT in Market A. In particular, we proposed to apply to BT a new cost accounting condition in this market.

Consultation responses

- 7.331 BT agreed with our proposals to remove the publication of DLRIC and DSAC information, but questioned the proposed requirement to maintain such data. It said that we had not sufficiently justified our reasoning for the preparation and supply of such information in the absence of a cost orientation obligation and would welcome further clarification.
- 7.332 It said it expected our proposal for BT to publish FAC data would not apply to WBC and DataStream services, consistent with the decision in the 2013 NBMR Statement. It therefore considered that the publication requirement related only to services where a charge control would be in place (i.e. IPstream Connect) rather than to all services within the market.
- 7.333 More generally, it considered that although preparation of FAC at a service level (and its publication where a charge control, based upon top down modelling, is imposed) would be consistent with other recent market reviews, it did not believe that we had sufficiently justified our reasoning for the preparation and supply of such information in the absence of a cost orientation obligation and welcomed further clarification.
- 7.334 EE noted that BT's cost accounting obligations are very useful to assist operators, inter alia, in their commercial negotiations where there is regulatory flexibility.
- 7.335 [S<] said it was unhappy with the intended reduction in BT's cost accounting obligations as it further reduces transparency around BT's behaviour.

⁴⁷⁹ Ofcom, *Regulatory Financial Reporting – a review*, Consultation, 20 December 2013, <http://stakeholders.ofcom.org.uk/binaries/consultations/bt-transparency/summary/BTRFS.pdf>.

Our conclusions

- 7.336 We set out below our reasoning, decisions and legal tests for imposing this new SMP condition in respect of cost accounting obligations on BT in the light of the competition problems we have identified in Market A. We cross refer, where appropriate, to our 2014 Regulatory Financial Reporting Statement⁴⁸⁰, which sets out our considerations (in light of stakeholder responses to our proposals) and conclusions on the policy changes to BT's regulatory financial reporting framework and also our reasoning in relation to the specific form of the SMP conditions we are imposing on BT.
- 7.337 We will issue a Direction implementing the specifics of our policy intentions pursuant to the cost accounting requirement we impose in this document as part of our annual review.
- 7.338 We conclude that in addition to a charge control, an obligation requiring BT to provide cost accounting information is appropriate in order to provide transparency of BT's costs in Market A. We consider that this obligation is necessary to ensure that we are provided with the information that we require to allow us to effectively monitor compliance with other SMP conditions and to enable our timely intervention to ensure that those other SMP obligations continue to effectively address the underlying competition problems identified in our market analysis.
- 7.339 We proposed that BT would no longer be required to publish DLRIC and DSAC information. However, we proposed that BT should still be required to maintain DLRIC and DSAC data. We also proposed that BT would still be required to publish FAC data in relation to WBA services.
- 7.340 BT questioned our proposal to require it to maintain DLRIC and DSAC data. However we conclude we should require BT to do so. We consider that this is proportionate as such cost data is informative in considering the effectiveness of remedies going forward. In addition, in maintaining DLRIC data, BT will be able to provide LRIC information. We have used LRIC data in this charge control to calculate cost volume and asset volume elasticities using the ratio of LRIC to FAC. In the future we may continue to use this or some similar method to forecast costs as a result of volume changes; therefore we consider it important for BT to maintain this data.
- 7.341 This data is also important because LRIC data helps provide an estimate of the common costs that are being recovered within the charge control and thus helps ensure consistency across charge controls.
- 7.342 DSAC data helps inform our decision on remedies. Specifically we have looked at DSAC in assessing whether we should adopt sub-caps or a cost orientation obligation.
- 7.343 We require BT to publish FAC data in relation to the charge controlled service IPstream Connect in order to meet the obligations outlined in paragraph 7.338. BT assumed in its response that we did not require it to publish FAC data in respect of WBC services. We will continue to require BT to publish (and maintain) FAC data for WBC services for two reasons: to provide confidence in the FAC data that BT publishes for IPstream Connect and because of the future significance of WBC services within Market A:

⁴⁸⁰ Ofcom, The 2014 Regulatory and Financial Reporting Statement,
<http://stakeholders.ofcom.org.uk/consultations/regulatory-financial-reporting/statement/>

- It is important for stakeholders to have confidence in the FAC data BT publishes for IPstream Connect in light of the way BT has allocated the costs of 21CN equipment historically.⁴⁸¹ The publication of WBC data alongside IPstream Connect data will make the treatment of these costs more transparent and thus allow stakeholders to make their own judgments about the level of robustness of BT's allocation procedures.
- The 2013 RFS⁴⁸² shows that WBC services account for approximately 15% of all WBA service in Market 1; therefore we consider these to be a significant service within our future charge controlled WBA market A. If BT continues to roll out newer technology WBC services this percentage will increase.

7.344 We note the comments from other CPs and believe that the cost accounting obligation we are imposing strikes the right balance between ensuring CPs have sufficient transparency of BT's costs, whilst not burdening BT with the publication of data unnecessarily.

7.345 Our justification for the requirement to provide and publish regulatory financial information is set out in full in the 2014 Regulatory Reporting Statement.

Conditions and legal tests

Charge control

7.346 Section 87(9) of the 2003 Act authorises the setting of SMP services conditions imposing on the dominant provider price controls connected with the provision of network access.

Aim of regulation

7.347 In the absence of a charge control, BT has the ability and incentive to set prices above the competitive level in Market A. BT's wholesale competitors would then be forced to pay these high prices in order to provide retail services to their customers, who would suffer accordingly from higher retail prices. BT may also have reduced incentives to reduce costs and improve efficiency.

7.348 In order to address this, we have concluded that BT should be subject to a charge control to ensure it does not price excessively for WBA services.

7.349 The method of charge control regulation we are putting in place (inflation +/-X) would create incentives for the dominant provider to increase its efficiency, thereby imitating the effect of a competitive market.

Legal tests

7.350 The condition meets the criteria set out in section 47(2) of the 2003 Act. The condition is:

⁴⁸¹ See paragraphs 7.213 to 7.221 above.

⁴⁸² See page 112,

<http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2013/CurrentCostFinancialStatements2013.pdf>

- objectively justifiable in that it will reduce BT's ability to charge excessive prices to consumers in a market where BT faces limited competitive and pricing constraints for WBA;
- not unduly discriminatory as it is imposed on BT and BT is the only operator which has been provisionally found to hold SMP in Market A;
- proportionate in that we will ensure that it will allow BT to make a return on investment in Market A whilst acting to constrain BT's ability to set prices above the competitive level which may result in consumers paying higher retail prices; and
- transparent as the condition is clear in its intention to control BT's charges while creating efficiency incentives.

7.351 Section 88(1)(a) of the 2003 Act stipulates that Ofcom must not impose price control conditions unless it appears to them from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion. Section 88(3) of the 2003 Act provides that there is a relevant risk of adverse effects arising from a price distortion if the dominant provider might (a) fix and maintain prices at an excessively high level, or (b) impose a price squeeze, so as to have adverse consequences for end-users of public electronic communications services. We explained above that we consider that in the absence of charge controls BT may price excessively, and therefore that there is such a risk of adverse effects.

7.352 Section 88(1)(b) of the 2003 Act provides that Ofcom must not set a price control condition unless it appears to them that the setting of the condition is 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.

7.353 The structure of the charge control provides BT with incentives to improve efficiency, since it retains any savings from improved efficiency that reduces its costs below this level over the period of the control.

7.354 The obligation will continue to promote sustainable competition by allowing CPs to purchase network access at prices which allow them to compete effectively at the retail level. We consider this to be the appropriate approach for the purposes of conferring the greatest benefits on end users of the services.

7.355 We are also required, under Section 88(2) of the 2003 Act, to consider BT's investment in the matters to which the condition relates. We believe that the design of the charge control will allow BT's costs to be taken into account and will also provide for common cost recovery. This condition is therefore an appropriate basis upon which to control BT's prices.

7.356 We have considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the 2003 Act. For the reasons set out above, we consider that the imposition of a charge control would in particular further the interests of

citizens and furthers the interests of consumers in relevant markets by the promotion of competition under section 3 of the 2003 Act. Further, we consider that, under section 4 of the 2003 Act, the condition will, in particular, promote competition in relation to the provision of electronic communications networks and encourage the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.

- 7.357 We have taken utmost account of the NGA Recommendation, the Costing and Non-Discrimination Recommendation and the BEREC position on WBA.
- 7.358 The NGA Recommendation recommends the imposition of cost orientation on mandated WBA products and, in the absence of cost orientation, a “properly specified margin-squeeze test” (Points 31-38). The charge control obligation is consistent with this, as a charge control is a form of cost orientation for the purpose of the NGA Recommendation.
- 7.359 Furthermore, we have taken due account of the Costing and Non-Discrimination Recommendation as explained above in paragraph 7.19. We also consider our charge control is consistent with the aims of the Costing and Non-Discrimination Recommendation as explained above in paragraph 7.20.
- 7.360 The BEREC Common Position on WBA provides that NRAs should put in place obligations preventing SMP operators from engaging in a margin squeeze (BP42 and BP43), but does not state that this should only occur in the absence of cost orientation. As we explain in Section 6, we are imposing obligations requiring BT to provide network access on reasonable request, including an obligation to provide access on fair and reasonable terms, conditions and charges. We consider the imposition of an ex ante requirement for charges to be fair and reasonable, in parallel with the application of ex post competition law, is sufficient to address any potential concerns regarding alleged margin squeeze.
- 7.361 The condition is consistent with the BEREC Common Position on WBA, more generally, including the best practice remedies falling under the objective “Fair and coherent access pricing” (BP34 to BP50). With regard to best practices BP44 to BP50, we do not consider that it is appropriate to have any specific pricing remedies for NGA-based bitstream products in this market review period. For the reasons explained above, we have adopted an anchor pricing approach to model the charge control. Due to the limited data available, it would be difficult to forecast the costs of providing WBA services over an NGA in Market A during this market review period and, in any event, the price of fibre-based services should be constrained by the charge-controlled anchor price. It should be noted, however, that the general access, non-discrimination and transparency obligations we are proposing would apply to such services.

Cost accounting

- 7.362 Under sections 87(9) to 87(11) and 88 of the 2003 Act, appropriate cost accounting obligations may be imposed on dominant providers in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities. Cost accounting rules may be made in relation to charge controls, the recovery of costs and cost orientation.

7.363 Where a charge control obligation is proposed, a cost accounting obligation requires the provider subject to the obligation to publish accounting data to demonstrate that their charges meet this obligation.

7.364 As explained in paragraph 7.339 above, we are no longer requiring BT to publish DLRIC and DSAC figures (though it is required to maintain such figures). We will implement this amendment in the directions which implement the cost accounting condition in our annual update of BT's regulatory financial reporting obligations.

Aim of regulation

7.365 It is appropriate to impose a cost accounting obligation on BT in Market A. The main benefit of this in wholesale markets is that other CPs and the regulator can monitor BT to ensure that it meets its charge control obligations.

Legal tests

7.366 The condition meets the criteria set out in section 47(2) of the 2003 Act. The condition is:

- objectively justifiable because without such an obligation Ofcom and other CPs would not have access to the information needed to monitor the effectiveness of the charge control obligation;
- not unduly discriminatory as it is imposed on BT and BT is the only operator which has been provisionally found to hold SMP in Market A;
- proportionate since only information that is necessary to ensure the continuing effectiveness of charge control remedies is required to be provided; and
- transparent in that it seems to ensure we have the necessary information to support the monitoring of the effectiveness of charge control remedies.

7.367 In addition to the tests set out in Section 47(2) of the 2003 Act, we are also required to ensure that the condition satisfies the tests set out in section 88 of the 2003 Act.

7.368 Section 88(1) of the 2003 Act states that Ofcom are not to set an SMP condition falling within section 87(9) except where it appears from the market analysis that there is a relevant risk of adverse pricing effects arising from price distortion and it also appears that the setting of the condition is appropriate for the purposes of:

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

7.369 Section 88(2) of the 2003 Act also requires us to take account of the extent of the investment by BT in the matters to which the condition relates when setting this type of condition.

7.370 We have identified the risk of excessive pricing by BT in Market A and consider that, by supporting transparency and reassuring stakeholders, cost accounting obligations will encourage market entry. In this way, the obligations help to promote efficiency

and sustainable competition. We have also taken account of the extent of the investment of BT in the matters to which the cost accounting obligations relate.

- 7.371 We have considered our statutory obligations and the Community requirements set out in sections 3 and 4 of the 2003 Act.
- 7.372 In particular, the imposition of a cost accounting obligation would specifically be justifiable and proportionate to promote competition in relation to the provision of electronic communications networks and services; to ensure the provision of network access and service interoperability for the purpose of securing efficient and sustainable competition and the maximum benefit for the persons who are customers of CPs. This is because the imposition of the obligation will ensure that 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.
- 7.373 For these reasons, we consider that the condition in particular furthers the interests of citizens and consumers in relevant markets by the promotion of competition in accordance with section 3 of the 2003 Act.
- 7.374 Further, under section 4 of the 2003 Act, the condition promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers of broadband internet access services.
- 7.375 In our 2014 Regulatory Financial Reporting Statement we provide further detail as to how the specific form of cost accounting requirements we have decided to impose on BT (in the form of the SMP conditions in Annex 29) meet the relevant legal tests. This reasoning supplements the considerations set out above.
- 7.376 For all the reasons set out above, we consider that the condition is appropriate to address the competition concerns identified, in accordance with section 87(1) of the 2003 Act.