



# Review of the wholesale local access market

Statement on market definition, market power  
determinations and remedies

Statement

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## Section 1

# Summary

## Overview

- 1.1 Broadband is increasingly central to the lives of UK consumers and the success of businesses. It allows consumers to access and interact with a wide range of content and services and allows businesses to exploit new market opportunities and more efficient operating models. Competition has driven the success of the current generation of broadband services. This has been shaped by regulation and the availability of local loop unbundling, which has allowed communications providers to compete using regulated, wholesale inputs from BT. The result has been greater choice, innovation, lower prices and high levels of broadband adoption.
- 1.2 The increase in the number of consumers using their broadband connections for activities such as downloading or streaming videos and music is, however, beginning to test the limits of current broadband networks. Equally, businesses and service providers are looking to deliver a wider range of content, applications and services over broadband. Super-fast broadband<sup>1</sup> will have a key role in addressing these requirements and thereby delivering significant benefits to UK consumers and businesses.
- 1.3 One of the main challenges facing Ofcom is to adapt the existing regulatory framework to reflect the emergence of super-fast broadband. Over the past two years commercial investments in next generation access (“NGA”) networks have resulted in super-fast broadband being made available to nearly half of all UK households. However, competition in the provision of super-fast broadband services remains in its infancy. To support the future development of the market, it is essential that there should be a clear regulatory framework designed both to promote competition and to support continued investment and innovation.
- 1.4 This document sets out the conclusions of our review of the UK market for Wholesale Local Access (“WLA”) and is intended to establish such a framework. We have found that BT continues to have significant market power (“SMP”) in the UK market for WLA services<sup>2</sup>, and concluded that access to BT’s local access network remains critical for those companies seeking to compete in the delivery of downstream services such as broadband and traditional voice services. On the basis of that finding, we have imposed a number of regulatory obligations on BT, designed to support investment and competition in super-fast broadband, as well as in current generation services.
- 1.5 The new regulatory model rests on the following core elements:
  - Virtual Unbundled Local Access (“VULA”), which will allow competitors to deliver services over BT’s new NGA network, with a degree of control that is similar to that achieved when taking over the physical line to the customer;
  - Physical Infrastructure Access (“PIA”), which will allow competitors to deploy their own NGA infrastructure between the customer and the local exchange, using BT’s duct and pole infrastructure, to provide broadband and telephony; and

<sup>1</sup> Usually taken to mean broadband with download speeds greater than 24Mbps

<sup>2</sup> excluding the Hull area

- Local Loop Unbundling (“LLU”) which we expect will continue to provide a basis for competition in current generation services, allowing competitors to physically take over (or share) BT’s copper lines between the customer and the local exchange.
- 1.6 We expect the new regulatory remedies (VULA and PIA) to be used in different circumstances: VULA is likely to be the most attractive for communications providers (“CPs”) where BT has already upgraded its local access network; PIA will be attractive to companies wishing to address market opportunities in advance of BT and may also be of particular interest to companies wishing to provide service in locations which may be in receipt of public funding support.
- 1.7 These remedies will be complemented by other measures – such as Sub-loop Unbundling (“SLU”), charge controls for LLU but greater freedom for BT in the pricing of VULA services – designed to promote competition, protect customers and also balance the incentives for companies facing what remain risky investments.
- 1.8 Finally, we have extended the remit of the Office of the Telecommunications Adjudicator (“OTA”) to include both of the new remedies, VULA and PIA. The OTA’s contribution proved particularly important in facilitating the emergence of competition in current generation broadband and we anticipate that it will play an equally important role in respect of super-fast broadband.
- 1.9 We consider that the decisions we are taking today, and the regulatory products that will be available to BT’s competitors as a result, are consistent with the Government’s approach to encouraging the roll-out of next generation broadband. PIA and SLU have the potential to be used to extend the reach of super-fast broadband, potentially in combination with public funding at a UK or EU level. This would support the Government’s aim to introduce superfast broadband in remote areas at the same time as in more densely populated areas.
- 1.10 The Government is currently consulting on the implementation of the new EU telecommunications framework, which amongst other things will give Ofcom additional powers to encourage the sharing of telecommunications infrastructure. The Government is also consulting on the scope for infrastructure-sharing by non-telecommunications utilities (e.g., sewage, gas and electricity). We believe the introduction of the PIA remedy will complement any initiatives that flow from these developments.

## The market review

- 1.11 This document sets out our analysis of the state of competition in the Wholesale Local Access (WLA) market, and the measures that we are taking to promote competition in that market. We published our proposals on these issues in March 2010 (“the consultation document”)<sup>3</sup>.
- 1.12 These decisions will have significant implications for consumers. While the WLA market directly concerns services provided between different CPs, decisions taken in the context of this market review will ultimately affect the prices, choice and availability of critically important services in the retail market, such as current generation broadband and traditional voice services. Our decisions also matter

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<sup>3</sup> *Review of the wholesale local access market, consultation on market definition, market power determinations and remedies* - <http://stakeholders.ofcom.org.uk/consultations/wla/>

because they are intended to promote competition and investment in new super-fast broadband networks, in the important early development stages of those networks.

- 1.13 The WLA market concerns fixed telecommunications infrastructure - the physical connection between a consumer's premises and the local telephone exchange. This connection is needed to support fixed line services such as voice calls and broadband internet access. The cost of this connection therefore affects the prices that consumers pay for those services. Also, if this connection fails then consumers' services will fail. The WLA market is therefore critical to all fixed line services.
- 1.14 In reviewing this market we have assessed the extent of competition in the supply of fixed telecommunications connections. The ultimate goal of this review is to protect consumers' interests by using regulation to promote competition and choice in the delivery of fixed line telecommunications services. This will help to ensure that consumers do not have to pay excessive prices for those services, and that they benefit from innovation and investment.
- 1.15 We periodically review various markets in accordance with both European and domestic legal requirements, including the Communications Act 2003 ("the Act"). The market review process is divided into three parts. First, we define the scope of the market that we are assessing (both the products in the market and its geographic scope). Then we assess whether any CPs have a position of SMP, which in simple terms means the power to influence markets to a significant degree in a way that could harm consumers<sup>4</sup>. Then, if any CPs have SMP, we assess which regulatory remedies might need to be imposed to address that SMP.
- 1.16 In tandem with this WLA market review, we are currently reviewing the related Wholesale Broadband Access ("WBA") market, and have now published two consultation documents on that market<sup>5</sup>. Our WLA decisions should be viewed in conjunction with those in the WBA review in order to understand the overall impact on consumers.
- 1.17 The WBA market concerns the wholesale broadband services which are used by CPs to provide retail broadband services to business and residential consumers. The WBA market therefore sits between the WLA market and the retail broadband market. Regulation in the WBA market takes into account how much infrastructure competition exists (including as a result of regulation of the WLA market). Effective and sustainable infrastructure competition tends to give rise to the greatest benefits in terms of the mix of lower prices and faster innovation. This is why we have been reviewing these markets at the same time. The conclusions we reach in the WBA market review will take account of the decisions set out in this document.

## Summary of decisions

### Market definition

- 1.18 We conclude that the WLA services within this market are those based on copper loops, cable networks and optical fibre, at a fixed location. We conclude that the

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<sup>4</sup> Formally, SMP is defined as 'a position of economic strength affording an undertaking the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers'

<sup>5</sup> On 23 March 2010 - "the WBA consultation document" - <http://www.ofcom.org.uk/consult/wba/>, and on 20 August 2010 - "the second WBA consultation document" - <http://stakeholders.ofcom.org.uk/consultations/wholesale-broadband-markets/>. We expect to publish our final decisions in the WBA market by the end of 2010.

market excludes WLA services based on mobile, fixed wireless and satellite technologies. We also conclude that WLA services for business and residential use are in the same market.

1.19 We conclude that there are two separate geographic WLA markets:

- The UK excluding the Hull area; and
- The Hull area.

### **Market power assessment**

1.20 Our SMP findings in the WLA market are as follows:

- BT has SMP in the UK excluding the Hull area; and
- KCOM has SMP in the Hull area.

1.21 One of the key reasons why we have concluded that BT has SMP is its high market share, which is 84 per cent<sup>6</sup>. As we have concluded that the WLA market currently encompasses both current generation access (“CGA”) and NGA networks, Virgin Media’s earlier NGA deployment does not in itself radically change its market share. Market shares are based on take-up, not deployment (although the two are obviously related).

1.22 As we consider that there is SMP in both of these markets, we have decided to impose regulatory requirements on BT and KCOM to address the identified competition problems. Under the legal framework governing our proposals, it is only possible to impose obligations on those CPs that have SMP in the relevant market. We therefore are not imposing regulatory obligations on any other CPs in these markets – including Virgin Media.

### **Remedies for market power**

1.23 To address BT’s SMP, we are imposing a number of complementary regulatory obligations (SMP remedies). BT will be required to provide other CPs (“OCPs”) with access to its network in the following ways:

- Local Loop Unbundling (LLU): a successful remedy that is already in place, this allows OCPs to physically take over (or share) BT’s existing copper lines between the local telephone exchanges and the customer premises;
- Virtual Unbundled Local Access (VULA): this will have to be provided by BT wherever it deploys its NGA network. VULA is intended to provide access to the NGA network in a way that is similar to how LLU provides access on the CGA network. However, rather than providing a physical line, VULA will provide a virtual connection that gives OCPs a dedicated link to their customers and substantial control over the services provided; and
- Physical infrastructure access (PIA): like VULA, this is a new remedy. It will allow OCPs to deploy fibre in the access network using BT’s ducts and poles - either to support deployment of fibre-to-the-premises (“FTTP”) technology, or to support deployment of fibre-to-the-cabinet (“FTTC”) technology (by enabling a ‘backhaul’

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<sup>6</sup> Of active access lines in the UK

connection between street cabinets and the OCP's network). BT has to produce a draft reference offer ("RO") for duct and pole access by mid-January 2011, with a view to launching a product by the middle of that year. BT will be obliged to provide PIA services for the purposes of deploying of NGA networks to support services such as broadband, telephony and cable TV, but not, at this stage, leased lines. Further consideration will be given to extending the scope of the remedy to include leased lines in the next business connectivity market review, which is due for completion in 2012.

- 1.24 In addition, we have decided to continue a requirement on BT to provide SLU. Whilst this is an existing remedy, it has so far only been used in very limited situations. It allows OCPs to physically take over (or share) the part of BT's existing copper lines between a street cabinet and the customer premises. This remedy will allow OCPs to deploy FTTC technology where they consider this to be economic.
- 1.25 Based on these specific access products, OCPs will be able to use BT's network infrastructure to develop their own services to offer to consumers, thereby lowering barriers to entry and investment. VULA should also support competition in (downstream) broadband and voice markets by providing BT and OCPs with an equivalent input for developing those services. We expect BT's downstream businesses to use VULA as an input when providing downstream services.
- 1.26 At this point, we consider that VULA is likely to be the main basis for NGA competition over BT's network, to supplement the continuing effectiveness of LLU, over at least the next four years. Our economic analysis suggests that VULA is very likely to be the most cost-effective NGA remedy and the remedy most likely to emulate the level of competition currently delivered by LLU. However, we think that access to BT's ducts and poles, and to a lesser extent SLU, could also play a part in supporting competition, as well as investment in NGA. Partly, this is because VULA will only be available where BT deploys its NGA network.
- 1.27 We have concluded that prices for LLU, PIA and SLU must be related to the cost of providing them<sup>7</sup>. However, we have decided not to regulate the prices of the product(s) that BT provides under its VULA obligation. We consider that this approach will give BT the flexibility to price its VULA services according to emerging information on the demand for, and supply costs of, NGA services. At the same time, the prices of these services will be constrained by the availability of current generation broadband services and by competition from services provided over cable TV network infrastructure.
- 1.28 In addition to requiring the specific products referred to above, we have imposed a set of general access remedies on BT, all of which apply to it currently in this market. These include a requirement to provide network access, an obligation to not discriminate unduly when providing services, various transparency measures, and a requirement to keep separate accounts for different services (to support effective regulation). For VULA, we have decided to apply a strict interpretation of the no undue discrimination obligation, to reflect VULA's importance for competition and because, as a new product, it should be possible to provide VULA in a non-discriminatory manner without incurring inefficiencies.

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<sup>7</sup> Based on the long-run incremental cost of provision, including an appropriate element of BT's common costs. Charges for LLU are currently controlled under a 4-year arrangement that ends in March 2011. We will be consulting in the near future on proposals for a new LLU charge control.

- 1.29 For KCOM, we have decided to maintain the general access remedies which currently apply to it in this market<sup>8</sup>. These include a general requirement to provide network access and a no undue discrimination obligation. We have also introduced a new general requirement for KCOM to publish guidelines on its process for handling requests for new network access. This new obligation is intended to provide greater transparency and information to OCPs who are considering entering the market in Hull. However, we are not at this stage requiring KCOM to provide any specific access products, such as access to its duct and pole infrastructure. This reflects the continuing limited interest among CPs in competing in the Hull area. In these circumstances, we do not consider that it would be proportionate to require KCOM to develop such products, the costs of which would need to be recovered through higher prices for KCOM's customers.

## Developments since the consultation document

- 1.30 In response to our proposals, we received substantive inputs from a number of stakeholders. Most stakeholders agreed with our market definition and SMP proposals. The key issues raised concerned the detailed nature of the remedies on BT, especially the design of VULA and PIA and the speed with which they will be implemented.
- 1.31 Since the publication of the consultation document, there have also been a number of other developments, including modifications to the access products proposed by BT. These developments have largely reinforced the case for the proposals set out in the consultation document. They include:
- The higher targets announced by BT for its NGA deployment, to 2015. We consider that the main impact of this change on SMP remedies is likely to be a greater level of interest in using VULA relative to other remedies. However, each of the remedies that we are imposing will still have a role, for example because PIA (and SLU) could be used in any given area before BT deploys NGA there;
  - The improvements made by BT to its Generic Ethernet Access ("GEA") NGA wholesale products for CPs, through which it intends to comply with its VULA obligations. For the FTTC variant, Openreach has agreed to trial a CP-installed product in the near future. For the FTTP version, Openreach will now adopt an 'open ATA' approach<sup>9</sup>, which should be more pro-competitive as it will give interconnecting CPs a greater degree of control over the voice services that can be provided using GEA;
  - Positive steps in the development of access to BT's local network infrastructure. BT committed to offering access to its duct and pole network, and began detailed discussions with OCPs to define their requirements and develop its RO. In addition, BT has held a number of discussions with OCPs in response to a recent Statement of Requirements for SLU services;
  - The publication by the European Commission ("the Commission") of its final Recommendation on regulated access to NGA networks ("the NGA

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<sup>8</sup> in the Hull Area only

<sup>9</sup> The term "ATA" refers to a voice analogue telephone adaptor. BT has chosen to embed this into the network termination equipment ("NTE") that is currently a necessary part of its FTTP GEA product.

Recommendation”), which is highly relevant to our decisions on SMP remedies<sup>10</sup>. We have been monitoring the evolution of the Recommendation for some time, and have taken utmost account of the final version in reaching our conclusions; and

- The incoming Government’s announcement of measures to encourage roll-out of next generation broadband in the UK. It is currently consulting on the scope for non-telecommunications infrastructure to be shared to facilitate broadband network deployment<sup>11</sup>. It has also indicated that it will seek to introduce super-fast broadband in remote areas at the same time as in more populated areas (which may involve both fixed and wireless access solutions). We consider that our decision to require PIA is consistent with these objectives and that (together with developments in SLU) it will make it easier for OCPs to deploy their own NGA networks where BT has not yet done so, or may not intend to do so.

1.32 In most respects, our decisions reflect the proposals set out in the consultation document. We would, however, highlight two noteworthy changes, which take account of the responses received:

- PIA: we have brought forward the deadline for the draft RO for pole access, from six months to just over three months, harmonising the timescale with the duct access RO;
- VULA pricing: we provide some further details about how we would expect to approach any concerns that are raised about the margin between BT’s prices for VULA and its prices for retail services based on VULA.

## Next steps

- 1.33 There are a number of important practical issues to consider in relation to the implementation of the new VULA and PIA remedies. On VULA, we have set out a number of high-level characteristics, and we will need to be reassured that BT’s VULA-based product set is fully compliant with them. In terms of product specification and implementation, further cross-industry discussion is required to identify clearly the requirements.
- 1.34 Further industry discussion is also needed on the details of the PIA products that BT should offer. The obligation requires BT to produce an initial RO for duct and pole access, describing the services to be made available, within just over three months from the publication of this statement. Significant OCP involvement will be needed, to take BT’s proposal forward.
- 1.35 This detailed implementation work will benefit greatly from the participation of the OTA. We have therefore extended the OTA’s remit to include PIA and VULA, so allowing it to take a view of BT’s developments across all WLA remedies. Building on the OTA’s successful role in promoting the development of LLU, we believe that this

<sup>10</sup> *Commission Recommendation on regulated access to Next Generation Access Networks* (C(2010) 6223), 20 September 2010 -

[http://ec.europa.eu/information\\_society/policy/ecomm/doc/library/recomm\\_guidelines/nga/en.pdf](http://ec.europa.eu/information_society/policy/ecomm/doc/library/recomm_guidelines/nga/en.pdf)

<sup>11</sup> *Broadband deployment and sharing other utilities infrastructure*, July 2010 - The Department for Business, Innovation and Skills (‘BIS’) - <http://www.bis.gov.uk/Consultations/broadband-deployment-and-sharing-other-utilities-infrastructure?cat=open>

will help clarify requirements and planning for all stakeholders and help promote vibrant and effective competition in the development of new super-fast broadband services.

- 1.36 Beyond implementing the obligations in this market review, we will continue our work to improve the environment for competition and investment in NGA networks. In the near future, we expect to issue updated guidance on the regulation of new build fibre developments. We may also look more broadly at the scope for extending infrastructure access to other networks, under powers contained in the recent update to the new EU Communications Framework, which is due for implementation in the UK by May 2011.

## Section 2

# Introduction

## Purpose of this statement

- 2.1 This statement sets out our conclusions on how we should regulate the wholesale local access (WLA) market over the next four years. In doing so, it considers the level of competition that exists, and is anticipated in this economic market.
- 2.2 Put simply, the WLA market covers fixed telecommunications infrastructure, specifically the physical connection between end users' premises and a local exchange. This connection is needed to support fixed line services, such as telephony and broadband. The charge for this connection therefore affects the prices that end users pay for their services. Equally, if this connection fails then end users' services will fail. The WLA market is therefore critical to all fixed line services.
- 2.3 Market reviews are carried out to assess the competitive conditions that exist in a market and, where there is not a sufficient level of competition, impose obligations (remedies) that address any potential negative effects that arise from the lack of competition. The ultimate goal is to ensure that customers enjoy sufficient choice and benefit from the lower prices and increased product innovation that arises from competition. In reviewing the WLA market, we have sought to establish whether there is sufficient competition in the supply of fixed telecommunications connections.
- 2.4 The requirement to conduct market reviews, and the processes to follow when doing so, are set out in various legislation and guidance at a European and a national level (see paragraph 2.25). Within this framework, we nevertheless have significant discretion over the decisions that will best support competition and serve the interests of citizens and consumers in the UK's specific circumstances.

## The consultation process

- 2.5 We consulted on proposals in this market in March 2010. In reply, we received a total of 27 responses. The majority of these were from communications providers. We also received a range of responses from other stakeholders, including industry groups, local government, an Ofcom Advisory Committee, and a member of the public.
- 2.6 Responses predominantly focused on the specific access remedies that we proposed in the consultation document – VULA, PIA, LLU and SLU. However, we also received views on our approach to market definition and our assessment of significant market power (SMP). The non-confidential responses (which are a clear majority) can be viewed on our website<sup>12</sup>.

## Strategic context for this market review

- 2.7 In undertaking a market review, we consider the potential market and technological developments in the next few years, so that our decisions reflect those developments as well as current competitive conditions. In this market review, a forward look is

<sup>12</sup> See <http://stakeholders.ofcom.org.uk/consultations/wla/?showResponses=true>

particularly relevant because the next few years will be the early roll-out period for NGA networks, which will enable the delivery of 'super-fast' broadband services.

- 2.8 Super-fast broadband is generally taken to mean broadband products that provide a maximum download speed that is greater than 24 Mbit/s. This threshold is commonly considered to be the maximum speed that can be supported on current generation (copper-based) networks<sup>13</sup>. Of course, the actual speed experienced by consumers depends on factors such as distance from the local exchanges<sup>14</sup>. To achieve higher speeds than 24 Mbit/s, CPs would need to use alternative technology, based on providing a connection over optical fibre some or all of the way to the customer.
- 2.9 We have been considering for some time, in consultation with many stakeholders, the appropriate regulation to promote investment and competition in NGA. A key output of that work was our March 2009 strategic statement ("the Super-fast Broadband statement")<sup>15</sup>. At the same time as following the standard market review processes, this market review represents a major part of implementing the strategic approach that we have developed.
- 2.10 Currently, evidence suggests that, where deployed, NGA is being used for video-based applications, including broadcast-quality TV. NGA is also likely to be important in providing broadband access to multi-PC homes. NGA could also deliver distinct benefits to specific groups of end users, such as older and disabled people<sup>16</sup>. Nonetheless, considerable uncertainty remains regarding the range of services that will be provided over super-fast broadband. Experience from overseas deployments shows that there is experimentation in the types of services being offered. We consider that it is important to take a regulatory approach that is flexible enough to allow for experimentation in innovative new products and services, whilst at the same time preventing consumer detriment as a result of firms exploiting market power.
- 2.11 BT and Virgin Media are both now offering retail services that are based on NGA developments. Virgin Media has been offering super-fast broadband services since the end of 2008. In January 2010, BT's retail business announced the prices that will be charged for its 'BT Infinity' super-fast broadband service that will be available as it upgrades its existing access network. It added a further, cheaper, Infinity option in August 2010.
- 2.12 The current status of NGA deployments is as follows:
- Virgin Media has been offering super-fast broadband services since the end of 2008, and it completed the rollout of a 50 Mbit/s capability across its entire network in Q3 2009. Its network covers 46 per cent of UK premises, although its market share is currently only 16 per cent of fixed access connections in the UK (CGA and NGA lines combined). In June 2010, Virgin Media reported 74,000 subscribers on its 50 Mbit/s broadband service. It also announced plans to launch

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<sup>13</sup> Using "ADSL2+" technology

<sup>14</sup> Ofcom, *UK broadband speeds 2009*, 28 July 2009

[http://www.ofcom.org.uk/research/telecoms/reports/broadband\\_speeds/broadband\\_speeds/broadband\\_speeds.pdf](http://www.ofcom.org.uk/research/telecoms/reports/broadband_speeds/broadband_speeds/broadband_speeds.pdf)

<sup>15</sup> See: Ofcom, 'Delivering super-fast broadband in the UK' statement, 3 March 2009,

[http://www.ofcom.org.uk/consult/condocs/nga\\_future\\_broadband/statement/statement.pdf](http://www.ofcom.org.uk/consult/condocs/nga_future_broadband/statement/statement.pdf); Ofcom, Also notable is the statement 'Next Generation New Build', 23 September 2008

[http://www.ofcom.org.uk/consult/condocs/newbuild/statement/new\\_build\\_statement.pdf](http://www.ofcom.org.uk/consult/condocs/newbuild/statement/new_build_statement.pdf)

<sup>16</sup> *Next Generation Services for Older and Disabled People*, published on 13 September 2010 by Ofcom's Advisory Committee for Older and Disabled People, sets out research into the benefits that super-fast broadband could bring to these groups

a 100 Mbit/s service at the end of 2010, and to complete the rollout of a 100 Mbit/s capability across its whole network by the end of 2011. Also, since the consultation document, Virgin Media has started trialling delivery of its 50 Mbit/s broadband service over fibre deployed on electricity poles<sup>17</sup>. Virgin Media intends to continue trialling this service in other areas in 2011;

- BT is currently deploying NGA technology. Since the consultation document, it has revised its deployment plans upwards. Its plan to achieve coverage of around 40 per cent of UK households by the end of 2012 was extended to a target of 66 per cent by 2015. It has stated that this would increase its planned investment in fibre to around £2.5bn (an additional £1bn). Of these households, about 75 per cent are planned to be covered using fibre-to-the-cabinet (FTTC) technology (in which the current copper network from the street cabinet to customer premises will still be used to deliver services). BT's current FTTC products have download speeds of up to 40 Mbit/s. The remaining 25 per cent of BT's deployment plans involve fibre-to-the-premises (FTTP) technology. In July 2010, it announced that its fibre roll-out had reached over 1.5 million households. BT's current FTTP products have download speeds of up to 100 Mbit/s. We expect a significant geographic overlap between BT's deployments and the areas in which Virgin Media currently offers services;
- KCOM (which has 100 per cent of access connections in the Hull area) is reviewing its access strategy but at this stage has made no announcements on any NGA deployment; and
- Some smaller CPs are providing NGA services, and others have indicated an interest in doing so, either through private investment or based on public funding to allow deployment in areas where commercial deployments may not be so attractive.

2.13 As set out above, BT's and Virgin Media's current investment plans for NGA do not cover the whole of the UK. This raises the prospect that a significant proportion of the country will not have access to NGA services. However, there are several ways in which this potential gap might be addressed:

- Using regulations, through this market review, designed to reduce investment costs by opening up access to existing telecommunications infrastructure, thereby encouraging OCPs to invest in the provision of NGA services; and
- Other public sector and community-based initiatives to promote competition and investment. For example, this could include action to allow new fibre networks to be built using non-telecommunications infrastructure (e.g., sewers and other utilities). Also, there is potential for public subsidy to make NGA deployments more attractive in areas that might not be the first choice for commercial investment. Both of these potential initiatives are beyond our remit, but for completeness are discussed further in paragraphs 2.17-2.20.

2.14 BT initially plans to leave its existing copper network in place as it rolls out fibre. The new NGA network would be used to supply super-fast broadband whilst the existing network would continue to support telephony services and current generation broadband. However, we anticipate that at some point in the future BT will want to remove the old network. Based on discussions with BT, we consider that this will not

<sup>17</sup> The infrastructure in question is owned by Surf Telecom, a subsidiary of Western Power Distribution

happen before we conduct a further review of this market, so this issue is not of major significance for the decisions in this document.

- 2.15 As we discussed in the consultation document, we consulted on the 'wholesale broadband access' (WBA) market at the same time because the WLA and WBA markets are closely related. The WBA market covers the provision of wholesale broadband services by BT and OCPs, which are in turn used to support retail broadband services to end users. The WBA market is linked to the WLA market because WLA services are one of the necessary building blocks for creating a WBA service. Together, the decisions taken (following consultation) in the WLA and WBA market reviews will affect how competition and investment in broadband services will develop in this important early stage of NGA evolution.
- 2.16 We originally expected to conclude the WLA and WBA reviews together. However, since the consultation document, there have been market developments that may have affected competitive conditions in the WBA market. We therefore re-consulted on the WBA market review on 20 August, and expect to publish a statement by the end of 2010. We do not consider the expected gap between the conclusions of the two reviews to be of material significance. This is partly because WLA services are inputs into WBA services, rather than the other way around.

## Developments in government policy

- 2.17 Since the consultation document was published, the new UK Government has announced measures to encourage roll-out of next generation broadband in the UK. On the 12 May 2010, the Government published the Coalition Agreement<sup>18</sup> setting out its programme and priorities. As part of this, it stated that it would ensure that BT and other infrastructure providers provide access to their assets. It also stated that it would seek to introduce superfast broadband in remote areas at the same time as in more populated areas. The Government has committed around £200m to £300m of the surplus left over from Digital Switch-over to help reach rural areas.
- 2.18 The Department for Business, Innovation and Skills ('BIS') published a discussion paper in July 2010<sup>19</sup>. This paper discussed the benefits and challenges of sharing the infrastructure of non-telecommunications utilities (e.g., sewage, gas and electricity) to support fibre roll-out. The Government also has plans to conduct three pilot projects to test fibre roll-out in rural areas and to understand how to co-ordinate resources where the market is not likely to invest. This process is to be managed by Broadband Delivery UK ('BDUK')<sup>20</sup>.
- 2.19 Further, the Government has accepted the conclusions from the 4 September 2009 paper on relaxing rules (in the Electronic Communications Code) concerning overhead deployment of telecommunications cables. Government has proposed that the UK Electronic Communications Code could be modified to allow such deployment in rural areas. The Government intends to consult this year on what the proposed modifications to the Code should be, and how stakeholders should engage locally.
- 2.20 Finally, the Government recently published its approach and consultation on implementing the revised EC framework, which is to be made law in the UK by May

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<sup>18</sup> <http://programmeforgovernment.hmg.gov.uk/files/2010/05/coalition-programme.pdf>

<sup>19</sup> *Broadband deployment and sharing other utilities infrastructure*, 15 July 2010 - <http://www.bis.gov.uk/Consultations/broadband-deployment-and-sharing-other-utilities-infrastructure?cat=open>

<sup>20</sup> <http://www.bis.gov.uk/BDUK>

2011<sup>21</sup>. As part of this, it discussed how it intends to further encourage sharing of telecoms infrastructure, under amendments to Article 12 of the Framework. Under these, infrastructure sharing could apply to telecommunications providers under certain circumstances where SMP has not been found. The document also consulted on Ofcom's role and powers under these amendments.

## Market developments since the 2004 WLA market review<sup>22</sup>

- 2.21 WLA services are used as an input to supply fixed voice, dial-up internet and broadband internet services to residential and business consumers. Local access services are also used to deliver pay TV, primarily over Virgin Media's cable network, though BT offers pay TV services as well. Recent technological developments are covered in paragraphs 2.11-2.12 above.
- 2.22 At the retail level the main development over the past six years has been the expansion of internet services and, within this, the large scale switch from dial-up to broadband-based services. At the wholesale level, the main development has been an expansion in the take up by OCPs of wholesale products used to supply broadband, in particular LLU. Under LLU, a CP takes full (or shared) control of the copper line from a BT local exchange to the customer premises.
- 2.23 LLU take-up has increased rapidly, from around one million lines in November 2006 to over seven million today<sup>23</sup>. The demand for LLU inputs has come from multiple network operators, three of which now have UK coverage for their LLU-based services exceeding 60 per cent. This has led to the creation of a highly competitive retail market for broadband.
- 2.24 Unlike internet services there has been relatively little change since the last market review in respect of the proportion of residential households using fixed voice services<sup>24</sup>. However, more fixed voice services are now being provided by operators other than BT, using BT wholesale inputs including full LLU<sup>25</sup>.

## The regulatory framework for market reviews

- 2.25 The regulatory framework that applies to the issues covered in this document is discussed in detail at Annex 1. This framework is based upon a number of EU Directives, which have been implemented into UK law by the Communications Act 2003.
- 2.26 The Act sets out our duties and obligations, including our general duty to further the interests of citizens in relation to communications matters and the interests of consumers in relevant markets, where appropriate by promoting competition. We discuss and discharge these duties and obligations in this document.
- 2.27 A market review normally has three stages:

<sup>21</sup> *Implementing the Revised EU Electronic Communications Framework - Overall approach and consultation on specific issue*, 13 September 2010 - <http://www.bis.gov.uk/ecommsframework>

<sup>22</sup> See <http://stakeholders.ofcom.org.uk/binaries/consultations/rwlam/statement/rwlam161204.pdf>

<sup>23</sup> Ofcom, *Broadband competition reaches 7 million milestone*,

<http://media.ofcom.org.uk/2010/09/10/broadband-competition-reaches-7-million-milestone/>

<sup>24</sup> fell slightly from 90 per cent in 2004 to 87 per cent in 2009 – see Ofcom, *Consumer Experience*, 2009

<sup>25</sup> The 2009, Ofcom, *Consumer Experience* survey, noted that between Q2 2005 and Q2 2009, respondents to its survey using fixed voice services, from providers other than BT, had increased from 23 per cent to 42 per cent.

- Definition of relevant markets (market definition);
- Assessment of competition in each market, in particular whether any undertakings have SMP in a given market (market analysis); and
- Assessment of appropriate regulatory obligations where there has been a finding of SMP (remedies).

2.28 In this market review, we have considered the need to maintain, amend or remove current regulations in this market, and the need for additional regulations.

2.29 The regulatory framework requirements for each stage of this market review are considered in more detail in Annex 1. In addition to these requirements, when carrying out our tasks under the regulatory framework more generally, we are required to take account of certain documents published by the Commission and the Body of European Regulators for Electronic Communications' (BEREC)<sup>26</sup>. Following on from these, some of the main documents of which we have taken account in developing our decisions are:

- On market definition, the Commission's Recommendation on relevant product and services markets ("the Recommendation on Markets")<sup>27</sup>;
- On market analysis, the Commission's guidelines<sup>28</sup>;
- On remedies, Common Positions produced by the European Regulators Group ("ERG") and BEREC<sup>29</sup>; and
- the Commission's NGA Recommendation<sup>30</sup>.

2.30 The current regulatory framework was amended in December 2009 by the EU 'Better Regulation' Directive<sup>31</sup>. That Directive is due to be applied in the UK by no later than 26 May 2011. Where appropriate, we have taken into account these amendments to

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<sup>26</sup> In particular, pursuant to Article 19 of Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive) and Article 3(3) of 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.

<sup>27</sup> Commission Recommendation of 17 December 2007 2007/879/EC, OJ L344, 28.12.2007, p.65: [http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l\\_344/l\\_34420071228en00650069.pdf](http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_344/l_34420071228en00650069.pdf) and also the accompanying Explanatory Note, *Commission Staff Working Document, Explanatory Note, Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services (Second edition)* ([http://ec.europa.eu/information\\_society/policy/ecomms/doc/library/proposals/sec2007\\_1483\\_final.pdf](http://ec.europa.eu/information_society/policy/ecomms/doc/library/proposals/sec2007_1483_final.pdf))

<sup>28</sup> Guidelines for market analysis and the assessment of SMP - see <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF>

<sup>29</sup> Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework, May 2006 & ERG Common Position on Best Practice in Wholesale Unbundled Access (including shared access) Remedies, June 2007 - see [http://erg.eu.int/doc/meeting/erg\\_06\\_33\\_remedies\\_common\\_position\\_june\\_06.pdf](http://erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf) and [http://www.erg.eu.int/doc/publications/erg\\_06\\_70\\_rev1\\_wla\\_cp\\_6\\_june\\_07.pdf](http://www.erg.eu.int/doc/publications/erg_06_70_rev1_wla_cp_6_june_07.pdf)

<sup>30</sup> [http://ec.europa.eu/information\\_society/policy/ecomms/doc/library/recomm\\_guidelines/nga/en.pdf](http://ec.europa.eu/information_society/policy/ecomms/doc/library/recomm_guidelines/nga/en.pdf) - European Commission, 20 September 2010

<sup>31</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0037:0069:EN:PDF> – Directive 2009/140/EC of the European parliament and of the Council, December 2009

the regulatory framework. BIS has now published its consultation document on implementing the revised framework (see paragraph 2.20).

## A forward look at market developments

- 2.31 Rather than just looking at the current position, market reviews also look ahead to how competitive conditions may change in the future<sup>32</sup>. Our evaluation of the current market takes into account past developments and evidence. Then we assess whether any lack of effective competition is likely to be durable, by considering expected or foreseeable market developments over a reasonable period in the future.
- 2.32 The actual period used for this forward look should reflect the specific characteristics of the market and the expected timing for the next review. In this market review, we have looked at potential developments over the next four years.
- 2.33 In this market, the key anticipated change over the next four years is that a significant amount of NGA infrastructure will be deployed. This will support super-fast broadband services, offering higher speeds than have been available so far to UK consumers. However, there is uncertainty about the extent and timing of NGA investment, as well as take-up by consumers. This makes it harder to foresee how the existing competitive conditions will change over the next few years. It is possible that the WLA market will change quickly in the future, for example as the speed of NGA deployment picks up.
- 2.34 However, based on past data and the information currently available to us, we are of the view that competitive and technological developments in the UK are not expected to materially affect our market definitions within a four year period. For example, Virgin Media's footprint is expected to remain at around half of UK homes. Also, we anticipate that most of the services on BT's network (which currently has 84 per cent of access connections<sup>33</sup>) will continue to be provided over its current copper network, which is expected to remain in use as new fibre infrastructure is added.
- 2.35 We also consider a four year forward look to be reasonable in this case as this period provides a reasonable degree of regulatory certainty to stakeholders in the UK. Such certainty is especially valuable at this point in time as it provides the right context for investment decisions during this important early phase of NGA deployment, in which the scale and structure of the future market for NGA services is not yet clear. We note that there is greater emphasis in the new framework on promoting investment objectives, including NGA investment.
- 2.36 The four year forward look that we have used allows for the possibility of our next WLA market review taking place on that timeframe. However, given the potential impact of NGA deployments in this market in the next few years, we will monitor closely the WLA market, and we will consider the timing of the next market review accordingly. In doing this, we will consider the new procedures and timeframes for conducting market reviews introduced by the amendments to the EU regulatory framework. Those requirements will apply in the UK from May 2011.
- 2.37 The Commission's consultation response commented on our proposal to use four years as the forward look period. Partly, this concern was based on the potential need to introduce fibre unbundling sooner, to replace or supplement the VULA remedy. Also, the Commission referred to the shorter period between market

<sup>32</sup> See Annex 1 on the market review process

<sup>33</sup> In the UK excluding the Hull Area

reviews, with three years being the new default position under the revised regulatory framework.

- 2.38 We consider the former point when VULA is discussed, in Section 8. As for the amendments to the EU regulatory framework, as we indicate above, our consideration of the timing of the next market review will take into account the new procedures and timeframes for conducting market reviews introduced by those amendments. We continue to consider, for the reasons given above, that a four year forward look is appropriate for the purpose of the analysis in this document. However, we note that having a four year forward look does not prevent us from reviewing this market again sooner.

## **Structure of this document**

2.39 The rest of this document is structured as follows:

- Section 3 covers our decisions on market definition;
- Section 4 covers our decisions on the assessment of market power;
- Sections 5-10 cover the market power remedies that we have decided to apply;
- Section 11 summarises next steps, including on implementation of SMP remedies;
- Annex 1 describes the legal framework for conducting this market review;
- Annex 2 is the formal legal Notification of our decisions;
- Annex 3 sets out our methodology for defining markets;
- Annex 4 describes our requirements for a BT reference offer on physical infrastructure access; and
- Annex 5 is a glossary of specialist terms used in this document.

## Section 3

# Market definition

## Introduction

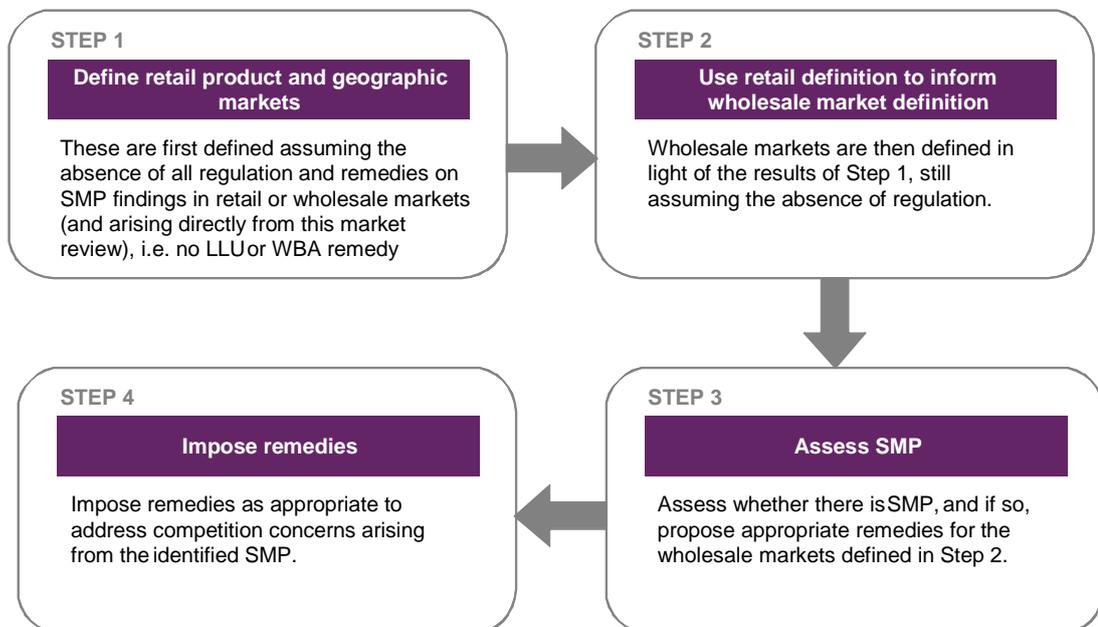
3.1 The purpose of this section is to define the relevant wholesale markets in which the assessment of market power will be undertaken. The structure of this section is as follows:

- Definition of the product market relevant to this market review;
- Definition of the vertical market boundary between the WLA and WBA markets; and
- Definition of the geographic scope of the markets.

3.2 The market definition process covers the following stages, which are illustrated in the first two steps of Figure 3.1:

- Consideration of relevant retail markets - as they are logically prior to, and affect, wholesale markets; and
- Definition of wholesale markets.

**Figure 3.1** Diagram of the market review methodology



- 3.3 A detailed explanation of the methodology that we have applied to defining markets in this section is provided in Annex 3<sup>34</sup>.

## Product market definition

### Consultation proposals - retail product market

- 3.4 End users' demand for various communications services drives the demand for local access connections. A fixed local access connection continues to be an integral element in the delivery of retail services such as voice telephony, (asymmetric) broadband internet access and some symmetric broadband (leased line) services for end users.
- 3.5 In addition, there are wholesale markets downstream of WLA which provide the link between the wholesale local access connections and the retail markets. It is therefore appropriate first to define the retail markets that lie downstream of WLA. In addition, as we assume the absence of upstream regulation, suppliers of local loop connections, or potential substitutes, would not necessarily make local access products available at the wholesale level to third parties (such as LLU or SLU remedies imposed as a result of previous findings of SMP in the market). Details of how this might affect the retail market definition were provided in Annex 8 of the consultation document. The key points of that analysis are as follows:
- We concluded a review of the retail fixed narrowband exchange line markets and most of the wholesale narrowband exchange line markets in September 2009<sup>35</sup>. The market for fixed narrowband exchange lines includes both business and residential lines. There is a separate market for fixed access and calls, with mobile access being in a separate market to fixed access. Analogue, ISDN2 and ISDN30<sup>36</sup> exchange lines are all in separate markets.
  - We have carried out a review of the asymmetric broadband access market and the initial consultation proposals were published in March 2010<sup>37</sup>. We proposed that the product market includes loop-, cable- and fibre-based asymmetric broadband access serving both business and residential customers, with no speed boundaries within this market. Excluded from this market definition are narrowband access, symmetric broadband access, and access using mobile, fixed wireless and satellite. In addition, the asymmetric broadband access product definition does not include other services which may be provided in a bundle of retail services (such as pay TV, mobile or fixed services). However, broadband services included in a bundle are in the same market as stand-alone broadband services. We note that no changes to the product market definition are proposed in the second WBA consultation document.

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<sup>34</sup> Annex 3 includes definitions of some of the terms used in this section

<sup>35</sup> Some specific outstanding elements of the wholesale narrowband exchange line market review (wholesale transit services and call termination) were finalised in February 2010, see [http://www.ofcom.org.uk/consult/condocs/wnmr\\_statement\\_consultation/statement/statement.pdf](http://www.ofcom.org.uk/consult/condocs/wnmr_statement_consultation/statement/statement.pdf)

<sup>36</sup> Ofcom's consultation of the retail and wholesale ISDN30 markets was published on 4 May 2010. <http://stakeholders.ofcom.org.uk/consultations/wba/?a=0>

<sup>37</sup> *Review of the wholesale broadband access markets*, Ofcom, 23 March 2010 - <http://stakeholders.ofcom.org.uk/consultations/wba/?a=0> - plus a second consultation document on 20 August 2010 - <http://stakeholders.ofcom.org.uk/consultations/wholesale-broadband-markets/>

- We concluded the retail leased lines market review in December 2008<sup>38</sup>, and concluded that traditional interface (“TI”) and alternative interface (“AI”) leased lines services were in separate markets, with different bandwidth categories within each of these markets. Leased lines markets include Symmetric DSL (“SDSL”) but not ADSL services.

### Consultation proposals – wholesale product market

- 3.6 Having proposed definitions for the relevant downstream markets we then assess the relevant market at the wholesale level. At this point it is worth recalling that market definition is a means to an end and not an end in itself. The end result is that we identify the products and geographic area over which we then assess the case for imposing ex ante remedies.
- 3.7 Consistent with the modified Greenfield approach, we need to define the scope of the relevant market absent the imposition of SMP remedies at the level of the market being reviewed. That is, we cannot assume the presence of LLU or SLU, which are remedies imposed as a result of findings of SMP in the WLA market in the last market review.
- 3.8 In the absence of these remedies, one possibility is that competition will only take place at the retail level between vertically integrated operators, each with its own access network. The fact that there are few instances of vertically integrated operators with fixed access networks voluntarily offering access to potential competitors suggests that this may be a likely outcome. The relevant vertically integrated operators are BT and Virgin Media.
- 3.9 In conducting our market definition, consistent with the Commission’s guidance and case law, it is appropriate to begin by hypothesising a relatively narrow WLA product market and then considering whether this should be broadened. Our analysis begins by considering whether a distinct wholesale market exists for loop-based local access connections only. The majority of connections to end user premises involve such loops. We then consider the candidate substitutes for this product and the extent to which these impose a sufficient constraint to be included within the scope of the relevant market.

### Local access substitutes

- 3.10 The consultation document considered a number of candidate substitutes for local loops in the provision of WLA.
- 3.11 We set out in paragraphs 3.100 to 3.105 of the consultation document our assessment of the indirect constraints from cable-based local access at the retail level provided by Virgin Media, and whether they are sufficient to render a price increase at the wholesale level unprofitable. If so, the wholesale market should be broadened to include cable-based local access within the same market as loop-based local access. We noted that if an operator is found to hold a position of SMP under this broader market definition, this conclusion would only be strengthened by an alternative conclusion of a narrow wholesale market for loop-based local access only.

<sup>38</sup> *Business connectivity market review*, Ofcom, December 2008 - <http://www.ofcom.org.uk/consult/condocs/bcmr08/>

- 3.12 Consistent with the modified Greenfield approach, we assumed that in the absence of regulation, a local access infrastructure operator would not provide wholesale access to its network to third parties. As a result our reasoning focused on the impact of indirect constraints that emanate from the retail level. We assumed that price increases above the competitive level at the wholesale level would have to be passed on to retail prices (as they would be if downstream markets were competitive). We expected that there would be switching at the retail level, resulting in a reduction in the derived demand for wholesale products sufficient to render a price rise at the wholesale level unprofitable such that the market should be broadened to include cable-based services.
- 3.13 Based on our findings in previous WLA and WBA market reviews as well as the reasoning summarised above, we proposed to include cable-based local access in the wholesale product market definition.
- 3.14 We considered whether NGA using fibre should be included in the market definition in paragraphs 3.106 to 3.110 of the consultation document. We considered the current state of the market, where fibre-based services are an overlay to BT's copper and Virgin Media's cable networks. To encourage take up, some operators have priced the new, higher speed services competitively compared to top-end current generation products (setting relatively small price differentials between these products). Our demand-side substitution analysis showed a hypothetical monopolist providing NGA services would be constrained by consumers potentially switching to CGA services. On this basis we considered that fibre-based local access should be included within the scope of the relevant wholesale market.
- 3.15 In paragraphs 3.111 to 3.113 of the consultation document we concluded that despite the developments in mobile broadband access technology and the availability and take up of retail packages, mobile broadband access is considered predominantly as complementary to existing fixed broadband services. On a forward look basis, we did not think that this conclusion would change appreciably over the period relevant to this review. As set out in paragraphs 3.114 to 3.115 of the consultation document our view was that fixed wireless access is not part of the relevant market under consideration in this review.
- 3.16 Our retail market analysis suggested that fixed wireless access services are currently priced and positioned as a cheaper alternative to symmetric DSL (SDSL) and therefore targeted primarily at SMEs. Our business connectivity market review also concluded that demand characteristics between ADSL and SDSL are such that one is unlikely to be a substitute for the other. We also noted that, given the current take-up of fixed wireless access, it would be unlikely to make any material difference to our SMP findings. Nonetheless we would monitor progress in this market over the longer period should it develop into a credible and effective alternative to asymmetric broadband access.
- 3.17 With satellite-based local access, our assessment in paragraphs 3.116 to 3.117 of the consultation document showed that existing price differentials at the retail level mean that there is unlikely to be sufficient demand from business customers (and even less demand from residential customers) for the extent of switching to undermine the profitability of a 10 per cent SSNIP at the wholesale level. The lack of indirect constraints from the retail level suggest that satellite-based local access is more appropriately considered to be outside the scope of the relevant wholesale market.

## Business versus residential

- 3.18 We noted in paragraphs 3.118 and 3.119 of the consultation document that despite the differentiation between business and residential services at the retail level, such distinctions do not exist at the wholesale level. The loop and cable connections used for residential applications are essentially identical to those used for business use, even if they support different retail applications, including leased lines and ISDN services. In this respect, provision of the local access product is different to provision of retail services, where business and residential customers might be expected to have different demands for supplementary services. As such we considered it appropriate to define a single WLA market for supply to both residential and business customers.

## **Summary and analysis of consultation responses**

- 3.19 The majority of the respondents to the consultation document agreed with our approach to product definition for the purposes of examining market power. Many also agreed with our definition of the WLA product market.
- 3.20 Regarding our approach to defining markets, Ofcom Wales Advisory Committee proposed an alternative approach starting with a market definition based on the value consumers derive from retail services. They envisaged that this would enlarge the market definition compared to that proposed in the consultation document to include services such as mobile. Subsequent analysis of market power would be based on a pre-specified threshold of market share and the existence of “patch monopoly”. The FTTH Council suggested that we had not conducted a standard analysis of the retail markets before addressing wholesale markets. Corning stated that we had not made the case that virtual and physical access markets are either demand or supply side substitutes.
- 3.21 As set out in Paragraphs 3.53 to 3.59 of the consultation document and Annex 1 below, we are required to take utmost account of the Recommendation on Markets and SMP Guidelines when defining markets and assessing SMP. We consider that at a detailed level, the analytical approach proposed by Ofcom Wales Advisory Committee does not appear to follow that of the Recommendation and SMP Guidelines. We do not therefore answer the points of detail in the Committee’s response, although we acknowledge the possibility that local monopolies may emerge as the WLA market develops in future.
- 3.22 In response to the FTTH Council, we note that paragraphs 3.88 to 3.92 of the consultation document summarised our analysis of the retail market, which was set out in greater detail in Annex 8. From this we then derived our subsequent analysis of the wholesale market. Finally, in response to the points raised by Corning, we note that paragraphs 3.129 to 3.136 of the consultation document considered the relevant market boundary between WBA and WLA products. There, we assessed substitutability by reference to the underlying product characteristics of various vertical products. We provisionally concluded that the relevant economic market in terms of fibre-based local access networks should not be limited to strictly physical elements but should be expanded to include non-physical elements to the extent that any non-physical product exhibits the same underlying technical characteristics. We consider this further below (paragraphs 3.49 – 3.72).
- 3.23 Cable & Wireless Worldwide (“C&WW”) raised a concern regarding the link between the upstream WLA market and related downstream markets. C&WW believed that the product market definition proposed in the consultation document purposely

omitted the discussion of the use of WLA lines for analogue ISDN and private circuit local ends, such that the market is defined as upstream to broadband and consumer voice only.

- 3.24 Our market definition approach taken in the consultation document does not differ from that taken in the 2004 WLA Statement. Paragraphs 3.39 to 3.43 and paragraph 3.88 of the consultation document set out the three relevant downstream retail markets from the WLA market, which include retail leased lines markets. Our assessment at the WLA level is that there is no significant difference between the local access connection used for supplying services to these downstream markets. This has not changed since the 2004 market review. Therefore, for clarity, our 2010 WLA market definition does include access connections that are used for analogue, ISDN and private circuit local ends, as expressed by Cable & Wireless Worldwide<sup>39</sup>.
- 3.25 BT and Virgin Media explicitly stated that they agreed with our proposal of including cable-based local access in the same product market as loop-based local access. They both also considered that fibre should also be included.
- 3.26 The European Commission raised concerns regarding our proposal to include cable-based local access in the product market definition. They argued that without unbundling of cable networks, any analysis of substitutability can only be examined via indirect constraints. The Commission questioned whether a wholesale price increase would indeed be fully passed to retail prices, and whether there would be sufficient demand substitution to reverse the profitability of the original price increase. Whilst the Commission did not challenge our findings, they felt it more appropriate to define the product market excluding cable-based local access.
- 3.27 We agree with the European Commission that there is currently no possibility of direct substitution at the wholesale level between copper and cable lines. However, we consider that the technical, practical and economic feasibility for cable operators to offer facilities equivalent to unbundled local loops, whilst relevant, is not critical to the understanding of the constraints exercised by cable-based operators. We examined the effects of indirect substitution at the retail level in the consultation document<sup>40</sup>.
- 3.28 The European Commission also notes that the SSNIP at the wholesale level by a hypothetical monopolist could be sustained if competitors of retail products partly absorb the 10 per cent price increase in their margins. This may result in retail prices only increasing by, say, 5 per cent. This reduced amount takes into account:
- Dilution of costs because the wholesale input is only a portion of retail costs of supply; and
  - Partial pass-through of price increase.
- 3.29 As part of our 2010 wholesale broadband access market review, we estimated the critical loss factor (the decline in demand needed to make a price increase unprofitable) associated with a 10 per cent SSNIP at the wholesale level.<sup>41</sup> We

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<sup>39</sup> See Paragraph 3.122 of the consultation document

<sup>40</sup> See Paragraphs 3.100 to 3.105 of the consultation document

<sup>41</sup> See Annex 9 of Ofcom's "Review of the wholesale broadband access markets" Consultation document, published 23 March 2010 for a derivation of the critical loss factor and estimates of the input assumptions.

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

showed that the critical loss factor is a function of the price increase and the ratio between marginal costs and retail prices.

- 3.30 A smaller retail price increase would mean that a correspondingly smaller proportion of customers would switch in response to the original SSNIP. However, it may not be necessary for all of a price increase to be passed through to render the increase in the wholesale price unprofitable. Provided there is sufficient switching to exceed the critical loss, the SSNIP will be unprofitable. In any case, we consider that full pass-through is a more appropriate assumption for our purposes.
- 3.31 We note that, under the logic of the Hypothetical Monopolist Test, an increase in the price of the wholesale local access input would be passed on in full. This is because the product in question must be assumed to be supplied at the competitive price prior to the hypothetical increase. In this context, we would expect to see a full pass through of the wholesale price increase.
- 3.32 Furthermore, absent regulation, wholesale supply might in some circumstances be priced on a 'retail-minus' basis. That is, the price of wholesale access is set to equal the retail price minus downstream costs of supply. This compensates the network provider for the full cost to it of downstream supply. In this case there is an automatic link between the wholesale price and the incumbent's own retail price, which will help WLA purchasers pass on any increase in wholesale prices.
- 3.33 In addition, our assessment of the retail market is that cable- and loop-based broadband access services have become more similar in terms of product specification and pricing and that marketing materials from both types of operators continue to view the two as substitutes. Cable is in practice a strong competitor at the retail level and may now be stronger than at the time of previous market reviews.
- 3.34 As set out in paragraph 3.104 of the consultation document, we consider that it is not necessary to reach a definitive conclusion on this issue because even if the market were to be defined more narrowly, i.e., to exclude cable, then this would not alter the SMP conclusions. The European Commission agrees that a definitive conclusion on this issue is not required. Although we have taken utmost account of the European Commission's comments, given the evidence, we have decided to include cable-based local access in the market definition. This is consistent with the approach taken in the 2004 WLA market review.
- 3.35 Geo Networks Limited ("Geo") disagreed with our proposal of including current and next generation services in the same product market. It strongly believes that it is unlikely that consumers who have enjoyed the benefits of NGA-based services would be willing to accept a CGA-based substitute.
- 3.36 On the other hand, BT, Sky and Virgin Media agreed that there exists a chain of substitution that links together different speed services at the retail level, regardless of the underlying technology used to deliver them. This is particularly the case as the pricing of current NGA services delivered using fibre is likely to be constrained by existing loop- and cable-based services. This then feeds through to the wholesale level, and for the time being, copper- and cable-based services will act as an indirect constraint on the price of wholesale fibre-based access. Both BT and Sky noted that as end user applications emerge in the future that require higher speeds which can only be delivered over NGA, a break in the chain of substitution may develop at the retail level and this may have implications for the wholesale definition.

- 3.37 As set out in the consultation document (paragraphs 3.108-3.110) we discussed the pricing approaches of BT and Virgin Media in relation to their fibre-based products and how these compared with their current generation services. We concluded that fibre-based local access should be included within the scope of the relevant wholesale market.
- 3.38 In addition, our consumer survey indicated that only a small proportion of customers would be willing to switch to higher speed services when faced with a price increase in lower speed services. This suggests that demand for higher speed services would remain low even if the price difference was small. This would mean that most consumers currently place a low incremental value on higher speed broadband access. The limited amount of upward switching which would occur if the price of lower speed broadband access increased suggests that a price for high-speed broadband above the competitive level could not currently be sustained.
- 3.39 Given the above we consider on balance that, over the period considered by this review, it is appropriate to include fibre-based local access within the market definition.
- 3.40 We also agree with BT and Sky that eventually there may come a point when essentially current generation access technology becomes obsolete as services demanded by customers can only be delivered using NGA-based inputs, rather than CGA-based ones. As stated in paragraph A8.60 of the consultation document, it is too soon to say with any certainty if, or when, this might happen.
- 3.41 BT and Sky agreed with the exclusion of mobile-based local access from the product definition over the next four years, even in light of recent developments and field trials of LTE. One confidential respondent noted that in the medium term, NGA delivery could include mobile broadband (e.g., using LTE) and as such it considered it appropriate to extend the scope of the PIA remedy to enable the deployment of networks other than NGA, e.g., mobile backhaul, so that LTE can achieve its full potential. BT also noted that even at present, mobile-based broadband access does act as a constraint to BT's prices and hence mitigate BT's SMP even if they cannot yet be viewed as full substitutes.
- 3.42 David Hall Systems generally agreed with our product definition proposals but considered that other access technologies such as mobile will have an increasing impact on the market under consideration and therefore more account should be taken of them.
- 3.43 The consumer survey that we refer to in the consultation document (at paragraphs A8.64 to A8.69) strongly indicated that whilst mobile broadband services continue to develop in terms of the retail offerings, current consumption patterns still indicate that:
- A small number of UK households are mobile-only and most are therefore paying for a local access connection already (through BT's or another CP's monthly line rental). This reduces the marginal increase in household spending when choosing fixed broadband access compared to mobile broadband access.
  - Increasingly popular online activities are content streaming and sharing, which are more likely to be bandwidth hungry services. Current maximum speeds for mobile broadband access advertised are 7.2 Mbit/s, with most people generally achieving less than 1 Mbit/s on average. This is a fraction of the speeds achieved by fixed broadband access.

- In addition, mobile broadband packages tend to have smaller download limits compared to fixed broadband access. For example, O<sub>2</sub> offers a 3GB package for £10 a month<sup>42</sup> for 18 months. On the other hand, BT's basic package of £14.49 a month allows 10GB download limit, and Virgin Media's is £20 a month with no download limits (reduced to £12.50 a month if taken with a Virgin Media phone line).
  - Broadband access tends to be shared between members of a household, and sharing of mobile broadband access is not as straightforward as just installing a wireless router that is often included in a fixed broadband contract.<sup>43</sup>
- 3.44 For the reasons set out above as well as in Paragraph 3.113 of the consultation document, we consider it appropriate to exclude mobile broadband access from the product market definition. With the increasingly popularity of netbooks<sup>44</sup> using mobile broadband networks (e.g., Apple's iPad), it may be that mobile broadband access will in future become an increasing demand-side constraint on pricing of fixed broadband. We will monitor changes in the market and keep this under review.
- 3.45 BT and Sky both agreed that satellite and fixed wireless technologies are not currently in the same product market as fixed broadband access, since they do not offer the same functionality as fixed local access.
- 3.46 BT, Sky and Virgin Media agreed that, in the absence of any distinction in the wholesale inputs used to deliver services to business and residential customers, it is appropriate to define a single WLA market for supply to both residential and business customers, although noting that there may be some important product distinctions such as service levels. The Federation of Communication Services, on the other hand, suggest that there may be a case for residential and business to be considered as separate markets based on the higher service quality and reliability demand by business customers.
- 3.47 As set out in paragraphs 3.118 of the consultation document, we maintain that at the wholesale level, the distinction between these service characteristics does not exist: the same loop and cable connections are used for downstream residential and business services. Therefore on balance we believe that it is appropriate to define a single WLA market for supply to both business and residential users.

### Conclusion on wholesale product market definition

- 3.48 On the basis of the reasoning above, our conclusion is that it is appropriate to define a relevant wholesale product market for loop-, cable- and fibre-based local access at a fixed location. This single market for wholesale local access includes lines which are used for analogue, ISDN and private circuit local ends delivering services to both business and residential customers. The market definition also includes self supply of wholesale exchange lines. Access based on fixed wireless access, mobile and satellite technologies are not included in the product market definition.

<sup>42</sup> See [http://shop.o2.co.uk/promo/o2mobilebroadband/tab/18\\_months](http://shop.o2.co.uk/promo/o2mobilebroadband/tab/18_months)

<sup>43</sup> See <http://www.mobile-broadband.org.uk/guides/how-to-share-your-mobile-broadband-with-another-computer/> and <http://www.expertreviews.co.uk/wireless-routers/258631/t-mobile-mobile-broadband-share-pack> for examples.

<sup>44</sup> Sometimes known as mini notebooks, they are a rapidly evolving category of small, lightweight, and inexpensive laptop computers suited for general computing and accessing Web-based applications, and are often marketed as "companion devices", i.e., to augment a user's other computer access.

## Relationship between WLA and WBA markets

### Consultation proposals

3.49 In the consultation document we set out our view that, in the context of NGA deployment, the economics of wholesale access may change, such that a non-physical wholesale product could, if it had certain characteristics, fall within the WLA market. In terms of the functionality and cost characteristics of the wholesale products in each market, Commission markets 4 (WLA) and 5 (WBA) would remain essentially unchanged, with the former being distinguished by greater control for the purchaser. In this sense the boundary has remained unchanged. However, the specific access products themselves may be different in an NGA world. The economics of NGA mean that physical access products are likely to be prohibitively expensive in the near future. However, a 'raw' non-physical access product may offer many of the benefits of physical access, such that a wholesale purchaser would not regard WBA products as a good substitute for it. Such a product could be regarded as falling within market 4 and consequently a remedy for SMP in this market could be based on it.

### Link to guidance and recommendations

3.50 An important consideration of this market review (and our parallel review of the WBA market) is the appropriate delineation between WLA and WBA. In the previous market reviews (the 2004 WLA market review and the 2008 WBA market review) a key distinction between these two markets has been the nature of the access being provided: physical access in the case of the WLA market and non-physical access in the case of the WBA market.

3.51 This approach has been consistent with the approach of the Commission, which under the Framework, recommends a number of markets that NRAs should review as it considers that these markets are susceptible to a need for ex ante regulation to be imposed. In the Recommendation on Markets, markets 4 and 5 are defined as follows:

- **Market 4:** Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location; and
- **Market 5:** Wholesale broadband access. 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.

3.52 To date delineating these wholesale markets in this way has been effective because there has been a clear distinction between the characteristics which physical and non-physical access could offer the user. In addition, an appropriate and workable physical access remedy, exchange-based LLU, was identified, although even this is effective in only some parts of the UK. However, in the context of the deployment of fibre access networks, it may no longer be appropriate to distinguish the wholesale market boundaries in this way. The deployment of fibre deeper in the access network means that the economic case for a physical access remedy is more challenging. Furthermore, new non-physical products are emerging, which have technical characteristics similar to those of physical access products. It is these characteristics which are of primary concern to the user, rather than the physical or non-physical nature of the product per se.

- 3.53 Since the publication of the consultation document, the Commission has recognized a role for non-physical access in market 4 in its NGA Recommendation. Specifically, Recital 21 notes that:

*“NRAs should be able to adopt measures for a transitional period mandating alternative access products which offer the nearest equivalent constituting a substitute to physical unbundling, provided that these are accompanied by the most appropriate safeguards to ensure equivalence of access and effective competition.”<sup>45</sup>*

- 3.54 Also, as we noted in the consultation document, the Commission acknowledges, in its Explanatory Memorandum (“EM”) to the Recommendation on Markets<sup>46</sup>, that wholesale market definitions may need to evolve and adapt to network changes such as NGA deployment:

*“...at this stage, given that these network changes are still taking place, it is difficult to be absolutely precise about the boundaries of the relevant prospective wholesale markets that are linked to the retail broadband market, in terms of their various possible technical characteristics. This suggests a more generic and forward-looking approach to market identification in this area at EU level (based on the two currently defined wholesale markets), within which regulatory authorities can analyse markets, with the twin aim of facilitating as much infrastructure-based competition as is economically efficient and addressing market power via appropriate access regulation”*

- 3.55 The EM also states:

*“Depending on the way in which network upgrades occur or the particular demand and supply conditions evolve in Member States, these two wholesale markets [market 4 and market 5] may remain distinct, or conceivably merge into one. Consequently and for the reasons outlined above, it is recommended that the markets be analysed together.”*

- 3.56 As suggested by the relevant EU guidance, the inclusion of products within markets 4 and 5 should be determined by considering demand and supply substitution and the capability and location of the services - rather than the physical nature of the access product. In particular, wholesale boundaries should be defined in a way that allows NRAs to impose the range of remedies required to secure effective and ongoing competition at the retail level.

### Relevant vertical wholesale market boundaries

- 3.57 As we noted in the consultation document the current WLA market review and our parallel WBA market review needs to appropriately take into account the deployment of upgraded cable access networks and FTTC and FTTP on BT’s access network and how this might impact the boundary between the WLA and WBA markets.
- 3.58 In the consultation document we noted that a SSNIP test was usually used to determine the (horizontal) boundaries of markets at a given level in the value chain, however we explained that it was more difficult to use it to determine whether

<sup>45</sup> [http://ec.europa.eu/information\\_society/policy/ecomm/doc/library/recomm\\_guidelines/nga/en.pdf](http://ec.europa.eu/information_society/policy/ecomm/doc/library/recomm_guidelines/nga/en.pdf) - European Commission, 20 September 2010

<sup>46</sup> [http://ec.europa.eu/information\\_society/policy/ecomm/doc/library/proposals/sec2007\\_1483\\_final.pdf](http://ec.europa.eu/information_society/policy/ecomm/doc/library/proposals/sec2007_1483_final.pdf)

physical access products and non-physical access products, which might be seen as different levels in the NGA value chain, could be regarded as part of a single market. For this reason we proposed to determine whether a non-physical access product could be regarded as part of the WLA market primarily on the basis of the characteristics of that product. We therefore identified a number of characteristics which a non-physical access product would need to possess in order to be considered a reasonable alternative to physical access and therefore as part of the WLA market. These characteristics have hitherto only been available with physical access products, but in our view this will not be the case in future.

3.59 The key characteristics we identified in order for a product to be considered to fall within the scope of the WLA market were set out in paragraph 3.135 of the consultation document as:

- *Localness*. The product should be available at a location close to the end customer. This mimics the inherent localness of existing local access remedies (LLU);
- *Minimum functionality incorporated*. Inherent capability of the access technology is made available and the service is undimensioned. Allows CPs to change and control the functionality and quality of service (“QoS”);
- *Service agnostic*. The product should not be confined to supporting particular downstream services, e.g., it should be able to support broadband internet access, narrowband voice, symmetric and asymmetric services (within confines of the inherent capability of the access technology); and
- *Dedicated capacity*. The capacity in the access segment (from the premise to the point of interconnection) should be dedicated to the end user, again similar to the case for LLU.

3.60 We noted that while these characteristics are at present all fulfilled by the currently mandated WLA products LLU and SLU which are both physical in nature, it is feasible that these product characteristics could be present in a non-physical product. Where this is the case we argued that operators would consider the physical and non-physical products to be broadly equivalent and alternative options to be used to provide downstream services. Therefore, we proposed that the relevant economic market in terms of fibre-based local access networks should not be limited to physical elements but should be expanded to include non-physical elements to the extent that any non-physical product exhibits the same underlying characteristics.

3.61 While non-physical access has a potentially very broad scope, we argued in the consultation document that there are a number of key differences between the underlying product characteristics of WLA compared to, say, the underlying product characteristics of the downstream WBA market. In terms of the product characteristics listed above, for WBA the key product characteristics are:

- *Aggregation*. The product tends to be highly aggregated such that CPs can pick it up at a relatively limited number of aggregation points;
- *Functionality more highly specified*. A WBA product will be more dimensioned when delivered to the CP, limiting the control of the functionality and QoS of the product;

- *Service specific.* A WBA product is configured to deliver asymmetric broadband internet access; and
  - *Shared capacity.* The capacity is shared between different end users.
- 3.62 As we argued in the consultation document, the differences in the underlying product characteristics and the conditions of competition and constraints between services meeting these characteristics, and those meeting the characteristics of WLA, are such that they are unlikely to be in the same relevant economic market. A wholesale purchaser of WBA is not likely to view WLA as an adequate alternative or vice versa, because of the differences in underlying product characteristics.
- 3.63 We stressed that the purpose of market definition is to help identify instances of SMP and develop appropriate remedies in response, and that an analysis of the vertical boundary has to be made in this context. With the deployment of BT's NGA network we argued that the economic bottleneck would shift such that physical wholesale access would only be feasible in certain areas (and it is not possible to identify which precise areas). This means that a remedy based solely on physical access may be insufficient to secure effective competition in the downstream markets.
- 3.64 As we acknowledged in the consultation document, our view is a slight departure from that contained in the ERG's NGA Common Position and its subsequent Report on NGA, which argued that a market boundary based on the physicality of networks remained valid. However, we considered this departure to be appropriate and, as referenced above, we also note that the Commission has recently accepted a role for non-physical access in the WLA market.

### Summary and analysis of consultation responses

- 3.65 Sky, BT and TalkTalk Group ("TTG") explicitly stated that they agreed with the vertical boundary in our proposed product market definition. About a dozen other respondents expressed general agreement with our overall product definition, which includes our proposals on the vertical boundary.
- 3.66 The Commission did not contest our view that a non-physical product that offered purchasers a sufficient degree of control could fall within Market 4. However, the Commission urged us to monitor developments of how BT meets its VULA requirements to ensure it has the characteristics we identified. We discuss this issue in more detail in Section 8 below.
- 3.67 C&WW, Rutland Telecom, O<sub>2</sub> and one confidential respondent did not explicitly state in their comments on the product market definition that a VULA-type product could legitimately be regarded as falling within market 4, but did accept elsewhere in their responses that such a product could form the basis of appropriate remedy in the WLA market, which may suggest agreement with our definition for the vertical boundary.
- 3.68 Some respondents disagreed with our conclusions. Corning argued that we had not made the case that physical and non-physical access can be regarded as demand- or supply-side substitutes. It took the view that demand and supply characteristics had remained unchanged, even if some access products would be more difficult to employ in the future, and that physical and non-physical access must be kept distinct.
- 3.69 FTTH Council Europe stated that we are proposing to merge markets 4 and 5 to some degree and argued that this can only occur where virtual access is functionally

equivalent to physical access (as in wavelength unbundling). It argued that such equivalence should be identified by reference to a demand and supply assessment, which we had failed to do. Geo acknowledged that a VULA product could have a transitional role in NGA regulation but questioned whether it should be in market 4 or market 5.

- 3.70 With regard to the responses by Corning and FTTH Council Europe, we would stress that in setting our vertical boundary we neither concluded that virtual access in general is included in market 4 or that a VULA product on its own is a sufficient remedy for SMP in market 4. Our analysis looked only at where the boundary between the two markets lies and concluded that a virtual access product *with certain characteristics* could be viewed as falling within market 4. We discuss in the remedies sections of this statement that a VULA product is only part of the set of remedies to address SMP.
- 3.71 Many respondents, including Sky and O<sub>2</sub>, acknowledged a role for a VULA product and accepted that this could fall within market 4 but raised concerns about BT's specific GEA product, including for example, the issue of contention and control of customer premises equipment ("CPE"). We address these in Section 8 of this document.

### **Conclusions on the relevant vertical wholesale market boundary**

- 3.72 Taking the factors above into account, and the views of respondents, we maintain the view it is necessary and appropriate to broaden the definition of the WLA market to include non-physical elements in order to secure adequate competition in retail broadband markets, while ensuring a consistent approach with the EU framework. However, as noted, the underlying characteristics of non-physical products included within the market should be closely aligned with the underlying characteristics of physical products, as set out above.

## **Wholesale geographic market definition**

### **Consultation proposals**

- 3.73 In the consultation document we proposed two geographic markets:
- The UK excluding the Hull Area; and
  - The Hull Area.
- 3.74 In the UK excluding Hull, we proposed a single market for wholesale local access on the basis that BT would be likely to adopt uniform pricing (at the retail and wholesale levels) regardless of the local characteristics of the market.
- 3.75 As set out in Annex 3 below, we considered that we should not use a standard hypothetical monopolist test (or SSNIP test) to define geographic markets in WLA. This is because the test works by identifying whether customers would substitute (i.e., move) to other geographic areas (demand-side substitution) in the face of such a price rise and also whether any firms supplying different products would begin to supply in the geographic area in question (supply-side substitution) as a result of the price increase. Since opportunities for demand and supply side substitution are limited, this approach would lead to the definition of very narrow markets which are unlikely to be practical to analyse or be representative of competitive constraints that exist.

- 3.76 Instead we considered whether geographic markets should be defined on the basis of the presence of common pricing constraints. In considering the possibility of uniform pricing, we noted that the Commission's modified Greenfield approach required us to consider BT's behaviour in a hypothetical world in which all SMP based regulation is absent. Consequently we attempted to identify the underlying incentives that BT would face in that scenario when making its decision to adopt local or national pricing.
- 3.77 First we noted that where BT has adopted local pricing it has been in response to relatively intense levels of competition, not the presence of a single competitor and never in response to cable infrastructure alone. We could not be definitive about what pricing would emerge in a WLA market where wholesale products were voluntarily offered and there was no obligation to offer these at a nationally uniform price. However, consideration of other markets appears to support the case that it is most likely that if BT were faced with competition only from Virgin Media as the cable access operator, it would maintain a policy of national pricing. Indeed there was little, if any, evidence to suggest that BT would introduce local pricing.
- 3.78 Considering the underlying incentives further, we identified a number of reasons why BT would find it profitable to adopt national pricing at the retail and wholesale levels:
- The Universal Service Obligation ("USO") imposes uniform pricing for voice services at the retail level. As WLA is a wholesale input for voice services, we argued that to the extent that supply is voluntary and BT makes WLA generally available then a requirement for the retail price to be geographically uniform will tend to be reflected in a price for WLA which is also geographically uniform. This is because where supply is voluntary, the WLA price is likely to be set at the level of the retail price minus the costs BT saves by not retailing the product itself, as noted in paragraph 3.32 above. To the extent that these saved costs are uniform, this means that a geographically uniform retail price will tend to be reflected in a geographically uniform WLA price.
  - Menu costs. It is likely to be costly to maintain multiple sets of prices, especially as this makes it harder to achieve economies of scale in marketing and promotion. It may also be damaging to brand reputation to charge more simply on the basis that certain customers have less opportunity to switch.
  - Strategic effects. Recent research has highlighted that national pricing by a firm that has a monopoly position in one region of a country may soften competition in competitive areas<sup>47</sup>. BT may prefer uniform pricing since it commits BT to price less aggressively than it otherwise would within areas where there is some competition, such as those where cable is present. This commitment can induce rivals to price less aggressively.
- 3.79 The full details of our proposals on geographic market definition are provided in the consultation document<sup>48</sup>.

<sup>47</sup> For a detailed discussion on this point, see Dobson and Waterson (2008) "Chain Store Competition: Customized vs. Uniform Pricing", *Warwick Economic Research Papers*. Referring to evidence gathered as part of the Competition Commission investigation into grocery retailing, the authors note that supermarkets adopt national pricing despite local variations in cost and competition. They note that a commitment to national pricing (which is essential for its strategic use) can be supported from concerns about brand image.

<sup>48</sup> Paragraphs 3.53-3.87 cover our general methodology for market definition, and paragraphs 3.146-3.196 cover our proposals on geographic market definition.

## Summary and analysis of consultation responses

- 3.80 There was broad agreement with our proposal to define a national market for WLA (excluding Hull). Where concerns were raised, these were mainly that a common national pricing constraint was weaker than we had proposed, and that there should be sub-national markets relating to different CPs and competitive conditions. Below, we summarise these issues and our decisions on them.
- 3.81 On our analysis of the potential common pricing constraint and the likelihood of uniform pricing at the retail level, BT said that our reasoning might be correct in the sense of being a hypothesis that is “more likely than not” to be right, but that it fell short of providing a concrete economic basis for a national market definition.
- 3.82 In the case of the WLA market, we are seeking to define the geographic scope of a notional market. This means that we need to abstract from SMP-derived regulation already imposed at the level or downstream of the market being reviewed. Because the wholesale market is notional in our analysis, competition can only be assumed to take place at the retail level. Therefore, the consideration of constraints has to be derived from the retail level. This means that by construct when we consider constraints at the wholesale level, we are considering a hypothetical situation, which means it is not possible to be incontrovertibly definitive in our conclusions. Nevertheless, in the consultation document we carefully considered the characteristics of the market and incentives facing the relevant firms in taking a view on the implications for market definition. We consider that this provides a robust economic basis for a national market definition.
- 3.83 On our assessment of BT's pricing behaviour (set out in paragraph 3.78 above), BT said that where it has been subject to more modest levels of competition, it has tended to be regulated and thus subject to requirements not to discriminate. BT argued that this meant that de-averaging prices has often required a regulatory justification, such as that provided for WBA.
- 3.84 This is an issue that we took into account in our analysis for the consultation document, and for the reason that BT outlines, we decided to look at the wholesale business connectivity and WBA markets where BT has flexibility to set its wholesale charges. In the consultation document, we provided evidence that where BT has voluntarily introduced local pricing it has done so in response to fairly intense competition from multiple alternative operators. BT has not introduced local pricing in response to more modest levels of competition. In particular, there is no observable instance where it has done so in the face of competition only from alternative cable infrastructure. We noted that it is most likely that faced with competition only from Virgin Media as the cable access operator, BT would maintain a policy of national pricing. Our view on this issue remains the same. Therefore, we do not consider that BT's comment in this area provides an effective counter-argument to our analysis.
- 3.85 BT also said that Openreach is a relatively new business, and that the setting of prices which are varied according to the degree of competition has not been a priority. Considerations such as these have tended to create an expectation that BT offers uniform prices throughout the UK. Therefore, whilst accepting that past behaviour is a likely guide to likely future behaviour, BT stated that it must be recognised that this behaviour has not been in the absence of regulation, nor is it necessarily an accurate guide to future approaches to pricing.
- 3.86 We acknowledge that it is possible that in the future BT may decide to adopt local pricing. If relevant, we will factor this in to any future analysis on geographic market

definition. However, in the absence of any evidence of this occurring over the forward look period relevant to this review, it would be inappropriate to take this possibility into account in this market review. We also consider that BT's comment that local pricing has not been a priority implies that the benefits of adopting local pricing are likely to be relatively low compared to the costs. This could be argued to reinforce the view that in the absence of regulation, it is likely that a policy of national uniform pricing would be maintained.

- 3.87 On the link between our proposed geographic market definition and OCPs, BT argued that even if the market is national in character for BT, this did not imply that it is also national for OCPs. BT went on to say that it would be more reasonable to state that "BT's position should be viewed on a national basis", and that this would not then preclude us from considering local markets as the need arises from time to time, and would allow us to define "new build" as a separate part of the WLA market.
- 3.88 On the basis of the evidence available at the time of this market review, we do not consider that it would be appropriate to define new-build markets. We have defined two geographic markets: the UK area the Hull area, and the Hull area, for the reasons outlined above.
- 3.89 We note BT's concerns about new build developments in areas where BT is not present. However, we do not consider that WLA geographic market definitions should or indeed can 'dynamically' adjust between market reviews in response to new build developments. We do not consider that it would be proportionate to immediately impose remedies in new build areas, as the future evolution of competition in those areas would not be clear at the time of deployment. We have, however, set out certain expectations about the forms of access that should be available in new build developments (see Section 9). We would take into account the possible impact of new-build developments on market definition in future market reviews.
- 3.90 Mr P Thomson also thought that we should define three separate geographic markets: Hull, Virgin Media cable areas and the rest of the UK. He argued that areas with Virgin Media cable are different to those without it, because they have two existing and competing wired local access networks. He suggested that an alternative view might be the market definition used in wholesale broadband access.
- 3.91 As discussed above, we consider that there is a common pricing constraint that indicates that the WLA market is national in scope. This methodology is consistent with the ERG Common Position. As set out in the consultation document, this finding of a common pricing constraint is based on analysis of BT's past pricing behaviour and the impact of the USO, menu costs and strategic effects. However, as noted in the consultation document, we do recognise that the market exhibits local characteristics.
- 3.92 The FTTH Council stated that it believes that different remedies are required in different geographic areas. It also said that we should "geographically isolate" areas where the prospects for physical competition are greater from those areas where such prospects are not so great. It said that the analysis presented is too static and is based on what has happened in the past. Instead it suggested that the assessment should be more forward looking and that there could be a stronger correlation between the treatment of geographic markets in this market analysis and the treatment of geographic markets in the State Aid Guidelines. Corning also made the same points.

- 3.93 As stated above, our finding of a common pricing constraint suggests that the market is national in scope, although we do recognise that the market exhibits local characteristics. We also recognise that there may be substantial developments in NGA deployment in the near future, and will keep these developments under review. In future market reviews, we will take into account any developments when revisiting the question of whether a national market is still appropriate. Our approach to remedies is considered in Sections 5-8.
- 3.94 Vtesse said that in its view, we had not proposed “sufficient steps to overcome the barriers to provision in the ‘Final Third’<sup>49</sup>, and that these concerns mean that the Final Third constitutes a separate market.
- 3.95 Again, our finding of a common pricing constraint suggests that the market is national in scope and therefore that the “Final Third” does not constitute a separate market. However, as noted above, we recognise that the market exhibits local characteristics.
- 3.96 On our proposal to define a WLA geographic market for the Hull Area, Hull City Council said that it agreed with our proposed geographic market definition in principle, but that the relationship between the Hull market area and surrounding BT areas needs to be examined. Vtesse also said that the Hull geographic area should include the market consisting of Leeds and Hull, as KCOM’s bottleneck applies not only to the geographic market of greater Hull, but also to all services originating within Hull, but terminating outside that geographic area. Vtesse termed this the “Hull Transit” market.
- 3.97 However, the purpose of this market review is to assess the market for wholesale access, not other products such as transit, which would be covered in other market reviews. In particular, in the wholesale fixed narrowband review, we analysed transit services and found that KCOM had SMP in the Hull Area in the following markets: exchange lines, call origination and fixed geographic call termination<sup>50</sup>. CPs can, of course, request new access products under KCOM’s general access obligation if they consider that such products fit within the WLA market.
- 3.98 On the issue of whether we should take a “sub-national approach”, BT stated that while such an approach may not be necessary today, this is an area in which we may need future flexibility as geographic differences become more pronounced. KCOM also cautioned that NGA deployment is an area that should be kept under close review, and that no assumptions should be made that our current analysis of the Hull market will hold over the period of the review. Similarly, David Hall Systems noted the possibility that local characteristics may become more significant in the future. C&WW also said that it was not clear how we planned to apply the existence of “local characteristics” when applying remedies within this market review or subsequently in future market reviews.
- 3.99 As noted above, we agree that the WLA market is national in scope, but that it exhibits local characteristics. Our conclusion that it exhibits local characteristics reflects the fact that Virgin Media is present on a sub-national basis. We recognise that there may be substantial developments in NGA deployment in the near future, and will keep these developments under review. In future market reviews, we will

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<sup>49</sup> The “Final Third” is usually used to describe areas of the country where NGA roll-out may not be commercially viable. Vtesse define it in their response as “those areas of the UK that currently get poor broadband and are unlikely, according to the Digital Britain report, to get super-fast broadband without intervention”

<sup>50</sup> [http://stakeholders.ofcom.org.uk/consultations/wnmr\\_statement\\_consultation/summary](http://stakeholders.ofcom.org.uk/consultations/wnmr_statement_consultation/summary)

take into account any developments when revisiting the question of whether a national market is still appropriate.

## Conclusions

- 3.100 In conclusion, our consideration of the responses does not change the position outlined in the consultation document. While it is not possible to state that there could never be geographic variations in prices in the WLA market, it is our view that there is a reasonable presumption that a common pricing constraint would exist in the WLA market and that a national market (excluding Hull) can be defined on this basis.
- 3.101 Consequently we do not consider that it is necessary for us to conduct a detailed geographic analysis based on identifying areas of competitive homogeneity. However, we recognise that Virgin Media is present in the market only on a sub-national basis, i.e., in its cable footprint. Therefore, while we consider that the market is national in scope, it nevertheless exhibits local characteristics. Based on the above analysis, we conclude that the following WLA geographic markets exist:
- the United Kingdom, excluding the Hull Area; and
  - the Hull Area.

## Summary of market definition decisions

- 3.102 In summary, we have defined the scope of the relevant WLA market as including loop-based, cable-based and fibre-based local access at a fixed location. It excludes mobile-based, fixed wireless-based and satellite-based WLA. In addition we have included self supply in this definition, and have a single market for WLA connections which are used for business and residential use. As stated above, we have also concluded that there are two geographic WLA markets.
- 3.103 Throughout our market definition analysis we have been particularly aware of the need to ensure that our market definitions fully take into account market developments expected over the next four years. In terms of the product market, this particularly concerns the upgrades of Virgin Media's cable local access network and BT's local access network to enable these to provide higher-speed services. We have also particularly considered this issue in respect of developments in alternative access technologies - such as mobile, fixed wireless and satellite – which we consider will continue to be outside the WLA market over the four-year forward look period that we have used for this review.
- 3.104 Our geographic market definition also takes into account how we envisage forthcoming market developments. The nature of local access networks means that there is likely to be very little change in the geographic nature of competition. Therefore, we consider that a national market, albeit with local characteristics, will remain the appropriate conclusion over the four-year forward look period used in this review.

## Relationship between the wholesale market definition and the Commission's Recommendation on product and service markets

- 3.105 The Commission's Recommendation on Markets define the WLA market as being:

- “wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location”

3.106 As we set out above in our discussion of the relationship between WLA and WBA, the Commission’s EM acknowledges that the wholesale market definitions may need to evolve and adapt to network changes such as NGA deployment. Therefore, whilst our market definition includes non-physical elements for which key underlying product characteristics are present, we consider that this definition is consistent with the approach set out by the Commission in the Recommendation on Markets and the accompanying EM.

3.107 The European Commission has considered the proposed market definition in the consultation document, as notified to it on 23 March 2010. The Commission’s response to our proposals accepted that VULA, whilst being a non-physical remedy, could reasonably be included at this point in the UK’s WLA market, given the way in which that product is specified. Most other consultation respondents also considered VULA to be a valid remedy for this market (as discussed further in Section 8). The NGA Recommendation, published in September 2010, also provides for non-physical remedies (see paragraph 3.53 above). We therefore maintain our view that our final market definition is consistent with the Recommendation on Markets and the EM.

3.108 We will, of course, need to revisit this issue in future market reviews. In doing so, we will need to consider how the different prospective remedies are specified at that time.

## Section 4

# Market power assessment

## Introduction

- 4.1 Market definition is not an end in itself. The definition of the relevant economic market is carried out in order to identify the products and the geographic area over which an assessment can be made of operators' ability to act to an appreciable extent independently of competitors, customers and consumers, i.e., whether there are any operators that hold a position of SMP within a particular market.
- 4.2 In this section we set out our conclusions on the market position of CPs in each of the relevant markets defined in Section 3. That is, we consider whether any operator in those markets is individually or jointly dominant, and where competition law remedies are insufficient to address the problems identified in our analysis<sup>51</sup>.
- 4.3 Section 4 of the consultation document set out the approach that we took in producing our proposals on market power. We have maintained the same approach in reaching our final conclusions. Namely, in assessing whether an undertaking has SMP on the relevant markets defined above, we have taken utmost account of the SMP Guidelines and we have also considered the application of the relevant Oftel Guidelines<sup>52</sup> and the ERG working paper on SMP<sup>53</sup>.
- 4.4 The SMP Guidelines and the ERG working paper identify criteria for the assessment of SMP. From these, in the consultation document we identified the following criteria as being particularly relevant to our analysis of the WLA market: market shares; barriers to entry and expansion; economies of scale and scope; and countervailing buyer power. We also identified a number of other criteria as somewhat relevant to the assessment of SMP in WLA markets, recognising that there is significant overlap between these and the former criteria.

## Market power assessment for the United Kingdom excluding Hull

### Consultation proposals

- 4.5 We proposed that BT has SMP in the WLA market in the UK excluding the Hull Area. In making this proposal, we first considered the evidence of market power based on market shares. Given our finding that the market is national, national market shares are the correct ones to use to assess market power.
- 4.6 Based on information received through requests to relevant operators, we estimated BT's and Virgin Media's market shares of the UK (excluding Hull) to be 84 per cent and 16 per cent respectively. A market share of 84 per cent creates a clear presumption that BT has market power.

<sup>51</sup> An undertaking will be deemed to have SMP 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.

<sup>52</sup> *Oftel's market review guidelines* -

[www.ofcom.org.uk/static/archive/oftel/publications/about\\_oftel/2002/smpg0802.htm](http://www.ofcom.org.uk/static/archive/oftel/publications/about_oftel/2002/smpg0802.htm)

<sup>53</sup> [http://www.erg.eu.int/doc/publications/public\\_hearing\\_concept\\_smp/erg\\_03\\_09rev3\\_smp\\_common\\_concept.pdf](http://www.erg.eu.int/doc/publications/public_hearing_concept_smp/erg_03_09rev3_smp_common_concept.pdf)

- 4.7 These market shares were based on the percentage of active lines which means that BT lines used by LLUOs are included in BT's market share.
- 4.8 It is possible that, in the absence of regulation of the WLA market, LLU-based entry would not have occurred and Virgin Media could then have won some additional market share currently taken by LLUOs. This would have reduced BT's share of the WLA market to some extent. However, we noted that Virgin's market share has not changed significantly since 2004, despite the growth of LLU in this period. This tends to suggest that Virgin's share might not have been markedly higher even if LLU-based entry had not occurred, although clearly it is not possible to be definitive about what would have happened in the absence of LLU. Moreover, even if we assumed that Virgin Media could have captured significantly more of the market in cable areas, BT would still have retained a dominant share of the national market. For example, even if Virgin were to take two thirds of the market in cable areas, BT's share of the national market would still have been 66 per cent.
- 4.9 We did not expect any significant changes over the next four years that would affect our conclusions regarding BT's position in the market since, as noted above, the market share for the cable network has not shown any significant change since the last market review in 2004, and the cable network is currently limited to around half of the country.
- 4.10 Further, we regard it as clear that Virgin Media does not have SMP in the market. Virgin Media's current market share is 16 per cent and, even allowing for the possibility that this could have been somewhat higher in the absence of LLU, it is well below the level at which a firm can be considered to have market power. Because the market is national, it is the national market shares that give the best indication of market power. In particular national market shares indicate the extent to which BT would feel constrained by Virgin Media when setting prices.
- 4.11 We rejected the possibility of there being joint dominance between BT and Virgin Media in the UK excluding the Hull area. This was because BT is significantly larger than Virgin Media on a market share basis, and the latter is present in only around half the country, so we did not consider that there was any realistic chance that joint dominance existed in the market. Given its relative size and its coverage, we considered that Virgin Media could pose no threat to the majority of BT's customer base and as a result Virgin Media would have little ability to induce cooperation through the implicit threat of a price war. Given the absence of an effective punishment mechanism to induce cooperation from BT, the scope for joint dominance disappears and it is not necessary to consider additional factors such as price transparency, countervailing buyer power or the threat of entry.
- 4.12 We also considered the possibility for new entry to constrain operators, and proposed that BT's lead in terms of market share is sustained by significant barriers to entry and expansion. The size of the investment necessary to construct a local access network, and the associated risk, make it unlikely that BT would be constrained by new entrants or the threat of new entry. During our analysis for the consultation document we did not find evidence of significant new investment in local access networks.
- 4.13 Furthermore, we considered that countervailing buyer power would not constrain BT's market power in this market. A purchaser of WLA would need to build its own infrastructure to connect to that of the access provider and once that was done, switching to another provider would be difficult. Existing wholesale purchasers (LLU operators) have already built their networks to connect with BT and switching to a

cable access product would be difficult. In the absence of SMP regulation, it seems possible that neither BT nor Virgin Media would offer a WLA product to third parties. Were they to do so, an entirely new purchaser buying WLA products in the cable area could have some degree of buyer power where it could bargain simultaneously with both BT and Virgin Media. However, we were not aware of any such purchaser emerging and hence we considered that this did not affect our analysis.

- 4.14 We also considered various other factors relevant to some degree for an SMP assessment, including: overall size of the undertaking, control of infrastructure that is not easily duplicated, technological advantages or superiority, easy or privileged access to capital markets, product/service diversification, economies of scale, economies of scope and vertical integration.
- 4.15 Consideration of the above criteria highlighted certain advantages that Virgin Media and BT might have in the WLA market: the former with respect to its upgraded network and superior ability to offer bundles at the retail level, the latter with respect to its national network and greater size. In evaluating the net effects of these, we noted that the advantages possessed by both Virgin Media and BT ought to be reflected, to a large degree, in their current market shares, and hence are already partially captured in the market shares analysis. In addition, our analysis of the product market suggested that Virgin Media's and BT's products are regarded as good substitutes by a significant proportion of customers at the retail level.
- 4.16 BT's ability to spread fixed costs over its national network may give it a cost advantage when investing in various centralised activities such as marketing and also, potentially, lower production costs. This would increase BT's ability to act independently of Virgin Media.
- 4.17 Overall, having applied the criteria, in the consultation document we considered that BT's market share was strong evidence of SMP and that there were no features of the market that would overturn or modify the proposed conclusions that derived from our market share analysis.

### Summary and analysis of consultation responses

- 4.18 Most respondents agreed with our proposals on market power, although as in the case of market definition, some respondents cautioned that there may be changes over time that would require us to revisit our analysis. Specific concerns with our market power proposals are summarised below.
- 4.19 BT said that we had failed to assess how much market power BT would have in the absence of its obligations (under the USO) to serve uneconomic areas and to provide LLU. BT said that this approach could give an exaggerated view of BT's actual market strength. BT suggested that Virgin Media would have won market share at the expense of BT in the absence of significant LLU take up.
- 4.20 As we stated in the consultation document, the Commission's framework for market reviews requires the adoption of a 'modified Greenfield approach' meaning that existing SMP remedies that apply to the market under consideration, or to those markets downstream, should be set aside. Consistent with this, in the consultation document we considered the effect of BT's obligation to provide LLU and the possible impact of that on Virgin Media's market share<sup>54</sup>. As set out in paragraphs 4.8–4.9, we considered that BT would be by far the largest firm in terms of market

<sup>54</sup> See paragraphs 4.23-4.26 of the consultation document

share, even assuming that downstream competition with LLU operators limited Virgin Media's market share.

- 4.21 On the issue of uneconomic areas in general, we consider that BT's USO obligation is separate from existing SMP remedies, and therefore should not be "set aside" in taking the modified Greenfield approach to market power assessment. However, even in the absence of a USO, it is not clear that BT's market share would necessarily be lower. For example, BT might , choose to charge higher prices to some customers which it currently regards as uneconomic , rather than simply refusing to supply them, without necessarily reducing its market share. BT would clearly benefit from the additional pricing flexibility<sup>55</sup>,
- 4.22 BT said that the methodology used to define a national geographic market is based on BT's footprint and hence understates Virgin Media's market power in its sizeable footprint. On a similar note, Mr P Thompson doubted that BT has SMP in Virgin Media cable areas, as he said that Virgin Media has about half of the local access connections in cabled areas. However, as we consider the market is national (excluding Hull), we have assessed SMP in the national market. For the reasons given above, we consider that BT has SMP in the broad UK market (excluding Hull) that we have defined. In any case, as we note in the consultation document, even when considered on a stand-alone basis, market shares in the cable area suggest that BT is in a strong position relative to Virgin Media<sup>56</sup>.
- 4.23 BT also said that our methodology did not make allowance for new build by OCPs (or developers) which means that BT is assessed to have SMP even where it does not own any access infrastructure. Clearly, BT's SMP obligations are contingent on it having access infrastructure in place. We discuss areas where OCPs have access infrastructure, and our expectations about the forms of access in such cases, in Section 9 below.
- 4.24 On the issue of future changes, BT said that we are unduly focused on existing coverage by CPs and has assumed that coverage will not materially change in the future. On a similar note, David Hall Systems said that whilst it generally agreed with our proposals, the situation regarding BT's SMP could change and that a flexible approach should be adopted to prevent future difficulties developing. In the consultation document, we considered possible future developments as part of our analysis of barriers to entry<sup>57</sup>. We noted that NGA roll-out by a firm other than Virgin Media or BT was a possibility, but that it was unlikely without supporting regulation allowing access to incumbents' infrastructure. We will of course continue to monitor future developments, and any relevant developments, including new-build (as set out above), will be taken into account in future market reviews. We note Virgin Media's plans for further NGA roll-out, but at this stage consider that it is unlikely to have a material impact on market shares or our SMP analysis.
- 4.25 BT also appeared to suggest that SMP findings should not apply to the same degree in areas where BT does not have available duct capacity. BT said that a proper assessment of SMP should at least consider the capacity for giving access to Virgin Media's ducts. However, the degree to which an operator has spare duct and pole capacity is not a criterion for assessing SMP. It could be part of the evidence when

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<sup>55</sup> As we note elsewhere, BT is likely to wish to maintain a general policy of uniform geographic pricing, but this would not necessarily preclude the charging of higher prices to small numbers of customers regarded as particularly high-cost.

<sup>56</sup> See paragraph 4.26 of the consultation document

<sup>57</sup> See paragraphs 4.32-4.33 of the consultation document

assessing SMP remedies, but only for CPs that have SMP, which we have decided excludes Virgin Media. It would clearly be inappropriate to assess the case for imposing SMP remedies on non-SMP providers. We discuss duct access issues further in Sections 6 to 8.

- 4.26 BT said that mobile networks cannot be dismissed as irrelevant in assessing the degree of market power. In Annex 8 to the consultation document, we analysed the potential constraint of mobile<sup>58</sup>. Our research indicated that neither business nor residential customers were likely to give up their fixed access line in response to a SSNIP. As set out in paragraph 3.15 above, results from market research suggested that mobile broadband access did not place an effective constraint on fixed access, due to customers' experience and perception of the relative technical capabilities of the mobile broadband access compared to fixed broadband access. As such, mobile broadband access is considered predominantly as complementary to existing fixed broadband services. Furthermore, even with the significant technological developments in the mobile market we did not consider that this conclusion will change appreciably over the forward look period relevant to this review.
- 4.27 We therefore considered that mobile broadband access was unlikely to act as a sufficient constraint on fixed broadband pricing at the retail level, and should therefore be excluded from our product market definition. This suggests that mobile broadband access would not be an adequate substitute for most people and would not constrain prices of fixed broadband to the competitive level. We maintain this view, and therefore conclude that developments in mobile broadband access at this time should not be considered in our SMP analysis.
- 4.28 Rutland Telecom said that it agreed with our SMP proposals but that it would like to see greater consideration of the implications of BT's FTTC/NGA deployments for competition with SLU. However, the Commission's framework for market reviews requires the adoption of a 'modified Greenfield approach'. This means that our SMP analysis needs to set aside any existing SMP remedies that apply to the market under consideration or to markets downstream of it. This means that our assessment of market definition and SMP should not assume that SLU is being provided. However, we do consider issues with SLU remedies in Section 6 below.

## Conclusions

- 4.29 In conclusion, our consideration of the responses does not change the position outlined in the consultation document. We consider that BT has SMP in the WLA market in the UK, excluding the Hull Area. The ability of Virgin Media (the only other significant operator in the WLA market, outside the Hull area) to constrain BT is limited by the fact that its footprint only covers around half of the country. Based on this and the corresponding market share that BT has on a national basis we consider that BT is able to act to an appreciable extent independently of Virgin Media. We do not consider it likely that this will change during the forward look period covered by this review, since the potential for new entry is limited. While we understand that Virgin Media has plans to expand its network there is no certainty at present as to the scale and, in any case, we consider that it is unlikely to be of a large enough scale to make a significant impact on BT's national market share.

<sup>58</sup> See paragraphs A8.64-A8.69 of the consultation document. Paragraphs A8.19 – A8.22 discuss the substitutability of mobile and fixed access lines.

## Market power assessment for the Hull Area

### Consultation proposals

4.30 In the consultation document, we proposed that KCOM has SMP in the WLA market in the Hull Area, based on its monopoly position (100 per cent market share), the significant barriers to entry (stemming from the economies of scale and the risks associated with the large cost of building an access network) and the lack of buyer power (a purchaser of WLA inputs would have no option other than to purchase wholesale inputs from KCOM). Given the costs of investing in the Hull Area, we considered that it is not likely that this will change during the future period covered by this review. We were not aware of any firm plans by OCPs to invest in local access infrastructure in the Hull Area.

### Summary and analysis of consultation responses

4.31 Respondents generally agreed with our proposals on this issue. Only KCOM, Vtesse and Kingston upon Hill City Council provided detailed comments.

4.32 As with market definition, KCOM cautioned that the situation may change quickly in future, for example, it noted that plans for NGA deployments have accelerated significantly over the past year. We recognise that there may be substantial developments in NGA deployment in the near future, and will keep these developments under review. In future market reviews, we will take into account any developments when revisiting the questions of market definition and market power. However, on the basis of the evidence available to us at this time, our conclusion remains that KCOM has SMP in the Hull Area and that this is likely to remain the case for the forward look period relevant to this review.

4.33 Related to its concern about the market definition for the Hull Area, Vtesse said that KCOM has SMP in a "Hull Transit" market, which it defined as including services originating within Hull, but terminating outside that geographic area. As we set out in Section 3 above, the purpose of this market review is to assess the market for wholesale local access, not for other products such as transit, which would be covered in other market reviews. Also as noted in Section 3, in the wholesale fixed narrowband review, we analysed services including transit services and found that KCOM had SMP in the Hull Area in the following markets: exchange lines, call origination and fixed geographic call termination<sup>59</sup>. CPs can, of course, request new access products under KCOM's general access obligation if they consider that such products fit within the WLA market.

### Conclusions

4.34 For the reasons set out above, we maintain our view that KCOM has SMP in this market in the Hull Area. Given the costs of investing in the Hull Area, we consider that it is not likely that this will change during the forward look period covered by this review. We are not aware of any firm plans by OCPs to invest in local access infrastructure in the Hull Area. Indeed, responses to formal information requests to CPs in June 2010 on this issue confirmed that large competitors are not planning to enter the WLA market in Hull.

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<sup>59</sup> [http://stakeholders.ofcom.org.uk/consultations/wnmr\\_statement\\_consultation/summary](http://stakeholders.ofcom.org.uk/consultations/wnmr_statement_consultation/summary)

## Section 5

# General remedies

## The structure of our remedies decisions

- 5.1 This is the first of six sections that cover our decisions on SMP remedies. These sections are set out as follows:
- This section describes decisions on a number of general SMP remedies that do not involve specific access products (e.g., LLU). Such general remedies, including a requirement to provide reasonable network access, are often imposed on SMP providers and provide a set of basic rules for such CPs, to constrain their SMP;
  - Sections 6-8 cover our decisions on how each of the individual specific access products should supplement the general remedies;
  - Section 9 presents our decision on the combination of specific access remedies that should apply to BT. It also covers some related issues, including the approach towards non-SMP providers of WLA services, and how SMP regulations relate to public funding; and
  - Section 10 sets out how our decisions on specific access requirements meet the related legal tests for imposing these obligations.

## The legal background to SMP remedies

- 5.2 We set out in Annex 1 the relevant legal issues that we need to consider when we assess the introduction of potential SMP remedies. We have considered all of these requirements in presenting our analysis and decisions on remedies in Sections 6 to 8 of this document. Here we summarise some of the main issues.
- 5.3 The Framework Directive provides that *ex ante* regulation should be imposed only where there is not effective competition (i.e., where one or more providers has SMP) and where competition law remedies are not sufficient to address the perceived problem. We consider this issue in Section 6.
- 5.4 The SMP Guidelines state that NRAs must impose one or more SMP remedies on a dominant provider, and that it would be inconsistent with the objectives of the Framework Directive not to impose any SMP remedies on such a provider.
- 5.5 In assessing which SMP remedies are suitable, and in what form, we need to consider our duties under the Act. Section 3 of the Act sets out our general duties. Our principal duty, set out in section 3(1) of the Act, is to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate by promoting competition.
- 5.6 The Act also sets out the obligations that we can impose if we find that any undertaking has SMP, and the legal tests that each SMP remedy must meet. These legal tests are considered explicitly in this Sections 5 and 10 of this document. They include the requirements that SMP services conditions must be appropriate (section

87(1) of the Act). Also, SMP services conditions must satisfy the tests in section 47(2) of the Act. Those tests 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.

## Impact assessments

5.7 As set out in Annex 1, we are required to carry out an assessment of the prospective impact our proposals, as part of best practice policy-making. The analysis presented in the whole of this document represents an impact assessment, as defined in section 7 of the Act. The sections of the document that cover remedies particularly relate to this impact assessment.

5.8 We also have equality impact assessment (EIA) requirements, to assess the potential impacts of our decisions on race, disability and gender equality. It is not apparent to us that the outcome of our review is likely to have any particular impact in these respects. Nor have we seen a need to carry out separate EIAs in relation to race or gender equality or equality schemes under the Northern Ireland and Disability Equality Schemes. This is because we anticipate that our regulatory intervention will not have a differential impact on people of different gender or ethnicity, on consumers in Northern Ireland or on disabled consumers compared to consumers in general. Similarly, we have not made a distinction between consumers in different parts of the UK or between consumers in different income categories.

5.9 We set out this approach in the consultation document. No consultation respondents made substantive comments on that approach. We therefore conclude that it is a reasonable approach to take.

## Introduction to general remedies on BT and KCOM

5.10 In the consultation document we set out the general remedies that we considered necessary to address BT's and KCOM's proposed SMP in the WLA market. By general remedies, we mean ones that do not involve specific access products, such as LLU.

5.11 As outlined in Section 4, our view remains as set out in the consultation document: that BT has SMP in the WLA market in the UK excluding the Hull Area, and that KCOM holds a position of SMP in the Hull area. We consider that this is not likely to change in the four-year forward period covered by this review. As such, we consider that reliance on competition law alone would not address the competition concerns that we have identified in this market. It follows that our starting point when considering the various regulatory options is that some form of ex ante regulation must be imposed.

5.12 Where it is not feasible for competing providers to replicate a dominant provider's network, the most general remedy to address SMP is an obligation requiring a

dominant provider to make network access available to OCPs on reasonable request.

- 5.13 In addition to a network access obligation, a number of other complementary general access remedies can be imposed on SMP providers, where the market analysis identifies competition concerns that a general network access obligation alone would be insufficient to address. There is discretion in how these general remedies can be applied, but when taken together they are designed to provide a basic framework for dominant providers to follow, which constrains them from behaving in a way that would exploit their SMP.
- 5.14 Below we set out each of the SMP service conditions proposed in the consultation document, consider stakeholder responses for these proposals, and conclude on which obligations to apply to BT and KCOM.

## Requirement to provide network access on reasonable request

### Aim and effect of regulation

#### Consultation proposals

- 5.15 In the consultation document we proposed keeping the existing SMP obligation requiring BT and KCOM to provide network access to their networks to Third Parties upon reasonable request.
- 5.16 Section 87(3) of the Act authorises us to set SMP services conditions requiring the dominant provider to provide network access as we may from time to time direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to and for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions. When considering the imposition of such conditions in a particular case, we must have regard to the six factors set out in section 87(4) of the Act. These include, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access.
- 5.17 As our analysis in the consultation document and Section 4 of this statement shows, the level of investment required by a third party to replicate BT and KCOM's networks to build sufficiently large access networks to compete at this level is a significant barrier to entry. In our view an obligation requiring dominant providers to make access to their network facilities available to third parties on reasonable request would assist in promoting competition in downstream retail markets. We consider that in the absence of such a requirement, the dominant provider would have an incentive not to provide access to preserve its position of market power.
- 5.18 Network access is defined in sections 151(3) and (4) of the Act and includes interconnection services and/or any services or facilities or arrangements that would enable another CP to provide electronic communications services or electronic communication networks. We consider that a requirement to provide network access would, therefore, include any ancillary services as may be reasonably necessary for a Third Party to use the services<sup>60</sup>. Third Party has been defined as a person providing a public electronic communications network or a public electronic

<sup>60</sup> In the 2004 WLA market review we identified co-location as a technical area which the SMP obligations also applied

communications service, which captures OCPs who are seeking to compete against the dominant providers.

### Summary and analysis of consultation responses

- 5.19 The vast majority of respondents agreed with the proposals to require BT and KCOM to provide network access. BT commented that the requirement was subject to what was reasonable in each case. It said that any assessment of 'reasonableness' must take account of the alternative remedies available (including the new remedies of VULA and PIA) and proportionality. As part of this, it considered that the assessment of reasonableness should consider the impact on BT's investment incentives (given its NGA investment). Virgin Mobile agreed with this requirement, commenting that it was particularly important in the context of facilitating deployment and therefore competition in NGA services. It stated that the specific requirements in these obligations should be rigorously enforced, in relation to timing in particular.
- 5.20 We note these comments, but do not consider that they merit a change to our proposals. We agree that what is reasonable should be considered on the merits of each case, including by reference to the existence of other remedies and the costs and broader impacts of implementing those remedies. We do not consider that a substantive change in our approach to enforcement is needed, but would add that we set out clear timeframes for implementing PIA and expectations of developments in VULA to promote investment and competition at an early stage (see Sections 7 and 8 respectively).

### Conclusions

- 5.21 Having taken account of stakeholders' responses, and on the basis of the analysis set out in the consultation document and also outlined above, we remain of the view that maintaining the existing SMP obligation requiring BT and KCOM to provide network access to their networks to Third Parties upon reasonable request is appropriate.
- 5.22 This obligation is set out as Condition FAA1 and FBB1 for BT and KCOM respectively in our legal instrument in Annex 2 to this statement and would apply to the WLA markets in which we conclude that BT and KCOM have SMP.
- 5.23 The SMP condition also includes the power for us to make directions. This power would be used, where appropriate, to secure fairness and reasonableness in the terms, conditions and charges for providing third parties with network access. The condition includes a requirement for the dominant provider comply with any such directions, so any contravention of a direction may therefore result in a contravention of the condition itself and would then be subject to enforcement action under sections 94-104 of the Act.

### **Legal tests**

- 5.24 We are satisfied that that Conditions FAA1 and FBB1, for BT and KCOM respectively, at Annex 2 meets the various tests set out in the Act.
- 5.25 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition and the maximum benefits for customers of communications providers by facilitating the development of competition in downstream markets.

- 5.26 Second, section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The conditions are:
- objectively justifiable, in that it facilitates and encourages access to BT's and KCOM's networks and therefore promotes competition to the benefit of consumers;
  - not unduly discriminatory, as it will apply on both BT and KCOM and no other operator has been found to hold a position of SMP in these markets;
  - proportionate, since it is targeted at addressing the market power that we have concluded that BT and KCOM hold in these markets and does not require them to provide access if it is not technically feasible or reasonable; and
  - transparent in that the condition is clear in its intention to ensure that BT and KCOM provide access to their networks in order to facilitate effective competition.
- 5.27 Finally, we have taken into account the factors set out in section 87(4). In particular, we consider the condition is necessary for securing effective term competition in the long term, having considered the economic viability of building a local access network to achieve ubiquitous coverage that would make the provision of network access unnecessary and the technical feasibility of the proposed network access.

## Requests for new Network Access

### Aim and effect of regulation

#### Consultation proposals

- 5.28 The consultation document proposed keeping the substantive elements of the request for new network access condition (also known as the statement of requirements ("SOR")), consistent with our approach in the recent review of the wholesale narrowband market review. This requirement is an accompaniment to the obligation on BT to meet all reasonable requests for new network access (effectively requests for new products). The consultation document also proposed extending the request for new network access so that it applies with respect to KCOM in the Hull Area.
- 5.29 In the consultation document, consistent with what we said in the 2004 WLA market review, we said that regulation was considered appropriate to give OCPs clarity and certainty about the process for requests for new network access and also to allow BT to set a reasonable standard for requests and reject inadequate requests. We said it would also assist in dispute resolution as the nature of disputes would be clearer.
- 5.30 We considered that requests for new network access should cover modifications of existing network access<sup>61</sup> and completely new forms of network access.
- 5.31 In the consultation document, we noted that the existing condition requiring BT to provide new network access ([FA8]) was detailed and prescriptive, reflecting our concerns (when it was imposed) to give the industry greater certainty about timings and to minimise the potential for delays by BT.

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<sup>61</sup> This did not extend to general requests for modifications not associated with specific requests for network access, such as requests to modify general contractual terms, but did cover requests for a new pricing structure or the provision of certain billing information.

- 5.32 Since 2004 the SOR process has been formalised through BT's Undertakings and it applies to both Openreach and BT Wholesale. The processes have been further developed over time with industry input and a working group is in place to propose more improvements to the SOR process as appropriate.
- 5.33 Rather than re-impose the existing condition FA8, the consultation document proposed adopting the form of new network access condition applied to BT in the wholesale narrowband market review in 2009. The proposed Conditions FAA2 and FBB2, for BT and KCOM respectively, were similar to the existing condition in that they allow BT and KCOM to develop the SOR in line with a number of principles, but they did not prescribe specific timings for the process.
- 5.34 We proposed a form of new network access condition that would require BT and KCOM to have in place, and follow for each SOR, an SOR process which:
- is documented end-to-end and this documentation is available to CPs;
  - has reasonable timescales for each stage of the process;
  - clearly identifies the criteria by which a SOR would be judged;
  - sets out the information that should be provided in order for an SOR to be accepted; and
  - involves changes being agreed between BT/KCOM and industry.
- 5.35 While we considered that the SOR process set out in FA8 and Annex 3 of the 2004 WLA Statement also meets these criteria, our view is that taking a more general approach, as in FAA2 and FBB2, allows changes to be made to the existing process as needed, where these changes are agreed by industry and BT/KCOM.
- 5.36 We expressed the view in the consultation document that the current and anticipated level of demand for new network access in the Hull Area was likely to be limited, as was the case in the last review. However, we observed a greater general level of interest from a range of OCPs for new networks and emerging services. We therefore considered that it is justified to require KCOM to create an SOR process, which may assist the development of new network access in the Hull Area. KCOM would have discretion in developing a process according to the principles in the condition (and it could also draw upon the existing SOR established by BT).

### Summary and analysis of consultation responses

- 5.37 Only a limited number of respondents commented on this point, and all of those welcomed these proposals. Virgin Mobile agreed with this requirement, commenting that it was particularly important in the context of facilitating deployment and therefore competition in NGA services. It stated that the specific requirements in these obligations should be rigorously enforced, in relation to timing in particular. In response, we do not consider that a substantive change in our approach to enforcement is needed, but we recognise that NGA developments would form an important backdrop for any enforcement action under this obligation.
- 5.38 In relation to extending the obligation to KCOM, we discuss our decisions on the regulation of KCOM in paragraphs 9.71 to 9.88 below. In summary, most of those that responded supported our approach on regulation to KCOM, including imposing this new general access obligation on it. KCOM itself welcomed our proposal to

impose only a general access remedy on it, on the basis that this recognised that the specific access remedies proposed for BT may not be appropriate or effective in the Hull market. There were some respondents, including Hull City Council, who thought that the obligations on KCOM did not go far enough. These comments are considered in Section 9. We conclude there that it would be disproportionate to require KCOM to invest in developing specific access products, as it seems unlikely at this point that they would be taken up. However, we have decided to impose the New Network Access requirement on KCOM, to assist entry into the Hull market. As set out in Section 9, we think that it would be reasonable to expect such changes to be implemented and a process published within three months of this statement.

5.39 We therefore have decided to apply the requirements proposed in the consultation document.

### Legal tests

5.40 Section 87(3) of the Act authorises the setting of SMP services conditions in relation to the provision of network access. We consider that that under section 87(5)(a), the condition would assist in securing fairness and reasonableness in the way in which requests for new network access are made and responded to.

5.41 Having considered our duties under section 3 of the Act and the Community requirements set out in section 4 of the Act, we consider that that Conditions FAA2 and FBB2, for BT and KCOM respectively, meet the requirements. Specifically, they address the requirement set out in section 4(8), as they have the purpose of securing efficient and sustainable competition in the markets reviewed.

5.42 We also consider that Conditions FAA2 and FBB2 meet the criteria set out in section 47(2) of the Act. The Conditions are:

- objectively justifiable as it recognises that a process for handling new requests is needed but that the obligation should be flexible to allow for process improvements to be adopted as agreed between BT/KCOM and industry;
- not unduly discriminatory as it only applies to providers with SMP;
- proportionate as it continues to provide a SOR process based on the currently implemented process, while allowing scope for industry to be involved in agreeing process improvements and in the case of KCOM it would not be an onerous burden to set out an initial SOR process; and
- transparent in that the condition is clear in its intention to set out a SOR process and to ensure that changes to BT and KCOM's SOR process are reflective of industry feedback.

## Requirement not to unduly discriminate

### Aim and effect of regulation

#### Consultation proposals

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

- 5.44 The consultation document outlined proposals to retain the condition on BT and KCOM not to discriminate unduly, in order to support the provision of general network access in this market. In relation to the proposed non-physical WLA product(s) (VULA), we proposed a specific form of no undue discrimination obligation (discussed in Section 8 below).
- 5.45 Where vertically integrated SMP providers like BT and KCOM are required to provide network access to third parties, there are incentives for them to provide the requested wholesale network access services on terms and conditions that discriminate in favour of their own downstream activities in such a way as to have an adverse effect on competition. In particular, there are incentives to charge competing providers more for wholesale services than the amount charged to their own downstream activities thereby increasing the costs to competing providers and providing themselves with an unfair competitive advantage. They might also provide services on different terms and conditions, for example with different delivery timescales, which would have the effect of disadvantaging competing providers.
- 5.46 A requirement not to unduly discriminate is therefore intended as a complementary remedy to the network access obligation, principally, to prevent dominant providers from discriminating in favour of their own downstream activities and to ensure that competing providers are placed in an equivalent position.
- 5.47 We recognised that requiring equivalence in all cases could in certain circumstances lead to inefficiencies and, therefore, might in some cases be considered disproportionate. For example, in order to comply, the dominant provider may need to re-engineer existing products and processes, which could be both costly and disruptive, though this is less likely to be the case in situations where services are new. We recognised therefore that this might have disadvantages if it prevented discrimination that was economically efficient or justified.
- 5.48 Reflecting this view, we proposed not to interpret this requirement as imposing a blanket prohibition on all forms of discrimination, recognising that some forms of discrimination may not raise concerns. However, we flagged that we would expect differences in the treatment of undertakings to be objectively justifiable, for example, on the basis of differences in underlying costs of supplying different undertakings.
- 5.49 As noted above, as an exception to this general approach, we proposed that a specific form of no undue discrimination obligation should apply in the case of VULA. The justification for this approach was linked to the fact that the products used to meet the VULA requirement will be new products, and are likely to be particularly important in supporting future competition in the supply of super-fast broadband services.

### Summary and analysis of consultation responses

- 5.50 The majority of respondents agreed with our proposals to keep the requirement on BT and KCOM not to discriminate unduly in the supply of network access to third parties.
- 5.51 Some specific comments were made in relation to our proposed application of the requirement in relation to PIA and VULA. These are addressed in Section 7 (PIA) and Section 8 (VULA) below.

## Conclusions

5.52 Following our review of stakeholders' responses, we maintain the position set out in the consultation document. Therefore, we consider that it is appropriate to maintain the existing SMP obligation requiring BT and KCOM not to discriminate unduly in the provision of network access to their networks.

## **Legal tests**

5.53 We considers that Conditions FAA3 and FBB3, for BT and KCOM respectively, at Annex 2 meet the tests set out in the Act.

5.54 We have taken account of our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, we consider that the condition is aimed at promoting competition and securing efficient and sustainable competition and the maximum benefit for customers of communications providers, by preventing BT and KCOM from leveraging their SMP into downstream markets.

5.55 We also consider that the Conditions meet the criteria set out in section 47(2) of the Act, as they are:

- objectively justifiable, in that they provide safeguards to ensure that competitors, and hence consumers, are not disadvantaged by BT or KCOM discriminating in favour of their own downstream activities or between different competing providers;
- not unduly discriminatory, as BT and KCOM are currently the only SMP operators that we have concluded have SMP in these markets;
- proportionate since they only seek to prevent undue discrimination; and
- are transparent in that they are clear in their intention to specify the basis on which BT and KCOM should make network access available to themselves and competing CPs.

## **Pricing remedies**

5.56 Other important remedies that support the obligation on dominant providers to provide network access to third parties are those that relate to pricing. These remedies can be more intrusive than those discussed above, but where justified they can facilitate effective competition in downstream markets by limiting BT's ability to set charges at an excessive level.

## **Basis of charges**

### Aim and effect of regulation

### Consultation proposals

5.57 Section 87(9) of the Act authorises, among other things, the setting of SMP service conditions imposing rules regarding the recovery of costs and cost orientation. In the consultation document we proposed retaining the basis of charges condition that currently applies to BT and KCOM in relation to the general network access obligation discussed above.

- 5.58 We said in the consultation document that were we to impose a basis of charges condition on BT, our view would be that the interpretation of the basis of charges obligation would be that BT's prices must, as a first-order test, be between DLRIC<sup>62</sup> and DSAC<sup>63</sup>, BT would be required to adjust its prices to comply with the obligation if its current pricing was outside this range. As such, BT's prices would be constrained based on the costs it incurred. The same logic would apply to any such conditions on KCOM.
- 5.59 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 pricing constraints, ex ante regulation is desirable to prevent excessive pricing. Such intervention should also have as its objective the aim of moving the market towards a position where effective competition is realised. Where the competition problem arises at an upstream stage in the production chain, it is likely to be appropriate to regulate the pricing of wholesale inputs, in order to allow effective competition to develop in downstream markets, rather than control downstream prices themselves.
- 5.60 In markets where competition is not effective, dominant providers are likely to set excessive prices, in order to maximise their profits and, where the dominant provider is vertically integrated, to increase the costs of competing providers. Higher wholesale charges are likely to mean higher retail prices which would be detrimental to consumers.
- 5.61 Important in our consideration of the appropriate form of price regulation is the issue of efficiency and how efficiency would be impacted by the presence of or lack of effective price regulation. In considering efficiency we need to be aware of the three broad types of efficiency: allocative efficiency, productive efficiency and dynamic efficiency. Allocative efficiency refers to the manner in which resources are allocated and leads to the principle that prices should reflect costs, and that any common costs should be recovered in a way that minimises distortions in the pattern of consumption. Productive efficiency refers to minimising the cost of production. Dynamic efficiency refers to the promotion of sustainable market entry, investment and innovation. Different approaches to pricing can require trade-offs to be made between these different types of efficiency.
- 5.62 Different pricing approaches include:
- cost-based pricing, e.g., setting charges based on long-run incremental costs or some other measure of cost; and
  - using the efficient component pricing rule ("ECPR").
- 5.63 We briefly discuss each of these in turn below.
- 5.64 **Cost-based prices:** Typically, when we set charges based on cost in communications markets we reflect the long run incremental costs and include an additional mark-up to reflect the common costs of providing the service ("LRIC+"). This is the approach we adopted in 2004 when we last reviewed this market and is widely used by NRAs across Europe and by the FCC in the United States. Essentially, this approach consists of setting the charges on a cost-oriented basis, where the costs included in the charges are:

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<sup>62</sup> Distributed Long Run Incremental Cost.

<sup>63</sup> Distributed Stand Alone Costs.

- the forward-looking long run incremental costs efficiently and necessarily incurred by the regulated firm to provide the service to which the charge refers;
- an appropriate mark-up to allow the recovery of common costs<sup>64</sup>; and
- a reasonable return on the capital employed.

5.65 Long run incremental costs may be defined in general as the costs that are caused in the long run by the provision of a defined increment of output. It can also be seen as the costs that the regulated firm would avoid if it decided not to provide the regulated services any longer, taking a long run perspective.

5.66 **ECPR:** The ECPR determines prices not on the basis of the underlying costs of providing the service, but sets a price based on the opportunity cost to the access provider of providing access to third parties. Under this approach the price would be composed of the incremental cost of providing access plus the profit that BT would forego by selling access to a competing downstream operator, rather than it selling the final service itself.

### *Approach for basis of charges*

- 5.67 As noted above, when considering different approaches we need to be aware of how the different approaches could impact economic efficiency and the different types of efficiency identified above. Setting charges based on cost (in particular when based on LRIC) with appropriate treatment of common costs would support an efficient outcome in terms of allocative efficiency. In addition such an approach would support dynamic efficiency as charges set on this basis would encourage efficient entry at the network level because they reflect replacement costs, which are the costs that would be faced by new entrants. Moreover, depending on the precise details of implementation, including on whether we also impose a charge control, which we discuss below, such an approach could also support productive efficiency.
- 5.68 If we were to set prices using the ECPR this would ensure that entry to downstream prices based on ECPR would be productively efficient as the entrant's incremental cost could not profitably be higher than BT's incremental cost of providing the downstream service. However, as this pricing approach would lead to prices that do not reflect costs and which do not seek to minimise distortions arising from the recovery of common costs, it would not support allocative efficiency. Moreover, dynamic efficiency is likely to be reduced as the resultant higher prices would deter at least some entry, thereby reducing competitive pressures.
- 5.69 We consider that, since competition in this market remains limited and as this is an established market, the main concern is that BT or KCOM might exploit their position of SMP to earn excessive profits. LRIC+-based charges correspond more closely to the charges that would occur in a fully competitive market and also encourage efficient entry at the network level.

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<sup>64</sup> The costs incurred in the production of two or more products can be classified as:

- incremental costs - those costs which are incurred directly as a consequence of producing a specific good or service (i.e., there is an unambiguous relationship between these costs and the good or service in question); and
- common costs – those costs which arise in the production of two or more goods or services, and which are not incremental to the production of any specific one of these goods or services.

- 5.70 Therefore, in the consultation document we considered that the most appropriate approach would be a basis of charges obligation for network access and its application to existing specific services (LLU and SLU) and any new physical infrastructure access services (PIA) in the WLA markets in which BT and KCOM have been found to have SMP is LRIC+. We set out separately below our view on LLU, which we still consider should continue to be subject to specific charge controls in addition to the proposed basis of charges obligation (the justification for this is also discussed in Section below).
- 5.71 In the consultation document we proposed that the basis of charges obligation should not apply in respect of certain new NGA services. These services differ from existing WLA products and services in that they are new, less established services and therefore have a higher degree of uncertainty attached to their provision. Moreover, we consider that the prices charged by BT for VULA would be largely constrained from competition at the retail level by OCPs' continuing ability to purchase CGA services from BT on regulated terms and by the services offered by Virgin Media over its cable network.

### Summary and analysis of consultation responses

- 5.72 The majority of respondents agreed with the proposals set out in the consultation document regarding the basis of charges. Virgin Mobile agreed that LRIC+ is a more appropriate accounting approach for a basis of charges obligation than use of the EPCR rule, and commented on the importance of active monitoring of this obligation.
- 5.73 BT commented that the rejection of ECPR, on the basis that it may allow for recovery of excess profits for fibre products is premature, and particularly for PIA products. It stated that regulation is not seeking to encourage efficient network entry in the supply of PIA itself, for which LRIC+ would be appropriate. BT also stated that we are seeking to ensure that appropriate incentives to invest downstream of PIA are in place, which it considers that ECPR achieves.
- 5.74 Having considered BT's comments, we are still of the view that LRIC+ is more appropriate than the ECPR approach. As indicated above, we consider that the ECPR approach has the potential to distort efficient entry at the network level. As we note, the ECPR does encourage productive efficiency. However, the ECPR is less likely to promote dynamic efficiency as the resultant high prices could deter entry, thereby reducing competitive pressure. This is a particular concern for telecoms services, where innovation has the potential to bring significant benefits to consumers.
- 5.75 Virgin Media also asked us to give greater clarity about its interpretation of the LRIC+ Basis of Charges obligation in particular to take into account experience from a recent dispute about partial private circuit charges. They considered this to be particularly important for PIA since the costs have not previously been subject to scrutiny by us or industry. It also requested more detail on BT's obligations and what constitutes compliance with them.
- 5.76 Virgin Media's comments relate to disputes between Cable & Wireless, THUS, Global Crossing, Verizon, Virgin Media and COLT and BT, regarding BT's charges for partial private circuits<sup>65</sup>. We issued a determination and final statement on 14

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<sup>65</sup> Disputes from THUS, Cable & Wireless, Global Crossing, Verizon and Virgin Media against BT about the level of charges for partial private circuits

October 2009, resolving the disputes. On 14 December 2009, BT filed an appeal with the Competition Appeal Tribunal (CAT) against our determination to resolve these disputes<sup>66</sup>. The case is before the CAT and the hearing is scheduled for between 20 October and 2 November 2010. We anticipate that the CAT will issue its decision at the end of this year or early next year. Once the CAT has issued its decision, we will consider its implications for our interpretation of BT's cost orientation obligations in this market. Given these potential implications, we do not consider it appropriate at this point to provide a more detailed interpretation of BT's cost orientation obligations.

- 5.77 Virgin Media also urged us to actively monitor compliance on a frequent and ongoing basis, and to ensure that BT presents its accounting information in a way that allows accurate and timely assessment of compliance. On this point, we consider that the annual financial reporting regime that is in place is reasonable, especially as in the event of any dispute we can request information more quickly and in a form that is necessary to assess the relevant issues.
- 5.78 In addition, both Virgin Media and BT comment on the application of the principles outlined to the specific product remedies. Virgin Media considers that the same principles should be applied to VULA, and BT raises some concerns regarding the application of these principles to PIA. Our views on these issues are discussed in more detail below in Section 7 for PIA and Section 8 for VULA.

### Conclusions

- 5.79 Following our review of stakeholders' responses, we maintain the position set out in the consultation document. Therefore, on the basis of the analysis outlined above, we remain of the view that the conditions on the basis of charges are appropriate.

### Legal tests

- 5.80 We consider that Conditions FAA4 and FBB4, for BT and KCOM respectively, at Annex 2 meet the tests set out in the Act.
- 5.81 We have considered its duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition and the maximum benefit for customers of communications providers by ensuring that charges for wholesale services are set at a level that enable operators to compete downstream. For those reasons, we also consider that any pricing to be charged on a fair and reasonable basis under the network access obligations would be appropriate in order to promote efficiency and sustainable competition and provide the greatest possible benefits to end users by enabling competing providers to buy network access at levels that might be expected in a competitive market.
- 5.82 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The Conditions are:
- both objectively justifiable and a proportionate response in relation to the extent of competition in the markets analysed, as it ensures that BT and KCOM are unable to exploit their market power and enables competitors to purchase services at charges that would enable them to develop competing services to

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[http://stakeholders.ofcom.org.uk/enforcement/competition-bulletins/open-cases/all-open-cases/cw\\_992/](http://stakeholders.ofcom.org.uk/enforcement/competition-bulletins/open-cases/all-open-cases/cw_992/)

<sup>66</sup> <http://www.catribunal.org.uk/237-5136/1146-3-3-09-British-Telecommunications-Plc-.html>

those of BT and KCOM in downstream markets to the benefit of consumers, whilst at the same time allowing BT and KCOM a fair rate of return that they would expect in competitive markets;

- not unduly discriminatory, as it applies to both BT and KCOM and no other operator has SMP in these markets; and
- transparent in that it is clear in its intention to ensure that BT and KCOM should set charges on a LRIC+ basis.

5.83 We also consider that the condition satisfies the requirements of section 88(1) as our market analysis indicates that there is a risk of adverse effects arising from price distortion. Moreover, the condition promotes efficiency and sustainable competition and the setting of the condition is appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on end users by enabling competing providers to buy network access at levels that might be expected in a competitive market. The extent of investment of the dominant operator has been taken into account as set out in section 88(2), as the obligation provides for an appropriate return on the capital employed to be included in the charges. In addition the control only applies to existing products and services in this market, and not to new and less established NGA services in the market.

## **Charge controls**

### Aims and effects

#### Consultation proposals

- 5.84 Section 87(9) of the Act authorises the setting of charge controls in relation to matters connected with network access.
- 5.85 The existing LLU charge control was imposed to address concerns identified in our previous market analysis and applies to BT for LLU services. That charge control continues to apply until it expires in March 2011. No other charges controls currently apply to BT, and no charge control SMP condition applies to KCOM. In the consultation document, we proposed to continue these respective positions for BT and KCOM.
- 5.86 We set out in the consultation document and above that a basis of charges condition would act to constrain BT's LLU pricing. However, due to BT having SMP in the market it is unlikely to be incentivised to reduce its costs and set prices at the competitive level. On the basis of our market analysis, we proposed that there is a risk that BT might set its prices for LLU at an excessively high level or operate a margin squeeze. BT would be likely to be able to recover higher costs through higher prices charged at the wholesale level, which would ultimately be passed on in higher retail charges. We did not consider that cost orientation alone would be appropriate in relation to LLU charges<sup>67</sup>. Therefore, the consultation document also proposed that there should be a further LLU charge control to take effect when the current control expires in March 2011.
- 5.87 Imposing a charge control in addition to a basis of charges condition would address the concern that BT's pricing would not be constrained at a competitive level, as the charge control could be structured to incentivise efficiency improvements and/or

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<sup>67</sup> As proposed in paragraph 6.65 of the consultation document

investment by BT, which would be of benefit to all purchasers of LLU products (and, ultimately, could result in better products and lower prices for consumers). It would also provide more certainty over the life of the control period about the maximum level of LLU charges. This would promote sustainable competition from LLU operators. It would also be likely to promote sustainable competition at the retail level by restricting BT's ability to price excessively with the aim of making it more difficult for other providers to compete.

- 5.88 The charge control would result in prices being based on a forward-look view of the costs related to provision of services at the end of the period, taking into account efficiency improvements and possible future investment by BT that would be of benefit to consumers and citizens. We propose to consider the specifics of the charge control, including the relevant costs, in a separate consultation.

### Summary and analysis of consultation responses

- 5.89 The majority of respondents agreed with the proposals set out in the consultation document. BT said that it is important that the charge control formula allows it to fully recover its efficiently-incurred costs and sends the correct signals for investment in new technologies. We agree with BT's point.

### Conclusions

- 5.90 Following our review of stakeholders' responses, we maintain the position set out in the consultation document. Whilst we will consult separately on this matter, we remain of the view set out in the consultation document that, in principle, a charge control is required for LLU which provides the right incentives for BT to seek further efficiency savings. This should ultimately allow the benefits of lower costs to be passed on to consumers.
- 5.91 The LLU charge control was last set in May 2009, and expires in March 2011. The consultation document only consulted on the principle of having an LLU charge control (not on the form, level or duration of the control). We therefore propose to consider the specifics of the charge control, including the relevant costs, in a separate consultation.
- 5.92 In addition, we are allowing for pricing flexibility with respect to BT's VULA service and implementing a general basis of charges obligation for LLU, SLU and PIA. The justification for this approach is discussed further under each of the relevant specific remedies included in this statement (see Sections 6 to 8).

### Minor modification to the existing charge control obligation

- 5.93 The existing LLU charge control operates in tandem with the general basis of charges obligation. That means that the obligation for costs to be based on LRIC+ continues to apply to the services subject to the LLU charge control, with the exception of the MPF Rental Charge, which is specifically exempted from the basis of charges obligation.
- 5.94 As we are revoking the 2004 obligations where relevant and replacing them with our new obligations, as proposed in the consultation document, we have included a minor modification in the legal instrument to update the cross reference in the existing LLU charge control Condition FA3(A). This replaces the reference to the existing basis of charges obligation (FA3) with the new basis of charges obligation (FAA4).

## Legal tests

- 5.95 We remain of the view that charge control on LLU is necessary, and consider that in principle a charge control on LLU would meet the criteria set out in section 47(2) of the Act, since it is objectively justifiable, non-discriminatory, proportionate and transparent. This is for the reasons below. However, we will consult on this again when we consult on our specific charge control proposals later in the year. At this time, we consider that a charge control is, in principle:
- objectively justifiable, as BT has SMP in the market, it is unlikely to be incentivised to reduce its costs and set prices at the competitive level;
  - not unduly discriminatory, as BT is the only operator to have SMP in the market; (in the UK excluding the Hull area). Whilst KCOM has SMP in the Hull area, that is a separate geographic market. Moreover, we do not consider an LLU charge control remedy to be relevant to KCOM as it is not providing an LLU product and is not obliged to do so;
  - proportionate, as we will ensure that it will allow BT to make a return on investment 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, in that the condition, when we formulate our detailed proposals, will be clear in its intention.
- 5.96 For the reasons set out above, we consider that the imposition of a charge control would in particular further the interests of citizens and further the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act. Further, we consider that, in line with section 4 of the 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, and the maximum benefit for customers of communications providers.

## **Transparency measures**

- 5.97 We have a power under the Act to impose, where appropriate, a number of other complementary general remedies that assist in securing transparency that the network access, undue discrimination and basis of charges remedies are working as effectively as possible. For example, section 87(6)(b) of the Act gives us the power to impose a condition requiring a dominant provider to publish a range of information relevant to the products for which network access is provided. Section 87(6)(c) gives us an equivalent power in respect of the terms and conditions on which the dominant provider is willing to enter into an access contract (also known as a Reference Offer, or 'RO') in such manner as we may direct. Finally, section 87(6)(e) permits the setting of SMP services conditions requiring the dominant provider to make such modifications to the RO as we may direct from time to time.
- 5.98 We set out the following transparency requirements in the consultation document, and consider each again below:
- requirement to publish a reference offer;
  - requirement to notify charges and terms and conditions;

- requirement to notify technical information; and
- transparency as to quality of service.

## Requirement to publish a Reference Offer

### Aim and effect of regulation

#### Consultation proposals

- 5.99 In the consultation document we proposed that both BT and KCOM should be required to continue to produce ROs for products in this market. Our proposals for BT were more detailed as they included some additional minimum requirements to apply to specific access products, such as LLU and PIA. These specific remedies are discussed in more detail in Sections 6 to 8 of this document.
- 5.100 A requirement to publish an RO has two main purposes, namely, to assist transparency for the monitoring of potential anti-competitive behaviour and to give visibility to the terms and conditions on which other providers will purchase wholesale services. This helps to ensure stability in markets and, without it incentives to invest might be undermined and market entry less likely.
- 5.101 The publication of a RO would potentially allow for speedier negotiations, avoid possible disputes and give confidence to those purchasing wholesale services that they are being provided on non-discriminatory terms. Without this, market entry might be deterred to the detriment of the long-term development of competition and hence consumers.
- 5.102 The condition proposed in the consultation document requires the publication of a RO and specifies the information to be included in that RO (set out below) and how the RO should be published. It prohibits the dominant provider from departing from the charges, terms and conditions in the RO and requires it to comply with any directions we may make from time to time under the condition. The condition only applies where the dominant provider provides network access and/or duct access.
- 5.103 The condition proposed in the consultation document also requires the dominant provider to publish information on the use of network components in providing WLA services.
- 5.104 The published RO must set out (at a minimum) such matters as:
- a clear description of the services on offer;
  - terms and conditions including charges and ordering, provisioning, billing and dispute resolution procedures;
  - information relating to technical interfaces and points of interconnection;
  - conditions relating to maintenance and quality (service level agreements (“SLAs”) and service level guarantees (“SLGs”));
  - the amount applied to network components;
  - the location of local serving exchanges/MDF sites;

- the availability of co-location;
- conditions for site access; and
- safety standards.

5.105 We proposed in the consultation document that the condition would apply to the WLA markets in which BT and KCOM have been found to have SMP.

### Summary and analysis of consultation responses

5.106 Respondents generally agreed with this proposal. The Communication Workers union (“CWU”) requested that high minimum safety standards should be strongly emphasised in the RO, with reference to access to BT’s duct by third parties. Virgin Media raised some concerns with the proposed requirements of the RO applying to PIA products. In particular, it was concerned that without a more prescriptive RO and definitive set of requirements, there would be significant scope for the development of PIA products to be drawn-out and contentious. These issues are considered in Section 7 below.

5.107 In its response, BT recognised the importance of an RO but was against two proposed changes to Condition FAA 5.2 that would apply to the current RO for CGA products. It suggested that these changes were not relevant. The proposals covered details of traffic network management (provision (h)) and details of measures to ensure compliance with requirements for network integrity (provision (j)). We maintain our view that these additional requirements for the RO are required. These changes were part of harmonising the standard RO requirements across all markets, which we consider to be necessary as a general rule. We recognise that the detailed implementation of these requirements may differ between markets and products, but we consider that each requirement is likely to be relevant to some extent in each case.

5.108 Some CPs sought greater clarity about Condition FAA5.4, and the relationship between the BT Undertakings and that Condition. This Condition requires BT to publish an internal reference offer (RO) in situations where the network access that it provides to itself differs from the access made available to OCPs, as set out in the relevant external reference offer. The purpose of an RO in these circumstances is to provide transparency, by ensuring that sufficient information is made available to identify any material differences between internal and external provisioning and repair. Principally, CPs asked how this condition applies to the provision of SLU-based services, and when BT would be providing its internal RO.

5.109 As this issue was raised mainly in connection with SLU, we set out our response and decision in detail in Section 6 below. However, Condition FAA 5.4 applies not just to SLU, but also to other products for which there are differences in internal and external network access. In relation to PIA, BT has not yet produced a RO for PIA, as it is still in the development phase. Therefore, BT is not yet required to publish a PIA internal RO. However, once a final PIA RO has been published, we would expect BT also to produce and publish an internal RO within a reasonable period of time. As the details develop for the external RO for PIA, we will discuss further with BT our expectations on the timing of the corresponding internal RO.

5.110 In summary, we consider that Condition FAA5.4 is justified, as it provides an important source of transparency to verify that differences in BT’s internal and external supply are appropriate. Our interpretation of the no undue discrimination

obligation on BT allows for some differences in its internal and external supply of SLU and PIA. Condition FAA5.4 complements that approach, by giving visibility of such differences that do occur.

- 5.111 KCOM also raised a point that SMP condition FBB5.7 required that Ofcom be given at least ten days written notice of any amendment to the Reference Offer coming into effect. KCOM stated that it was unclear of the need for this, given that Condition FBB6.2 requires that changes to Access Contracts are required to be notified to Ofcom with at least 28 days' notice.
- 5.112 In reply, KCOM's point seems to be based on its assumption that its RO and terms and conditions are identical. Accordingly, if KCOM gives 28 days' notice for changes in its terms and conditions under FBB 6.2 (or, indeed, 90 days' notice in the case of existing Network Access), then KCOM appears to consider that FBB 5.7 would be superfluous and have no practical impact on KCOM. We also note that BT has the same corresponding conditions, and that no other respondents have commented on this. Given that KCOM does not consider there to be a material impact of any overlap in these obligations, and given the absence of other comments on this issue, we conclude that the conditions should be left as proposed in the consultation document. However, we consider that it would be appropriate to revisit the interplay between these two conditions in future.

## Conclusions

- 5.113 Following review of stakeholders' responses, we maintain the position set out in the consultation document. Therefore, on the basis of the analysis set out above and also outlined elsewhere (see in particular Section 7 on PIA requirements) we remain of the view that requiring ROs is appropriate for products in this market.

## **Legal tests**

- 5.114 We consider that Conditions FAA5 and FBB5, for BT and KCOM respectively, at Annex 2 meet the tests set out in the Act.
- 5.115 The condition is aimed at promoting competition and securing efficient and sustainable competition and the maximum benefit for customers of communications providers. It is intended to do this by ensuring that providers have the necessary information to allow them to make informed decisions about purchasing WLA services in order to compete in downstream markets. We consider that this is compatible with our duties in section 4 of the Act. Further, we consider that the imposition of a charge control would in particular further the interests of citizens and further the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act.
- 5.116 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The Conditions are:
- objectively justifiable in that it requires that terms and conditions are published in order to encourage competition and provide stability in markets;
  - proportionate, as only information that is considered necessary to allow providers to make informed decisions about competing in downstream markets is required to be provided;

- not unduly discriminatory as it is applied to both BT and KCOM and no other provider has SMP in these markets; and
- transparent in that it is clear in its intention to ensure that BT and KCOM publish details of their WLA offerings.

## **Requirement to notify charges and terms and conditions**

### **Aim and effect of regulation**

#### Consultation proposals

- 5.117 We proposed in the consultation document to re-impose the obligation that sets out a notification requirement on BT and KCOM.
- 5.118 Notification of changes to services at the wholesale level can further assist competition by giving advanced warning of charge changes to providers purchasing wholesale services in order to compete with the dominant provider in downstream markets.
- 5.119 We consider that prior notification of changes to charges or other relevant terms and conditions is important to ensure that competing providers have sufficient time to plan for such changes, as they may want to restructure the prices of their downstream offerings in response to charge changes at the wholesale level.
- 5.120 When the consultation document was published, the notification period for changes to existing products and services was 90 days. We considered that this allowed sufficient time for downstream providers to make necessary changes to their wholesale or retail products and services. We stated in the consultation document that we considered that 90 days remained an appropriate notification period for existing products and services. The prior notification period for new products and services is 28 days, reflecting the lesser administrative impact of changes to charges for new products and services. In the consultation document we indicated that we considered that 28 days remains an appropriate notification period for new products and services.
- 5.121 Notification of changes to charges therefore helps to ensure stability in markets and without it, incentives to invest might be undermined and market entry made less likely.
- 5.122 However, there may be some disadvantages to notifications, particularly in markets where there is some competition. It can lead to a 'chilling' effect where OCPs follow BT's or KCOM's prices rather than act dynamically to set competitive prices. In the consultation document, we concluded that, on balance, however, we did not consider that this consideration undermines the imposition of this obligation. In the WLA markets, where SMP remains persistent, there is a high level of reliance by competitors on the provision of wholesale services to enable them to compete in downstream markets. In the consultation document we considered overall that the advantages of notifying charges were therefore likely to outweigh any potential disadvantages.

#### Summary and analysis of consultation responses

- 5.123 No respondent apart from BT disagreed with our proposal to maintain the 90 day notice period. BT requested that we align the notification periods of LLU and WLR, by

reducing the LLU notification period to 28 days. This issue is covered in detail below in Section 6, where we conclude that the notification periods for LLU should remain at 90 days.

## Conclusions

5.124 Following our review of stakeholders' responses, and on the basis of the analysis set out above and in Section 6 below, we remain of the view that the requirement to notify charges, terms and conditions is appropriate.

## **Legal tests**

5.125 We consider that Conditions FAA6 and FBB6, for BT and KCOM respectively, at Annex 2 meet the tests set out in the Act.

5.126 First, our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, we consider that the condition is aimed at promoting competition and securing efficient and sustainable competition and the maximum benefit for customers of communications providers by ensuring that OCPs have the necessary information sufficiently in advance to allow them to make informed decisions about competing in downstream markets.

5.127 Section 47(2) requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The Conditions are:

- objectively justifiable, in that there are clear benefits from the notification of changes in terms of ensuring that providers are able to make informed decisions within an appropriate time frame about competing in downstream markets;
- proportionate, as 90 days is considered the minimum period necessary to allow competing providers to plan for changes to existing network access and 28 days for new network access;
- not unduly discriminatory as it applies to both BT and KCOM and there are no other providers with SMP in these markets; and
- transparent in that it is clear in its intention to ensure that BT and KCOM provide notification of changes to their charges and terms and conditions.

## **Requirement to notify technical information**

### **Aim and effect of regulation**

#### Consultation proposals

5.128 In the consultation document we proposed that changes to technical information should be published in advance, so that competing providers have sufficient time to prepare for them. This obligation already applied to BT and KCOM.

5.129 Under the requirement to publish a RO discussed above, BT and KCOM would be required to publish technical information. However, advance notification of changes to technical information is important to ensure that providers who compete in downstream markets are able to make effective use of the wholesale services provided by BT and KCOM.

- 5.130 For example, a competing provider may have to introduce new equipment or modify existing equipment to support a new or changed technical interface. Similarly, a competing provider may need to make changes to their network in order to support changes in the points of network access or configuration.
- 5.131 Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of network access and technical standards (including any usage restrictions and other security issues). Relevant information about network configuration includes information about the function and connectivity of points of access, for example, the connectivity of exchanges to end users and other exchanges. Technical information also includes the information provided currently in the Network Information Publication Principles (NIPP) and Access Network Facilities (ANF) agreement and also includes any other additional information necessary to make use of services provided in the WLA market.
- 5.132 The condition proposed in the consultation document would require the notification of new technical information within a reasonable time period but not less than 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. We explained that this was because we considered that 90 days is the minimum time that competing providers need to modify their network to support a new or changed technical interface or support a new point of access or network configuration.
- 5.133 The consultation document also stated that longer periods of notification may also be appropriate in certain circumstances. For example, if BT or KCOM were to make a major change to their technical terms and conditions, a period of more than the 90 day minimum notification period may be necessary.
- 5.134 We proposed that the condition would apply in the WLA markets in which BT and KCOM have been found to have SMP.

### Summary and analysis of consultation responses

- 5.135 Respondents generally agreed with this proposal, though BT raised a potential concern in relation to our comment that periods longer than 90 days may be appropriate in certain circumstances. BT considered that where it is necessary for BT to make changes to the technical aspects of its products, it should not be precluded from implementing changes in a timely manner (subject to an adequate notice being provided to CPs).
- 5.136 In the consultation document we set out our view that in certain circumstances a notice period of longer than 90 days may be appropriate. In doing this, we were considering circumstances such as exchange closure programmes and major infrastructure build projects. We therefore consider that this position remains valid. This Condition requires BT and KCOM to provide at least 90 days' notice. Therefore we consider that it is flexible enough to allow industry to agree a longer notice period where this is necessary.
- 5.137 The Commission stated that the migration from copper to fibre loops and the dismantling of exchanges could substantially affect the business case for competitors. It therefore considered it critical for CPs to have all relevant information about planned changes to the SMP provider's network, especially where the SMP provider envisages replacing part of the copper access network and decommissioning currently-used points of interconnection. The Commission

suggested that the transparency obligation on BT should include a requirement to put forward a migration procedure for alternative providers in the event of planned changes in BT's network topology. We note also that the NGA Recommendation suggests (at Article 39) that five years is an appropriate notice period for decommissioning points of interconnection (taking into account national circumstances and whether fully equivalent access is provided at those locations).

5.138 We consider that the scope of this current obligation on BT and KCOM is framed sufficiently broadly to require an appropriate level of detail on such major changes, with sufficient notice, to be given to other providers. As stated above at paragraph 5.133, a major change would imply that more than the minimum notice period is necessary. We do not expect BT to remove or dismantle its copper network as it deploys fibre in its access network during the forward look period covered by this review. We therefore will have an opportunity to consider this issue again in future. Also, as a general exchange closures programme does not seem imminent, it is difficult at this point to be clear on what an appropriate period of notice would be. However, we would note that under the current LLU regime, BT has agreed an exchange closure procedure with industry for any ad hoc network rearrangements. We therefore consider that the current obligation is sufficient to require appropriate information to be provided if firmer plans emerge from BT (or KCOM).

## Conclusions

5.139 Following our review of stakeholders' responses, and taking utmost account of the NGA Recommendation, we have decided to maintain the position set out in the consultation document. We consider that setting a minimum notification period in this way provides adequate protection for CPs, whilst also allowing some flexibility in cases where a longer notification period may be necessary. Therefore, on the basis of the analysis set out above we remain of the view that requiring notification of technical information within no less than 90 days is appropriate.

## **Legal tests**

5.140 We consider that Conditions FAA7 and FBB7, for BT and KCOM respectively, at Annex 2 meet the tests set out in the Act.

5.141 We have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition and encouraging service interoperability for the purpose of securing efficient and sustainable competition and the maximum benefits for customers of communications providers by ensuring that providers have sufficient notification of technical changes to the local access network to enable them to compete in downstream markets.

5.142 The Conditions satisfy the requirements of section 47(2) because they are:

- objectively justifiable in that it enables providers to make full and effective use of network access to be able to compete in downstream markets;
- not unduly discriminatory as it applies to both BT and KCOM and no other operator has SMP in these markets;
- proportionate in that 90 days is the minimum period that we consider is necessary to allow competing providers to modify their networks; and

- transparent in that it is clear in its intention that BT and KCOM notify technical information and the timeframe for such notification.

## Transparency as to quality of service

### Aim and effect of regulation

#### Consultation proposals

- 5.143 A QoS Condition already applied to BT. In the consultation document, we proposed to continue to require this remedy so that it operates alongside the general network access remedy. We proposed not to extend this Condition to KCOM on the basis that it did not provide products on a scale to make such reporting statistically meaningful.
- 5.144 In relation to the requirement not to unduly discriminate, there is the potential for a vertically integrated provider such as BT to provide a QoS to competing providers that is not equivalent to that provided to itself. This may disadvantage competing providers and give the provider with SMP an unfair advantage.
- 5.145 It may be possible to address this concern by requiring a dominant provider to provide wholesale services to competing providers using the same operational systems processes and interfaces that it uses to supply equivalent services to itself. However, the high cost of replacing legacy systems means that this will not always be practical, or indeed proportionate.
- 5.146 Instead, we proposed that BT should publish data relating to the quality of service it delivers to itself and to other providers. By providing transparency, BT's competitors should be able to identify where potential discrimination exists. We therefore proposed that the existing general QoS condition should continue to apply to BT.
- 5.147 In addition, we proposed to make a Direction that would formalise as a minimum obligation the existing Key Performance Indicators ("KPIs") for LLU, to provide a level of certainty for industry that minimum KPI reporting would continue. BT already provided those reports through the OTA and its Openreach online reporting tool. We discuss the details of this

#### Summary and analysis of consultation responses

- 5.148 Respondents generally agreed with our proposal to maintain this SMP Condition. On the more specific issue of KPIs for LLU, we consider the responses in paragraphs 6.21-6.25 below.

#### Conclusions

- 5.149 On the basis of the reasoning set out above and the responses to the consultation document, we have decided maintain the existing SMP Condition. In addition, we have concluded (see paragraphs 6.21-6.25 below) that it is not appropriate to formalise the way in which BT reports on its KPIs for LLU.

#### **Legal tests**

- 5.150 We consider that the Condition FAA8 in Annex 2 meets the tests set out in the Act.
- 5.151 We consider that we have acted consistently with our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the

condition is aimed at promoting competition and securing efficient and sustainable competition and the maximum benefit for customers by ensuring that BT provides an equivalent quality of service to providers competing with it in downstream markets, as it provides to itself.

5.152 The Condition satisfies the legal tests of section 47(2) as the Condition is:

- objectively justifiable because the requirement is intended to ensure that there is no undue discrimination in the quality of service provided;
- not unduly discriminatory because KCOM does not supply substantial wholesale volumes of services and a reporting obligation would not be statistically meaningful, whereas it would be with respect to the volumes supplied by BT to OCPs;
- proportionate because we consider this to be the minimum set of KPIs needed to ensure that the provisions of the condition are met; and
- transparent in that it is clear in its intention to require BT to publish data on quality of service.

5.153 Although an equivalent condition is not applied to KCOM, it does not unduly discriminate as it is only appropriate to impose such a condition where there is sufficient demand for a wholesale service such that the data provided would be statistically meaningful. This is currently not the case in respect of KCOM.

## Requirements for cost accounting and accounting separation

### Aim and effect of regulation

#### Consultation proposals

5.154 In the consultation document we proposed to continue to impose on BT obligations to have cost accounting systems and accounting separation in relation to the WLA market. We thought it appropriate for the same obligations to continue to apply to BT. However, as we explained in the consultation document, we also proposed a technical modification so that the same cost accounting and reporting SMP obligations that were first notified in July 2004 applying to all other regulated wholesale and retail markets would also cover BT's services in this market, such that the specific obligations would not be re-imposed. These obligations would not be applicable to KCOM.

5.155 The imposition of regulatory financial reporting obligations on dominant providers is an important means of ensuring that obligations in relation to cost orientation and non-discrimination (as have been proposed in relation to BT above) can be effectively monitored for a given market. In particular, it is important that cost accounting information is provided to measure compliance with cost orientation requirements and accounting separation is maintained to provide transparency in accordance with no undue discrimination conditions.

5.156 In the consultation document we set out our view that it remained appropriate to continue to impose the existing financial reporting obligations on BT for the products and services that they provide in the WLA market. We also proposed that, as new products and services were supplied, the current financial reporting obligations on BT should be amended to encompass those new products and services.

- 5.157 With respect to KCOM, however, we considered that this complementary obligation would be disproportionate as a way to demonstrate that it is meeting its obligations of cost orientation and to not unduly discriminate, as there is no demand for network access in Hull. We noted that we would reconsider this position should KCOM commence providing network access, at which point these obligations could become important to demonstrate compliance with its cost orientation and no undue discrimination obligations.
- 5.158 As discussed in the consultation document, and earlier in this section, we proposed to maintain the general remedy on BT for the basis of charges, i.e., cost orientation obligations, and considered that the most appropriate basis for setting charges is LRIC+.
- 5.159 It is also essential, if the obligation not to unduly discriminate is to be meaningful, then BT should be transparent about its wholesale prices and internal transfer prices, to demonstrate that it is not discriminating unduly against OCPs. To achieve this, it should produce financial statements that reflect the performance of markets as though they were separate businesses. Under section 87(7) and 87(8) of the Act, appropriate accounting separation obligations may be imposed on the dominant provider in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities.

#### Proposed consequential modifications

- 5.160 In the consultation document we proposed to continue imposing on BT obligations to have cost accounting systems and accounting separation in relation to the WLA market. We also proposed to remove the parallel reporting regime we put in place in the 2004 WLA market review and to vary the July 2004 regulatory reporting notification.
- 5.161 On 22 July 2004<sup>68</sup> following two detailed consultations<sup>69</sup> we imposed various regulatory financial reporting obligations on BT and KCOM in a number of different wholesale and retail markets where market reviews had recently been concluded. When the obligations were finally imposed in the July 2004 final statement they consisted of:
- SMP services conditions for regulatory financial reporting on BT (Conditions OA1 to OA34) and KCOM (Conditions OB1 to OB33) covering all forms of regulatory reporting; and
  - directions under those conditions setting out:
    - the network components to be reported on (direction 1);
    - the transparency of the systems (direction 2);
    - the financial statements to be prepared and published and the appropriate audit levels (direction 3);
    - the form and content of these financial statements (direction 4);

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<sup>68</sup> Ofcom, *The regulatory financial reporting obligations on BT and Kingston Communications*, 2004 statement, [http://www.ofcom.org.uk/consult/condocs/fin\\_reporting/fin\\_report\\_statement/](http://www.ofcom.org.uk/consult/condocs/fin_reporting/fin_report_statement/)

<sup>69</sup> [http://www.ofcom.org.uk/consult/condocs/fin\\_reporting/](http://www.ofcom.org.uk/consult/condocs/fin_reporting/)

- the fairly presents in accordance with (FPIA) audit opinion (direction 5); and
  - the properly prepared in accordance with (PPIA) audit opinion (direction 6).
- 5.162 In the 2004 WLA market review we consulted separately on imposing the same SMP services obligations for regulatory financial reporting on BT. (Condition FA10 comprising sub-conditions FA10.1 to FA10.30) with the exception of the Conditions specifically applying to retail markets. Conditions FA10.1 to FA 10.28 are identical to Conditions OA1 to OA 28. Condition FA10.29 is identical to OA32 and FA10.30 is the same as OA33. We also implemented the same directions as set out in the July 2004 statement.
- 5.163 Over time we have made a number of changes to the general obligations through the publication of various directions and modifying directions. We have made a series of parallel directions to the FA10 framework where we have needed to maintain consistency.
- 5.164 We stated in the consultation document that this proposed modification would mean that all the generic reporting requirements would be extended to the WLA market that we have identified in this market review. As explained in paragraph 5.162 above, the current FA10 conditions imposed on BT in December 2004 are identical to the other wholesale-specific reporting obligations that were imposed in July 2004 (OA1 to OA 28, OA 32 and OA 33) so we set out that this change would be procedural rather than substantive. We consider that this change would be sensible as it would mean that in the future all regulatory financial reporting requirements for BT are contained in a single set of reporting obligations. To the extent that Directions were given under Condition FA10.2 we intended them to be preserved as if they were made under the equivalent directions power in Condition OA2.

### Summary and analysis of consultation responses

- 5.165 The majority of respondents agreed with the proposals set out in the consultation document. However, TTG argued that the proposed controls were insufficient and should be tightened. Specifically, it regarded the current obligation to be failing and of little practical use. Although TTG accepted that this market review was not the place to address any flaws, it stated that the regulatory obligation should be drafted to allow improvements to be imposed on BT. Virgin Media also commented on the need for BT's financial statements to be transparent and accurate, in particular capturing the new products that would be introduced as a result of this market review.
- 5.166 We note these comments. In response, we would note that we have proposed to re-apply this obligation. The detailed form of BT's regulatory accounts is subject to annual consultation, in which stakeholders will have the opportunity to re-state such views.

### Conclusions

- 5.167 The appropriateness of imposing a regulatory financial reporting obligation and the level of information required is a question to be decided on the basis of the findings of an individual market review. On the basis of our analysis, and having considered the consultation responses, we consider that the requirement to apply accounting separation and cost accounting on BT is appropriate.
- 5.168 Sections 87(9) to 87(11) of the Act allow us to impose appropriate cost accounting obligations on dominant providers in respect of the provision of network access, the

use of the relevant network and the availability of relevant facilities. Cost accounting rules may be made in relation to charge controls, the recovery of costs and cost orientation. We therefore consider that we have the necessary legal basis to impose cost accounting obligations on BT in the WLA market in the UK excluding the Hull Area

- 5.169 The effect of the modification that we are making is that all of the generic reporting requirements that we have identified in this market review are extended to the WLA market. As explained in the consultation document (at paragraph 6.129), the current FA10 conditions imposed on BT in December 2004 are identical to the other wholesale-specific reporting obligations that were imposed in July 2004 (OA1 to OA 28, OA 32 and OA 33) so this change is procedural rather than substantive. We consider this change is sensible as it would mean that in the future all regulatory financial reporting requirements for BT are contained in a single set of reporting obligations. To the extent that Directions were given under Condition FA10.2 we intend for them to be preserved as if they were made under the equivalent directions power in Condition OA2.
- 5.170 When we conclude market reviews, including any decisions we make about regulatory financial reporting obligations, our usual practice is to formalise any additional or changed regulatory reporting obligations as part of the annual regulatory reporting framework. We intend to do this for WLA and will work with BT on how it will adapt its reporting systems in the future to reflect any further reporting obligations arising from the imposition of the new remedies such as VULA and PIA.

## Legal tests

- 5.171 We have considered our duties under section 3 of the Act and consider that the continued application of the regulatory financial accounting conditions on BT would further the interests of citizens and furthers the interests of consumers in relevant markets by the promotion of competition.
- 5.172 We have considered the Community requirements set out in section 4 of the Act and consider that the modification to the proposed condition meets the requirements. Specifically, section 4(8), where the obligation has the purpose of securing efficient and sustainable competition in the markets for electronic communications networks and services, by ensuring dominant providers do not favour their own downstream businesses, thereby disadvantaging third party CPs.
- 5.173 We consider the Conditions meet the criteria set out in section 47(2) of the Act. The obligations are:
- objectively justifiable as it relates to the need to ensure competition develops fairly, to the benefit of consumers;
  - not unduly discriminatory as BT is the only provider holding SMP in the relevant markets actually supplying a product to third party CPs;
  - proportionate as it is necessary as a mechanism to allow us and third parties to monitor for unduly discriminatory behaviour by BT and to ensure that the obligations for cost orientation are being met; and
  - transparent as it is clear the intention is to monitor compliance with specific remedies and the particular accounting separation requirements of BT are clearly documented. The existing conditions and directions which we are re-applying to

BT were consulted on extensively (both when first applied in 2004 and for any subsequent changes have been consulted on as part of the annual regulatory reporting consultations) and we consider that, in conjunction with the explanation set out in this section, our decisions have been made appropriately transparent.

## Correction of minor errors

5.174 KCOM commented on some specific text of the SMP conditions that we had proposed to impose in the consultation document. In particular, KCOM queried why we had removed the following, pointing out that the equivalent provisions applicable to BT had not been removed:

- provisions disapplying the requirement in SMP conditions FBB5.7, FBB6.2 and FBB7.1 for KCOM to give notice where Ofcom has made a direction or determination or issued a notification; and
- the provision in SMP condition FBB5.8 permitting KCOM to levy a reasonable charge for providing a copy of the Reference Offer.

5.175 These proposed changes appear to have been made in error. As a result, in light of KCOM's comments, we have not changed these provisions in this document.

## Summary of decisions on general remedies

5.176 Based on the analysis set out above, and having taken account of stakeholders' responses to the proposals set out in the consultation document, we are applying the general SMP remedies shown in Figure 5.1 on BT and KCOM.

5.177 The notable changes and clarifications to the existing set of general access obligations are summarised below:

- We are making a slight modification to the obligation for the process for new network access, and also extending this obligation to KCOM;
- The general no undue discrimination obligation will apply to BT and KCOM. However, in relation to BT's provision of VULA we are applying a specific form of no undue discrimination obligation. This is set out as part of the VULA requirements and the specific access obligation for that product;
- The basis of charges condition does not apply to VULA;
- The general RO obligation on BT includes some specific requirements for the Physical Infrastructure Access product; and
- We have made a procedural change to BT's financial reporting requirements, which means that all of those requirements are contained in a single set of reporting obligations.

5.178 In the consultation document we also proposed to give a Direction to BT under the quality of service obligation formalising the existing LLU KPI reporting arrangements. We are now of the view that it is appropriate for BT to continue to provide these KPIs on a voluntary basis, and that the OTA is the appropriate forum for detailed discussion of existing and new KPIs.

**Figure 5.1 General access remedies applying in the WLA market**

Remedies applying to BT	Remedies applying to KCOM
<ul style="list-style-type: none"> <li>• Requirement to provide network access on reasonable request;</li> <li>• Requests for new network access;</li> <li>• Requirement not to unduly discriminate;</li> <li>• Basis of charges (i.e., cost orientation);</li> <li>• Requirement to publish a reference offer;</li> <li>• Requirement to notify charges and terms and conditions;</li> <li>• Requirement to notify technical information;</li> <li>• Quality of service; and</li> <li>• Requirement for cost accounting and accounting separation.</li> </ul>	<ul style="list-style-type: none"> <li>• Requirement to provide network access on reasonable request;</li> <li>• Requests for new network access;</li> <li>• Requirement not to unduly discriminate;</li> <li>• Basis of charges (i.e., cost orientation);</li> <li>• Requirement to publish a reference offer;</li> <li>• Requirement to notify charges and terms and conditions; and</li> <li>• Requirement to notify technical information.</li> </ul>

5.179 We consider that this package of remedies is appropriate to address BT's and KCOM's SMP in the local access markets. The package of remedies aims at promoting competition and securing efficient and sustainable competition for the maximum benefit of consumers. Specifically, the chosen remedies will ensure that BT provides network access on fair, reasonable and non-discriminatory terms, the charges for which should in general be cost oriented. In addition, the chosen remedies will ensure that competing providers have necessary information, including technical information, which is provided sufficiently in advance to allow them to make informed decisions about competing in downstream markets. Finally, the chosen remedies will ensure that it is possible to monitor BT's quality of services and that BT is fair and reasonable in the way in which it deals with requests for new network access.

## Section 6

# Specific access remedies (1): LLU, fibre access, SLU

## Structure of remedies sections

- 6.1 Sections 6 to 10 cover our decisions concerning obligations on BT and KCOM to provide specific access products, over and above the general access remedies covered in Section 5. We consider specific access products in relation to both CGA and NGA networks.
- 6.2 This section analyses the following specific access product remedies that could be imposed on BT:
- Local Loop Unbundling;
  - Fibre access; and
  - Sub-loop Unbundling.
- 6.3 Sections 7 and 8 respectively then cover the following two remedies separately, as they involve a high level of detail, partly due to being new remedies:
- Physical Infrastructure Access (i.e., duct and pole access); and
  - Virtual Unbundled Local Access (VULA).
- 6.4 In Section 9, we then assess and decide what combination of remedies we consider to be appropriate. Also in Section 9, we cover our decisions in relation to specific remedies on KCOM, and a number of other issues relating to the imposition of specific access remedies.
- 6.5 Across Sections 6-9, we explain in two ways how our decisions on specific remedies support our competition and investment objectives. Firstly, we consider whether each of the remedies is justified on its own merits (Sections 6-8). Then we set out the justification for our chosen combination of these remedies, including the overall impact of this combination on stakeholders (Section 9). We consider that these remedies are best considered together because our decision on each one is linked to the approach taken on the others. However, most stakeholder comments were made on individual remedies, not their combination. For presentational purposes, we therefore include our conclusions on each remedy when we cover them individually, before setting out in Section 9 our conclusions on the combination of remedies.
- 6.6 Section 10 then sets out how each of the SMP conditions (which relate to individual access remedies) meets the relevant legal tests.

## Physical and non-physical access remedies

- 6.7 Access product remedies can be distinguished by the degree of electronic processing involved in operating them. A remedy that relies on the access to physical

network infrastructure such as copper, fibre and duct are sometimes called ‘passive’ remedies, on the basis that they do not include any active electronic equipment.

- 6.8 Conversely, a non-physical (sometimes called an ‘active’) remedy includes active electronic equipment that is connected to the physical infrastructure. CPs purchasing a non-physical access remedy would need to interconnect with equipment in the local serving exchange.
- 6.9 On the basis of this distinction, the current access product remedies in the WLA market - LLU and SLU - are physical remedies. CPs interconnect with the local copper access connections to end users’ premises either at BT’s local MDF exchanges (for LLU) or at cabinets (for SLU).
- 6.10 We consider that non-physical remedies can be imposed in the WLA market as long as they have the right characteristics, in that they should offer the same kind of features as a physical product.

## LLU obligation on BT

### Introduction

- 6.11 LLU allows CPs to rent the ‘copper’ access network connection between end users and their local BT exchange in its entirety or to share this connection with BT. This allows CPs to provide voice and/or data services directly to end users, using their own equipment housed in BT’s exchanges.
- 6.12 LLU provides CPs with greater control of the communication services that they provide, giving them significant ability to innovate and differentiate their products from those provided by BT. This enables CPs to support a potentially broader range of applications, products, and services. The additional control and flexibility of LLU gives greater innovation benefits than pure resale products. The benefits of innovation in turn flow through to consumers in the form of greater choice, better pricing, new products or improvements to existing products.
- 6.13 LLU allows CPs to use BT’s access network to compete effectively for the provision of services to end users without having to replicate the entire local access network. There are significant entry barriers to building a local access network arising from the high capital cost of establishing the network. LLU allows CPs to compete with each other and BT at the deepest level where competition is likely to be effective and sustainable for CGA-based services.
- 6.14 The LLU service sets the terms and conditions for interconnection at BT’s exchanges with the local copper access network, right through to the end user premises. Several key features of the LLU service should be noted:
- LLU can be in the form of either full access<sup>70</sup> or shared access<sup>71</sup> which gives CPs the choice to provide all or some of the communications services to end users;

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<sup>70</sup> The CP is able to provide the narrowband voice service in addition to broadband data services on a single copper line.

<sup>71</sup> BT provides narrowband voice services, and the CP provides broadband data services on a single copper line.

- In addition to the core access products, a number of ancillary services are necessary to enable and support the provision of LLU. These include; tie cables, space in the local exchange (e.g., co-location, co-mingling) and power;
- Through the BT Undertakings, BT has committed to provide LLU on an EOI basis; and
- There is currently a charge control in place to regulate the price of full and shared access. This charge control is based on an SMP condition introduced following the last WLA market review and will run until 31 March 2011<sup>72</sup>.

6.15 LLU has delivered positive outcomes for industry and consumers. The take-up of wholesale access products has risen, and some CPs plan further deployments of their own networks in competition with BT. About 84 per cent of UK premises are served from an exchange where LLU is being used and the number of unbundled lines is now over seven million<sup>73</sup>. This has brought significant changes in downstream markets.

6.16 Consumers have benefited from more choice and cheaper telecommunications services, based on LLU provision. CPs' shift from shared towards full LLU has supported this, by enabling CPs to provide a range of bundled voice, broadband and triple-play services over their own networks. Consumers have increasingly taken up triple-play services, with a 14 per cent increase in households with triple-play bundles since 2005. Fixed broadband penetration has also continued to rise, to 65 per cent of UK premises in March 2010<sup>74</sup>. Services have also become more affordable to consumers<sup>75</sup> and headline speeds for broadband access have increased.

## Consultation proposals

6.17 In the consultation document we proposed to maintain all of the existing LLU requirements. In addition, we proposed to introduce a direction which would require BT to publish certain LLU key performance indicators (KPIs). Finally we proposed to separate the requirements for LLU and SLU to clarify the distinctions between them.

6.18 Our key reasons for these proposals were as follows:

- LLU has been a highly effective remedy that has allowed CPs to compete with BT. In fact, it has been so effective that it has led us to find no SMP in the downstream WBA market in over 70 per cent of the UK;
- Take-up of LLU services is likely to remain high. Indeed the information available to us shows that some CPs are planning to significantly extend their current LLU footprints<sup>76</sup>;
- A requirement to provide LLU reduces barriers to entry for CPs who wish to provide telecommunications services to consumers, and provides certainty in respect of existing and future investment;

<sup>72</sup> The current LLU charge control was set in May 2009 as part of the Openreach Financial Framework - <http://www.ofcom.org.uk/consult/condocs/openreachframework/statement/annexes.pdf>

<sup>73</sup> Ofcom, *Broadband competition reaches 7 million milestone*, <http://media.ofcom.org.uk/2010/09/10/broadband-competition-reaches-7-million-milestone/>

<sup>74</sup> [http://stakeholders.ofcom.org.uk/binaries/research/cmr/753567/CMR\\_2010\\_FINAL.pdf](http://stakeholders.ofcom.org.uk/binaries/research/cmr/753567/CMR_2010_FINAL.pdf)

<sup>75</sup> [http://www.ofcom.org.uk/telecoms/btundertakings/impact\\_srt/impact\\_srt\\_fulldoc.pdf](http://www.ofcom.org.uk/telecoms/btundertakings/impact_srt/impact_srt_fulldoc.pdf)

<sup>76</sup> <http://stakeholders.ofcom.org.uk/consultations/wholesale-broadband-markets/>

- Separating the LLU and SLU SMP requirements should provide increased clarity when considering future network access requests; and
- Formalising the reporting of the current KPI would provide continued transparency of BT's treatment of OCPs.

6.19 Further detail on the reasoning and evidence for these proposals can be found in Sections 7 to 9 of the consultation document.

## **Summary and analysis of consultation responses**

6.20 Stakeholders supported the proposal to keep LLU as a remedy, and some suggested additions or modifications to our proposals. The issues raised by CPs related to:

- potential obligations on BT to report on specific LLU Key Performance Indicators (KPIs);
- the link between LLU forecasts and SLG payments;
- the notice period for notifying changes to LLU prices; and
- the regulation of prices for LLU ancillary services.

### LLU KPIs

6.21 In the consultation document, we proposed to formalise the existing LLU KPIs which are currently reported through the OTA and BT's website. This proposal related to some CP concerns that BT's migration to NGA could negatively affect its performance as a supplier of LLU products. The KPIs are intended to provide an indication of BT's overall performance and to ensure that the relative performance BT provides to its competitors is broadly equivalent to the service that it provides to itself. Our proposal to formalise KPIs was made under the SMP Condition on BT that requires transparency of its quality of service.

6.22 We also acknowledged that the KPIs are not intended to set an absolute standard for BT's performance or to replace any service level agreements/guarantees which might already be in place. A detailed list of the proposed KPIs was included in a draft direction (Annex 7 of the consultation document).

6.23 In response, BT argued that there was no need to formalise the existing LLU KPIs under the SMP framework. It considered that the KPIs could introduce additional compliance costs and that it should be allowed to continue to provide them on a voluntary basis to industry through the OTA and Openreach's website. BT considered that the existing voluntary process is flexible and responsive to customer requirements. Scottish & Southern Energy ("SSE") also commented that a better approach might be to require a KPI document generated by the OTA which could be amended as necessary, providing greater flexibility to adapt to changes as necessary. Some respondents, however, supported the proposal to formalise KPIs. For example, Virgin Media suggested that they should be subject to frequent and ongoing review. The CWU also supported the publication of KPIs on LLU especially for provisioning and fault repair (although not specifying whether this should be a formal requirement).

6.24 Our intention was to ensure, through the SMP transparency condition, that BT would continue to report the current LLU KPIs, and that changes in the LLU product set

would generate LLU KPI reporting requirements. However, after consideration of consultation responses and discussion with industry and the OTA, we consider that a lighter-touch approach would be more appropriate given the arrangements already in place. We now consider that the development of new KPIs and the removal of outdated KPIs, are evolutionary decisions that are best undertaken by industry in conjunction with the OTA.

- 6.25 We have therefore concluded that we will not, at this point, introduce a formal requirement for LLU KPIs in the SMP conditions. However, we will be able to issue a direction in the future to require LLU KPIs to be provided under a formal requirement, if the need arises. We remain committed to ensuring effective equivalence and transparency in the supply of LLU products.

### Link between LLU forecasts and SLG payments

- 6.26 In the consultation document, we proposed that as part of BT's requirement to publish a reference offer, that reference offer must set out, among other things, service level agreements (SLAs) relating to maintenance and quality and service level guarantees (SLGs). We proposed this to maintain LLU regulation in its current form, and as part of this we included a provision in the legal instrument in Annex 6 of the consultation document that would have the effect of continuing a 2008 SLG Direction for LLU<sup>77</sup>. The SLG Direction required BT to amend certain SLGs that it offered for LLU and to pay compensation to OCPs proactively for LLU service failures. We considered that the LLU SLG requirements should continue, as they give BT incentives to maintain a good quality LLU service.
- 6.27 In its consultation response, BT argued that we should allow it to link LLU forecasting and SLG payments. It considered that this would allow it to develop commercial incentives for CPs to provide more accurate forecasts. BT argued that placing the regulatory focus solely on SLG payments, without giving it the freedom to require robust forecasts from customers, results in BT being penalised where there is no reasonable prospect that it could have planned to meet demand in the absence of good forecasts. The CWU, whilst not referring to SLG payments, also stated that transparency on quality of service should operate both ways, due to potential negative impacts on BT's quality of service.
- 6.28 In the consultation document, we proposed to continue the 2008 SLG Direction for LLU<sup>78</sup>. When we consulted on that 2008 Direction, BT argued that it should be able to contractually link forecasting and compensation payments. Following consultation, we explicitly rejected BT's argument, considering that approach to be neither appropriate nor proportionate. In its response to the consultation document in this market review, BT has essentially made the same type of argument.
- 6.29 In the case of the 2008 SLG Direction, we consider that BT has not raised any new arguments or provided any evidence that suggests that we should change the position set out in this direction. We would, however, note that the position set out in this direction is in relation to the particular LLU services considered and is not meant to be a general rule.
- 6.30 Generally, we recognise the importance of accurate forecasting. However, we consider that it is often the case that there is a coincidence of interests between BT and its customers as a whole, because BT should be better able to meet its

<sup>77</sup> <http://stakeholders.ofcom.org.uk/binaries/consultations/slg/statement/statement.pdf>

<sup>78</sup> See SMP Condition FAA 1.4, in Annex 2 below, for further details

customers' expectations in an efficient manner if it has greater visibility of future demands. If all CPs were to provide inaccurate LLU forecasts, this could cause BT to resource too much or too little capacity. If CPs under-forecast, particularly on labour-intensive activities such as LLU plan and build, this would impact on BT's ability to meet standard plan and build timeframes, which would subsequently impact on the CPs ability to provide services to end users. If, on the other hand, CPs over-forecast there is a risk that this could increase BT's cost of providing the services and result in increased charges for CPs.

- 6.31 BT has not provided any evidence that shows that it has either: over resourced itself based on a forecast that did not materialise or under resourced itself, based a forecast, and then subsequently had to pay compensation. We, therefore, do not see a clear need for us conclude that it is right for BT to contractually link forecasting and compensation payments, at this time.
- 6.32 However, it is possible that contractually linking forecasting and compensation payments may be appropriate in certain situations. To this end we consider that if BT intends to introduce addition LLU SLGs, then it should be able to discuss the option of contractually linking forecasting and compensation payments with its customers, either through an appropriate industry forum or bilaterally.
- 6.33 TTG suggested that additional changes were required to the existing LLU SLA/SLG regime to expand the areas covered by the SLGs to address concerns about LLU product delivery performance for certain LLU components such as tie-cable provision. It considered that currently there is not an adequate SLG/SLA regime that provides correct and adequate commercial incentives on Openreach to deliver the appropriate level of quality.
- 6.34 In response, we are aware that recently there have been some provisioning issues in relation to certain LLU products. However, we understand that these are being addressed through the established industry groups that are facilitated by the OTA. We, therefore, consider that it is not necessary for us to direct additional SLAs and SLGs at this time. We will, of course, continue to monitor the situation and seek the advice of the OTA. Finally, as discussed above, BT and industry can introduce additional SLGs through commercial agreement.

#### LLU Pricing – cost orientation for enhanced care services

- 6.35 Stakeholders raised two issues about LLU pricing. Firstly, BT suggested that the cost orientation obligation for LLU should be removed from discretionary ancillary services, to align with the regulatory treatment of WLR. Secondly, TTG argued that there should be greater pricing consistency between LLU charges for new connections and the charges for new connections for other BT products.
- 6.36 In the consultation document, we proposed that cost-orientation would continue to apply to all LLU services, and proposed that the LLU rental service would be subject to a charge control.
- 6.37 In response, BT argued that cost orientation should be relaxed for LLU. It suggested that we should remove cost orientation for LLU discretionary ancillary services. BT argued that this would encourage it to develop enhanced care and other services. As a consequence, it suggested, CPs would have access to a greater choice of service products from Openreach. Alternatively, BT suggested that where those services are contestable they could be sourced from alternative suppliers, to the benefit of end users.

- 6.38 BT considered that this would be the same as the approach that we took for WLR enhanced care services in the WLR charge control<sup>79</sup>. It argued that this would allow Openreach to sell services across LLU and WLR in a consistent way. The enhanced care services for WLR have a faster fault repair response time than the standard time for the core WLR product, which is the primary point of differentiation between the enhanced care services and the core WLR product.
- 6.39 We did not explicitly consult on this issue in the consultation document. Discussions with CPs since then have not suggested a clear consensus on this issue. Therefore, we have decided that it would be beneficial to undertake a more detailed consultation on cost orientation for enhanced care services. We intend to consult specifically on this point in the LLU charge control consultation document, which is due later this year. We therefore do not discuss at this stage the specific points that BT has raised.

### LLU Pricing – consistency with other services

- 6.40 We now assess the other main pricing issue raised in consultation responses, which was TTG's proposal that there should be price consistency between charges for LLU and charges for other services. It suggested, for example, that BT's connection charges for its WLR service should be calculated consistently with its connection charges for MPF. TTG argued that the connection charge for migrating from WLR to MPF should be similar to the connection charge for migrating from MPF to WLR, as there are similar processes for each connection/disconnection involved. TTG gave one example in which the charges were higher when migrating from WLR to MPF than when moving in the other direction. TTG considered that BT's charges appeared to discriminate in favour of BT's own WLR product, as BT does not consume MPF and therefore faces lower migration charges.
- 6.41 Our general approach to LLU pricing is that BT is required to set charges that reflect the cost of providing the services (including an allocation for common cost recovery and an appropriate return). Further, where parts of the LLU product or process are the same as products or processes within other products (which BT is also required to price on a cost-oriented basis), then our intention is to take a consistent approach when assessing costs. In such situations we would therefore expect these parts of the cost stack to be the same. However, it should be noted that while some processes may appear to be similar, there may be legitimate differences that cause the underlying costs to differ.
- 6.42 We would of course be concerned if BT were to set prices in a way that could undermine fair and effective competition. In the context of LLU there is a general requirement for BT's charges to be cost orientated, in particular on the basis of LRIC+. On many products we also intend to continue setting charge controls. There is also a requirement on BT to have fair and reasonable terms, conditions and charges. Finally, BT is required not to discriminate unduly between customers. We consider that these existing remedies are sufficient to enable us to adequately control BT's prices for LLU products and services, and where appropriate, to ensure consistency with other products or parts thereof. If stakeholders come forward with specific allegations of pricing behaviour which they consider may be in breach of these obligations, they will be considered in accordance with our established procedures.

<sup>79</sup> [http://stakeholders.ofcom.org.uk/binaries/consultations/wlr/statement/wlr\\_statement.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/wlr/statement/wlr_statement.pdf)

### LLU notification periods

- 6.43 In the consultation document, we proposed that there should continue to be a 90 day notification period for any changes to the charges, terms and conditions for which BT provides network access.
- 6.44 BT argued that the notification period should be reduced from the current 90 days to 28 days, in the case of charges for; connections, transfers, and other related support functions. BT said that this was necessary because common parts of BT's copper access network are shared between LLU products and WLR, and for WLR we have reduced the notification period for connections and transfer services to 28 days. BT's view was that this meant that in practice 90 days would become the default period for all WLR price notifications relating to product functionality common to both LLU and WLR. BT therefore, requested that the price notification periods for LLU and WLR be aligned.
- 6.45 Notification periods are intended to give sufficient time for providers to make a competitive response through necessary changes to their wholesale and retail products. In the WLR market review, we required BT to provide at least 90 days notice for changes to the charges for the WLR core rental products. For all other WLR services, a 28 day charge notification period was required, to provide BT with flexibility to trial new products and expedite product delivery should trials prove successful.
- 6.46 Underlying BT's view appears to be the logic that both LLU and WLR are based on its copper access network and, therefore, operationally it makes sense to align these products. We recognise this point. However, LLU and WLR are specific remedies that aim to address BT's SMP in separate economic markets – WLA and wholesale narrowband respectively. We, therefore, need to ensure that the regulatory approach that we adopt in each market adequately addresses the competition issues which have been identified.
- 6.47 The wholesale narrowband market (WLR) is logically downstream of the WLA (LLU) market. In line with our general regulatory approach we aim to focus regulation upstream and to remove/reduce regulation in downstream markets wherever possible. The fact that we may, therefore, give BT more commercial freedom in downstream markets is fully in line with our general strategy.
- 6.48 We therefore do not accept BT's argument that because we have provided more commercial freedom in a particular economic market that we should do the same in other separate economic markets, particularly, when the other markets are further upstream.
- 6.49 The investment required to use LLU is significantly higher than that associated with WLR. LLU requires CPs to build and operate more complex networks than WLR. LLU is also more complex in that it can be used to serve multiple downstream markets, e.g., voice, broadband and potentially parts of the leased lines market. This means that LLU price changes are likely to have a more significant impact on the LLU operators and the markets they are serving compared with WLR. We, therefore, consider that generally CPs who use LLU will require more time to respond to any price changes to the wholesale inputs (LLU) that they purchase. For this reason, we have decided to maintain the default 90 day price notification period, as set out in the consultation document.

- 6.50 We would, however, note that we are able to consent to modifications to this, on a case-by-case basis. Thus, if there is a general industry need to have a shorter notice period, in a given situation, we can accommodate this.

## Conclusions

- 6.51 The primary change to the existing LLU remedy proposed in the consultation document was to formally require BT to provide LLU KPIs. We are of the view that it is appropriate for BT to continue to provide these KPIs on a voluntary basis, and that the OTA is the appropriate forum for detailed discussion of existing and new KPIs. However, if these voluntary KPIs are removed without CPs' consent, we would consider introducing a formal requirement.
- 6.52 Our view is that retaining the LLU remedy, and keeping LLU in its present form, is most likely to give rise to sustainable investment and competition in downstream markets. LLU has encouraged CPs to invest in their own equipment to provide services in downstream markets and has resulted in intensified competition in the provision of services to end users. Furthermore, the level of take-up for LLU services remains high and demand for LLU-based services is likely to remain high in the short term. A requirement to maintain LLU provides continued certainty in respect of existing and future investment in LLU products.
- 6.53 Whilst the discussion above has looked at the LLU obligation on a stand-alone basis, we consider that the conclusions drawn remain valid when LLU is viewed in combination with other WLA remedies. Our assessment of the combination of remedies is presented in Section 9. We also present how the LLU obligation meets the relevant legal tests, in Section 10.

## Fibre access

### Introduction

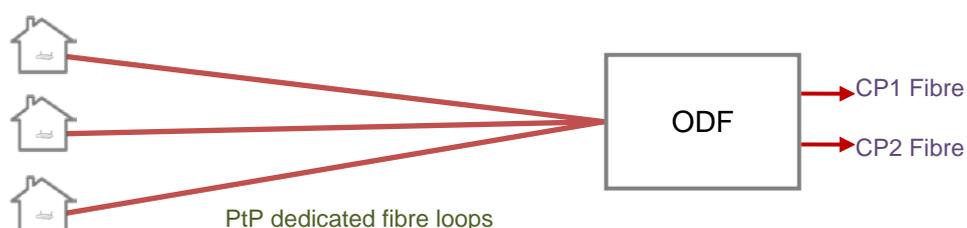
#### Physical fibre unbundling

- 6.54 Fibre unbundling is possible where FTTP has been deployed. A FTTP deployment is a fully optical solution where fibre cables replace the entire copper loop<sup>80</sup>. Currently, two basic FTTP architectures exist: point-to-point ("PtP") and point-to-multipoint. The latter is often referred to as a passive optical network ("PON") or a giga-bit passive optical network ("GPON"). The options for fibre unbundling will be different for each of these architectures and these are discussed below.
- 6.55 With a PtP architecture (see Figure 6.1) a dedicated fibre connection is available to each end user from the exchange building. Compared with point to multipoint, an advantage of this architecture is that the entire fibre capacity is available to each end user. However, it does use more fibre and would require more equipment (in the local serving exchange) to operate the fibre.

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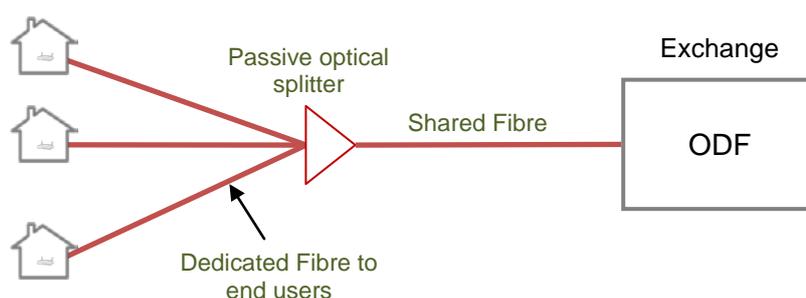
<sup>80</sup> The MDF is replaced by the ODF (which can use the same MDF site locations).

**Figure 6.1 PtP FTTP architecture**



- 6.56 Physical unbundling of fibre under a PtP architecture would be similar to full LLU access, with the copper being replaced with fibre. As with LLU, if a sufficient number of end users were being served from the exchange (ODF) then fibre unbundling could be an attractive option.
- 6.57 Point-to-Multipoint architectures are based on a shared infrastructure topology, such as a PON. In a PON deployment, a single fibre from the exchange is shared by several end users by means of a passive optical splitter which is deployed somewhere between the exchange and the end users' premises (see Figure 6.2).

**Figure 6.2 Point to Multi-point FTTP architecture**



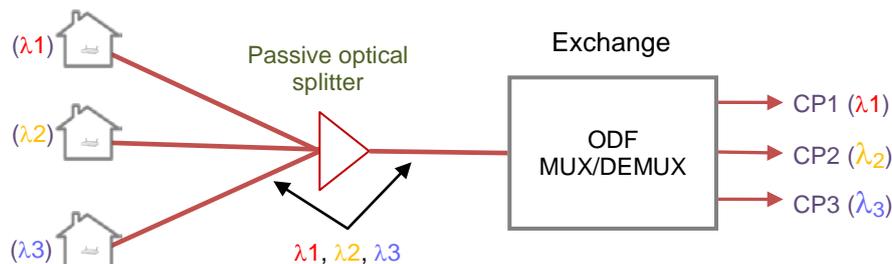
- 6.58 Physical unbundling of fibre under a PON architecture is only possible at the passive optical splitter. With this arrangement competing CPs would need to have their own fibre connections between the exchange and the passive splitter, then when end users switch between different CPs the dedicated fibres to end users would need to be disconnected from one CP's network and connected to the other CP's network at the passive optical splitter. Within BT's network, it is likely that the passive optical splitter would be positioned somewhere between the street cabinet and the end user premises (most likely the distribution point, or 'DP').
- 6.59 Given that there is likely to be a large number of passive splitter locations and that the process for disconnecting/reconnecting end user fibres will require significant manual intervention, this type of fibre unbundling is likely to be costly and impractical<sup>81</sup>.

<sup>81</sup> *Analysys Mason, Competitive models in GPON, December 2009 - [http://stakeholders.ofcom.org.uk/binaries/research/technology-research/Analysys\\_Mason\\_GPON\\_Final\\_R1.pdf](http://stakeholders.ofcom.org.uk/binaries/research/technology-research/Analysys_Mason_GPON_Final_R1.pdf)*

### Wavelength unbundling (on a PON)

- 6.60 In the situation where only a single PON exists a possible alternative to physical fibre unbundling at the passive optical splitter is to unbundle individual wavelengths ( $\lambda$ ) on the PON. With this arrangement competing CPs are each allocated a different wavelength on the PON. The PON is therefore used to support multiple wavelengths simultaneously. Each competing CP therefore has its own virtual PON which are separated by different wavelengths, as opposed to their own physical PON which would be separated by different fibres (see Figure 6.3).

**Figure 6.3 Wavelength unbundling (on a PON)**



- 6.61 While wavelength unbundling would seem to promote efficient use of a PON, it requires additional equipment to combine and manage multiple wavelengths. Further, the standards for such equipment are still at a very early stage of development and it is likely to be several years before they mature. However, retro-fitting wavelength unbundling is likely to be possible, as standards develop and mature.
- 6.62 Due to the current immaturity of the standards and associated products for wavelength unbundling we do not consider that it would be appropriate to have such an obligation at the current time. However, we will continue to monitor developments and reconsider, as necessary, in the future.

### Multiple fibres

- 6.63 Given the issues associated with unbundling a PON (either fibre or wavelength), there has been some interest in the prospects of multiple fibres. In this context if multiple fibres had been deployed in all parts of the network, but in particular to the end user, then rather than trying to unbundle a single PON it would be possible to create multiple parallel PON networks. In this way each competing CP would have its own physical PON which would be separated by different fibres.
- 6.64 This would clearly remove the need to either unbundle fibre at the passive splitter or unbundle wavelengths, as instead the end user would simply be connected to a different fibre within its premise.
- 6.65 It is unlikely that multiple fibres would routinely be installed under normal commercial conditions. This is because if a CP was to deploy a FTTP network, whilst it might deploy one or two 'spare' fibres to allow for expansion and/or fibre breakages, it is unlikely to deploy multiple 'spare', as from its point of view this would be unnecessary and inefficient. Given the likelihood that costs would be increased, possibly unnecessarily, by a regulatory requirement to install spare fibre, this could only be justified if there were thought to be significant benefits which could not be realised

through other remedies. This does not appear to be the case at present. We comment below on the case for regulatory intervention to require such deployments.

### **Current and future availability of FTTP within BT's access network**

- 6.66 With the exception of a few relatively small new development areas, at the current time there has been no deployment of FTTP within BT's access network. However, this is expected to change over the next few years, as BT currently plans to cover 66 per cent of UK premises with NGA, of which a quarter will be FTTP. BT's FTTP deployment is expected to be a point to multipoint (GPON) architecture.
- 6.67 Clearly, in areas where BT has not deployed FTTP there will not be any suitable fibre (i.e., existing unlit/unused fibre) in the access network to unbundle. Therefore, there will be no scope for fibre access of any kind.

### **Consultation proposals**

- 6.68 In the consultation document we proposed that there should not be a specific fibre access requirement on BT, for the period of this review<sup>82</sup>. Instead, we proposed that CPs would still be able to seek fibre access products under BT's general access obligation to meet reasonable requests for network access (which we proposed should continue).
- 6.69 The key reasons and evidence that we gave for this proposal were as follows:
- Availability of fibre for unbundling in the access network today is very sparse, and would not support competition at this point in time;
  - We recognised that as NGA investment is secured, it would be beneficial to have a remedy that closely mimics the competitive impact of LLU. However, we did not consider that fibre unbundling on BT's chosen network topology – a point-to-multi-point GPON - would be a realistic option for CPs to achieve this. We described the limited CP interest in GPON unbundling, suggesting that this was likely due to the impracticality and considerable costs of gaining access to a GPON network at the passive optical splitter. We provided evidence that, for example, estimated that there would be a 53 per cent rise in costs (from £34 per line per month) if a second operator were to unbundle a GPON at the DP<sup>83</sup>;
  - Over the time horizon of this review, wavelength unbundling technologies are not expected to mature sufficiently to support competition. We said we would re-examine their potential as a remedy in the next WLA market review;
  - Requiring BT to deploy multi-fibre, when it deploys its FTTP network, would likely be an inefficient outcome, as surplus fibre might well be supplied relative to actual future demand. A multi-fibre requirement might also disincentivise BT from investing in its FTTP network, given evidence of very testing conditions for such deployments, including high costs and unproven consumer demand for FTTP products. In particular, the available evidence indicated that the unbundling of multi-fibre is likely to become attractive to a CP only where it has a sizeable market share under certain favourable conditions which include: high coverage; high duct re-use; and also roll-out in densely populated areas<sup>84</sup>. Given this, and

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<sup>82</sup> Paragraphs 7.39 to 7.66 and 8.16 to 8.21

<sup>83</sup> See *Analysys Mason, Competitive models in GPON, December 2009* for assumptions

<sup>84</sup> See *Analysys Mason* report above.

because other effective wholesale local access remedies would be available, we considered that a multi-fibre obligation would not be a proportionate way to pursue our objectives of securing effective competition and investment; and

- The general access obligation on BT is sufficient as it will require BT to develop fibre access products in response to reasonable demand, for example, as the viability of such product increases.

## Summary and analysis of consultation responses

6.70 The majority of stakeholders commented on our proposals in this area. Broadly speaking, most agreed that our proposals were appropriate. However, some disagreed with various aspects, such as when fibre access should become available. We discuss these points below.

### Physical fibre unbundling and wavelength unbundling (on a PON)

- 6.71 The vast majority of respondents agreed that our proposal not to mandate unbundling at this point is appropriate. However, some respondents considered that fibre access may become possible in the future, and a number of them suggested that decisions taken in this review should not prevent opportunities to access fibre as market conditions develop. However, stakeholder opinion varied on when a fibre access remedy might become appropriate.
- 6.72 The Commission stated that it did not challenge our finding that fibre unbundling would not be justified and proportionate today. However, it invited us to reassess the case for fibre unbundling once it is technically feasible - if necessary, within the four-year forward look period that we have used for this market review. Sky similarly stated that it may be appropriate to reassess the case for wavelength unbundling before the next market review, given likely technological developments. TTG also suggested that we reserve the powers to implement a fibre unbundling remedy before the next market review, if that becomes technically feasible. It also considered that a general access obligation would inevitably lead to a dispute, as it would not be in BT's interest to grant access in response to a request. It argued that a disputes process would be ineffective due to the lengthy time needed for effective resolution.
- 6.73 The Commission also considered that NRAs should allow fibre unbundling as a matter of principle, regardless of the type of network architecture deployed. Related to this, it invited us to assess whether over the forward look period of the review, it could be cost effective for CPs to unbundle BT's GPON network; particularly if BT undertakes selective deployment in densely populated areas where more services could be aggregated.
- 6.74 Geo considered that we should mandate a fibre unbundling remedy. In its response it illustrated various points within the local access network where it considered fibre unbundling should be mandated (e.g., from the exchange, and the street cabinet). In particular it recommended a form of 'fibre sub-loop unbundling (SLU)', where a CP seeking access could place its own street cabinet (with its own equipment) beside or next to a BT street cabinet. It could then deploy a connection to the BT cabinet, and use unbundled fibre from the cabinet to the end user's premises. Vtesse also stated that we should have a fibre unbundling remedy at the street cabinet to prevent CPs' FTTC investments becoming stranded, noting that eventually the copper connection between the street cabinet and end user may be replaced, through transition to FTTP.

- 6.75 We recognise that NGA services and technology are nascent, and may be subject to change. Indeed, we considered potential developments when framing our proposals. However, we consider that a fibre unbundling remedy on BT's GPON network, over the period considered by this review, is unlikely to support effective competition, due to significant cost disadvantages and the impracticality of physically unbundling a GPON. In terms of wavelength unbundling, we consider that WDM technology and standards are currently immature, and that it is very likely that this will remain the case during the four-year forward look period considered in this review. However, we will continue to monitor developments, and reconsider this position if necessary.
- 6.76 We still consider that GPON unbundling is unlikely to be cost-effective (or technically feasible), even in the most densely populated areas in the UK. BT's chosen GPON network topology means that passive optical splitters are likely to be located close to customer premises (i.e., close to, or at, the DP), not at BT's street cabinets or at other points in the local access network. This means that even in densely populated areas, unbundling at a splitter is likely to allow only low customer aggregation, as each splitter will only serve a small number of customers. The effect of this, and the high cost of manually unbundling a large number of splitters, means that fibre unbundling is unlikely to allow CPs to gain the economies of scale necessary to build a sustainable business case.
- 6.77 Note that evidence is available on the economics of different GPON topologies in two Analysys Mason reports. One report on competitive models in GPON assessed the costs associated with accessing different FTTP/GPON topologies<sup>85</sup>. An earlier report compared the pros and cons of different FTTP topologies, in particular GPON and point-to-point<sup>86</sup>.
- 6.78 We consider that a general access obligation is sufficient as it will require BT to develop fibre access products in response to reasonable demand, for example, if and when the viability of such products increases. We accept that any request for a new product could lead to a dispute and, if that happens, we will have to assess whether the request is reasonable. Given all the uncertainties discussed above, we do not consider it to be appropriate for us to specify a specific physical fibre access remedy in this review in order to try to head-off a potential future dispute.

### BT FTTP network design

- 6.79 In the context of a physical fibre unbundling remedy, Vtesse also considered that BT should deploy its splitters at the street cabinet level of the network, and not as close to the end user, when it builds its GPON network. Geo also considered that we should mandate unbundling from this point in the network.
- 6.80 Corning Limited disagreed with the conclusion that no action is required now and stated that we must recognise that a GPON deployment is inherently less favourable to third party access since physical unbundling is very difficult and unlikely to be cost effective. Therefore, it considered that some other form of unbundling is required. As a result, it argued that we should require BT to design its network in a way that facilitated efficient market entry in future. It suggested that there was a balance between BT's right to make technology choices and the impact of those choices on future competition. It suggested that we should require BT to build its FTTP network

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<sup>85</sup> See *Analysys Mason, Competitive models in GPON, December 2009*

<sup>86</sup> *Competitive Models in GPON – Initial Phase* - Analysys Mason, 26 October 2009 - [http://stakeholders.ofcom.org.uk/binaries/research/technology-research/Analysys\\_Mason\\_GPON\\_Market\\_1.pdf](http://stakeholders.ofcom.org.uk/binaries/research/technology-research/Analysys_Mason_GPON_Market_1.pdf)

in a way that supports possible WDM PON technology upgrades, so that such upgrades could be implemented more cheaply and quickly.

- 6.81 We do not consider that placing constraints on BT's technology choices and investment decisions would be a proportionate approach to the issues which have been identified in this market. Partly, this is because we consider that appropriate alternative forms of access to BT's network are available to promote competition and investment. Further, such a requirement would require BT to invest in a topology that may be contrary to its own commercial interests, which could affect its incentives to invest. Finally, to require BT to build its network to support WDM PON technologies now, as suggested by Corning Limited, would entail costs with no clear corresponding benefits, due to current high uncertainty about the technical details of WDM PON and the related business case. There is a risk that such an intervention would be ineffective in supporting competition. We do not consider that this would be an appropriate and proportionate approach.

### Multiple fibres

- 6.82 Some respondents stated that spare fibre capacity (i.e., multi-fibre) should be deployed by BT ahead of specific orders for that capacity. In making this point, TTG and one confidential respondent argued that deploying spare fibre would not reduce incentives for BT to invest in FTTP. TTG further argued that BT could recover such costs through a fibre unbundling charge, or wholesale or retail GEA charges.
- 6.83 FTTH Council and Corning Limited stated that we should require BT to deploy multi-fibre under a co-investment framework. It suggested that BT should notify stakeholders when it intends to build its FTTP network, to allow more than one CP to simultaneously invest in the spare fibre installed by BT.
- 6.84 A multi-fibre requirement would involve BT deploying more fibre than it requires for its own needs. This would require an incremental up-front cost that BT would need to recover. However, as we noted in the consultation document, we are not aware of any firm demand, from paying CPs, for spare fibre. This is likely to be due to the challenging business case involved in multiple deployments, especially when compared to accessing BT's NGA network using other forms of access (e.g., using VULA). The absence of any firm demand suggests that there is a significant risk that such a deployment would be inefficient.
- 6.85 We also do not consider that recovering costs from VULA/GEA to support the deployment of spare fibre would be an efficient outcome. As we note in Section 8, VULA is likely to be an important driver of competition. Recovering the costs of an inefficient multi-fibre deployment from a more efficient access product could have perverse effects (e.g., by increasing VULA prices). Such a price increase would ultimately be passed on to consumers and given the current demand uncertainties and sensitivities this could result in a lower take-up of the services which in turn could undermine the case for investment. This would not be in the interests of UK citizens and consumers.
- 6.86 In reaching this view, we have taken account of evidence which suggests that deploying a GPON is only likely to be attractive to BT under certain favourable conditions<sup>87</sup>. Such conditions include high market share, high coverage, high duct re-use, and also roll-out in densely-populated areas. Given this, a multi-fibre obligation

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<sup>87</sup> See *Analysys Mason, Competitive models in GPON, December 2009* for assumptions.

could undermine BT's rationale for investment, especially as there is considerable uncertainty over the consumer demand for FTTP-based products.

- 6.87 In terms of a co-investment approach to deploying multi-fibre, we agree that, in a situation where more than one CP wants to deploy fibre in the same area at the same or similar time, then coordinating this could reduce the overall deployment costs. In theory, it could also be more effective in matching the supply and demand of fibre. However, the main disadvantage of this approach is that there is no firm demand at this point from CPs who might wish to co-ordinate their investment with that of BT or anyone else. We see no signs that this is likely to change. Therefore, we do not consider a co-investment requirement would be appropriate or proportionate given the absence of proven need at this time.
- 6.88 While we consider that it would be inappropriate and disproportionate to require BT to deploy spare fibre for OCPs, it is important to note that CPs could still deploy fibre in BT's physical infrastructure network, using the PIA remedy (see Section 7).

### Dark fibre instead of PIA

- 6.89 TTG, Vtesse, Geo and O<sub>2</sub> argued that access to existing fibre could be preferable to PIA. Vtesse argued that where fibre exists, an unbundling remedy could complement PIA, especially given the time that it may take for a PIA product to become available to the market. TTG suggested that where fibre is currently deployed, it could be more cost effective for a CP to unbundle existing fibre rather than using PIA and in cases where there is no fibre, it would be less complex operationally and more efficient in terms of capacity utilisation for BT to provide new fibre for CPs.
- 6.90 In terms of unbundling existing fibre. We consider that physical fibre unbundling would not be a viable remedy to enable the deployment of NGA networks during the period covered by this review, given the sparse availability of suitable fibre in BT's access network and the likely technical feasibility of accessing fibre. We consider that physical fibre unbundling would not be a satisfactory alternative to PIA. We further consider that the scope for physical fibre unbundling to complement PIA would, at best, be very limited. We, therefore, consider that it would be disproportionate to require BT to produce a physical fibre unbundling reference offer and the associated products and processes.
- 6.91 In terms of requiring BT to install new fibre and then to provide this to OCPs. It is not obvious to us that this would necessarily be less complex operationally on an end-to-end assessment. All of the key operational processes associated with fibre provision such as surveying, planning and fibre installation would still need to be undertaken (albeit by BT rather than CPs in some cases) and a set of inter-operator operational processes for planning, ordering and maintenance would still be needed. Further, reference offers, contracts, processes and systems, etc for the physical fibre product would be needed in addition to the ones needed for PIA (on the assumption that PIA would still be required, given other respondents' comments). On the point about more efficient capacity utilisation, we assume that TTG is talking about utilisation of duct and pole capacity. It is not apparent that this is necessarily the case. In a situation where multiple CPs want to establish separate fibre connections between two points, better utilisation could probably be achieved if one CP installed a multi-fibre cable and shared it, compared with the situation where each CP installs their own fibre. However, this is not the situation that we expect to generally occur in the deployment of NGA networks. Rather, it seems to be generally accepted that in most cases only a single NGA network will be deployed, by a single CP, in any given area. It is, therefore, not obvious how BT installing a fibre on behalf of another CP in a given

location would result in better utilisation compared with the situation where the CP installs the fibre itself.

- 6.92 Given our current understanding of the situation, as discussed above, we do not consider that it would be reasonable to require BT to install fibre on behalf of OCPs.

### Use of fibre unbundling for backhaul

- 6.93 Geo and Vtesse stated that we should have a fibre access remedy to support backhaul (e.g., for LLU and SLU). We would also note in this context that the Commission's NGA Recommendation (Article 29) states that an SLU remedy should be supplemented by backhaul measures, "including fibre and Ethernet backhaul where appropriate".
- 6.94 We recognise that it is essential for effective backhaul solutions to be made available, in support of both LLU and SLU remedies. In the case of LLU, backhaul refers to transmission links beyond the local access network, from the local serving exchange to the network of the purchasing CP. Services of this sort lie outside the WLA market, because they do not make use of local access infrastructure. However, BT is required to provide such services under the provisions of the business connectivity market review ("BCMR"), which found it to have SMP in a number of wholesale markets for leased lines. The regulated provision of wholesale leased line services has supported the growth of LLU based competition in recent years, and we would expect that to continue. We note that the BCMR undertaken in 2008 did not require BT to provide access to fibre<sup>88</sup>. This issue will be considered again in the next BCMR, which is due for completion in 2012.
- 6.95 In the case of SLU, backhaul refers to the link beyond the copper sub-loop, from the cabinet to a local aggregation node or to the network of the purchasing CP. The backhaul component from the cabinet to the local aggregation node falls within the scope of the WLA market, and should therefore be considered directly in the context of the present market review.
- 6.96 Having taken utmost account of the NGA Recommendation, and of the responses to the consultation, we do not consider that BT should be required to provide access to unbundled fibre for the purposes of SLU backhaul. In reaching this conclusion, we have taken particular account of the following:
- BT is already required to supply leased line products which can be used for SLU backhaul under the provisions of the BCMR;
  - The PIA remedy we are imposing (see Section 8) will support backhaul for SLU; and
  - As discussed above, BT has only deployed a limited amount of fibre in its access network, although a significant amount of additional fibre will be installed as part of its NGA rollout plans. In these circumstances:
    - there is a risk that the limited availability of fibre would render a fibre access remedy ineffective;
    - if BT was required to install fibre solely to meet the needs of OCPs, it is unclear that such a remedy would be any more efficient than PIA; and

<sup>88</sup> <http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr08/summary/bcmr08.pdf>

- there is a risk that a requirement to provide access to fibre would undermine the investment case for BT's NGA rollout.

6.97 In view of these factors, we do not consider that it would be proportionate to require BT to provide access to unbundled fibre for SLU backhaul.

## Conclusions

6.98 We have concluded that there should not be a specific fibre access requirement on BT, for the period of this review. Instead, we conclude that CPs will be able to seek fibre access products under BT's general access obligation to meet reasonable requests for network access (which we have decided should continue).

6.99 In coming to this conclusion, we have considered the relative merits of fibre access relative to other, more suitable and effective remedies (e.g., VULA, PIA). We consider that these other remedies will provide a better opportunity to invest in NGA, and will support competition more effectively. Our reasons for imposing our chosen combination of remedies are presented in Section 9. We therefore consider our overall conclusions for fibre access, for this review, are proportionate and appropriate.

## Sub-loop unbundling (SLU)

### Introduction

6.100 Sub loop unbundling ('SLU') allows CPs to rent the 'copper' access connection between end users and an intermediate point in BT's access network - between the end user premises and BT's local exchange - (such as a BT street cabinet). Like LLU CPs can either rent the entire sub-loop connection or share it with BT. Access at this intermediate point enables CPs to install equipment at a location which is closer to the end user premise, reducing the length of the copper access connection. The shortening of this connection enables higher broadband speeds to be supported. The CP will then need to establish a fibre backhaul connection from the intermediate point (street cabinet), thus creating a fibre to the cabinet (FTTC) network.

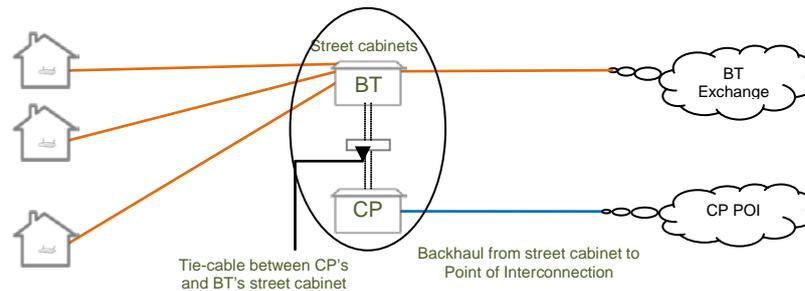
6.101 BT has been required to provide SLU since January 2001, and published its initial Reference Offer (RO) at that time. Subsequently, BT has been required to provide SLU as an LLU service in the 2004 WLA Statement. SLU has also been part of the OTA's remit for some time, and is explicitly included in its Terms of Reference<sup>89</sup>.

6.102 The current SLU requirement on BT does not specify a particular SLU product or arrangement. Rather it has been kept general so as to allow CPs to determine the arrangements that best suit their needs, which they are then able to request.

6.103 Within its current RO, BT has specified a particular SLU arrangement which allows CPs to deploy FTTC networks independent of BT. This arrangement requires CPs to install their own street cabinet next to or near an existing BT street cabinet. The CP cabinet would contain the CP's equipment (e.g., VDSL DSLAM) and would be connected to BT's street cabinet by tie cables connected in order to allow interconnection with the copper sub-loops. This arrangement is illustrated in Figure 6.4.

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<sup>89</sup> <http://stakeholders.ofcom.org.uk/telecoms/groups/telecoms-adjudication-scheme/annex5>

**Figure 6.4 SLU arrangement currently offered by BT**

- 6.104 Although BT currently only offers the SLU arrangement that it has specified, other SLU arrangements may be possible and CPs are able to make reasonable requests for other alternatives. However, the SLU alternatives which are possible will very much depend on local factors, such as the condition and position of BT's street cabinets, and/or whether BT or any OCPs have previously deployed a FTTC network in the area. For example, where BT has already deployed an FTTC network, it is possible that a CP could share some of the FTTC infrastructure installed by BT (e.g., cabinet space, power and backhaul provisions). Similarly, where another CP has already deployed an FTTC network, CPs could commercially negotiate an infrastructure sharing arrangement.
- 6.105 To date, take up of SLU has been very limited in the UK in terms of both geographic coverage and number of sub-loops unbundled. Rutland Telecom and Vtesse have so far deployed SLU-based FTTC infrastructure. Further roll-out of FTTC networks based on SLU is planned through other rural and regional broadband initiatives, such as the Digital Region project in the South Yorkshire<sup>90</sup>.

### Consultation proposals

- 6.106 In the consultation document we proposed to retain the existing SLU remedy in the WLA market. As part of our proposal, we separated the SLU and LLU SMP conditions to place clear and distinct obligations on BT. The proposal was intended to provide us with a specific power to issue directions and to require BT to comply with any such directions. However, the proposed condition did not require provision of a specific SLU product set. Rather, we proposed that the onus should continue to be on CPs to request the product(s) best suiting their needs. The key reasons and evidence for our proposals were as follows:
- **Economic viability:** The economics of SLU-based networks are challenging. There are a range of local factors that increase the complexity and resulting cost of SLU-based services. Further, given that street cabinets typically serve a much smaller geographic area than the LLU exchange, the fixed cost of SLU enabling a street cabinet needs to be recovered from fewer customers. These issues cause the unit cost of SLU-based services (per end user) to be considerably higher than for LLU. We concluded that in future the level of demand for services and applications utilising SLU's higher speeds could outweigh the higher costs of SLU, however the level of demand for these services was too uncertain to require further action on SLU.

<sup>90</sup> <http://www.digitalregion.co.uk/index.html>

- **Static cost of competition:** The difference between the cost of deploying and operating multiple competing SLU/FTTC networks compared with the cost of deploying and operating a single SLU/FTTC network is known as the static cost of competition. For a given set of assumptions, our analysis indicated the static cost of competition in for SLU/FTTC is likely to be between 37 and 79 per cent (£4.28 to £9.28 per month), depending on whether the CPs share a cabinet or deploy their own cabinet. This cost increase is due to factors such as; duplication of equipment and labour, lower network utilisation and end user churn costs. Our analysis indicated that sustainable SLU-based competition from multiple networks seemed unlikely to emerge in the short term. However, if demand for higher-speed services and applications was to take off or equipment costs were to drop, the opportunities for SLU-based competition could improve.
- **Low demand for SLU:** There has been limited uptake of the SLU remedy across the UK. While there has been some roll-out of SLU-based networks, these have generally targeted small coverage areas, predominantly in rural areas (with the exception of the Digital Region project). CPs did not provide us with firm plans of wide-spread roll-out across the UK, indicating that demand for SLU was very limited.
- **Support for NGA investment:** The availability of SLU, as well as PIA, could support competition and NGA investment in areas where BT has not deployed NGA, and therefore VULA is not available.

6.107 On SLU pricing, we proposed that LRIC+ is the most appropriate basis for setting the charges for SLU, in line with our proposed general approach for basis of charges in this market. We did, however, state that it may be appropriate to include a suitable risk premium in charges for services that are only available due to BT's own recent investments to upgrade its street cabinets to support FTTC. We proposed that it is too early for us to be able to set a meaningful SLU charge control (in addition to the general cost orientation obligation), given the limited demand for SLU to date and the consequent very limited information on the cost of providing it.

6.108 We also noted recent expressions of concern by some CPs over some SLU charges. We considered that the specification and charges for the relevant services were best resolved by industry negotiation, backed up by our dispute resolution powers.

6.109 Our full reasoning and analysis is contained in the consultation document in Sections 7 to 9 and Annex 9.

## **Summary and analysis of consultation responses**

6.110 Respondents raised a number of issues in relation to SLU. Most of them supported keeping the existing SLU remedy, but suggested changes to it. CPs raised issues that related to: further development of the SLU products; clarifying the link between BT's provision of its own FTTC products and its provision of SLU; and the application of a cost orientation obligation for SLU.

### Development of SLU

6.111 In the consultation document we proposed that any further development of SLU products should, in the first instance, be pursued by those CPs interested in using it. This would be supported by regulation, through a continuing requirement to provide SLU together with the general obligation on BT to provide other forms of network access on reasonable request.

- 6.112 In response to the consultation document, a quarter of the respondents provided a number of detailed suggestions in relation to BT's existing SLU product set. These comments are summarised in Figure 6.5 below.
- 6.113 CPs suggested that we could provide further support to progress these changes through a process involving the OTA. They suggested that such a process should take place within a specified timeframe, similar to the approach that we proposed for PIA.
- 6.114 BT stated in its consultation response that its regulatory obligations in relation to SLU did not need to be changed. It noted that CPs can engage with it directly to develop SLU products, and that Openreach is already in dialogue with its customers about SLU. It suggested that the likely demand for SLU and the expected level of investment must be taken into account when considering industrialising products and processes. It also considered that there are significant economic challenges for SLU, and that the potential benefits of SLU must be balanced against the incentives it creates for future investment in NGA services.
- 6.115 There have been further industry developments in relation to SLU since the consultation document. In particular, DRL has submitted an statement of requirements (SoR) to BT, which is being progressed through an industry working group (which held its first meeting on 29 July 2010). This industry group is discussing issues that include many of the changes suggested in responses to the consultation document. Through this group, Openreach has already agreed to provide information linking addresses to PCPs. Openreach has also agreed to consider the feasibility of other changes, including a more automated ordering and fault management process, development of SLAs and SLGs (once order volumes increase), as well as other changes described in Figure 6.5.
- 6.116 We have been encouraged by initial progress within these meetings, and would anticipate that Openreach will continue to make positive progress on SLU through this industry group. While there is not currently a timeframe for resolving all the issues raised by DRL's SoR, we expect BT and interested CPs to maintain momentum and conclude these discussions as soon as reasonably practicable. We do not consider that there is a case for amending BT's formal obligations in relation to SLU at this stage, as we do not consider it would be appropriate for us to pre-empt the outcome of these industry discussions.
- 6.117 SLU is included in the existing terms of reference for the OTA<sup>91</sup>. The scope of the OTA's role is to facilitate and assist BT's and CPs' agreement for improvements to both existing and new products/processes, but does not extend to the terms of commercial arrangements. The OTA is already facilitating the activities of the industry working group that is discussing DR's SoR.
- 6.118 At this point in time, we consider that the current requirements on BT are sufficient to allow further development of SLU products and processes. CPs retain the ability to request network access under the general access condition and are able to commercially negotiate with BT for new specifications for SLU products or services. This process is, indeed, now happening. We will be able to consider the need for further intervention in the future, for example if technological changes increase the competitive potential from SLU.

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<sup>91</sup> <http://stakeholders.ofcom.org.uk/telecoms/groups/telecoms-adjudication-scheme/annex5>

**Figure 6.5 Detailed comments made on SLU products**

Area of interest	CP comments
<ul style="list-style-type: none"> <li>Initial SLU site validation by CP</li> </ul>	<ul style="list-style-type: none"> <li>BT needs to provide information that allows CPs to link customer premises location to PCPs (BT street cabinets) in a timely manner, once requested</li> <li>BT needs to develop a multi-cabinet site survey process, to ensure this process is completed efficiently</li> </ul>
<ul style="list-style-type: none"> <li>Development of new ordering processes for business-as-usual transactions</li> </ul>	<ul style="list-style-type: none"> <li>BT needs to develop SLU internal processes to allow CPs the option of co-ordinating SLU cabinet visits</li> <li>The existing ordering process for SLU customer connections and fault investigations is manual intensive. The process should be automated where possible, using existing systems (such as the EMP gateway)</li> </ul>
<ul style="list-style-type: none"> <li>Development of the SLU product set</li> </ul>	<ul style="list-style-type: none"> <li>BT needs to develop new migration and transfer processes from existing products (where there is not currently one in place)</li> <li>BT needs to develop the Full MPF product set</li> <li>BT should develop additional cabinet options for SLU, including cabinet-sharing and DSLAM chassis sharing arrangements</li> <li>BT should provide further options for SLU backhaul, including variants of BT's existing backhaul services</li> <li>BT needs to develop a SLU Level 4 enhanced care service</li> </ul>
<ul style="list-style-type: none"> <li>Performance targets and performance reporting</li> </ul>	<ul style="list-style-type: none"> <li>Development of Service Level Agreements ('SLAs) and Service Level Guarantees (SLGs) for performance targets for SLU (for example: time to provide, time to repair), with compensation for poor performance</li> <li>Reporting of SLU Key Performance Indicators (KPIs) similar to those already provided weekly by Openreach</li> </ul>

### Link between BT's FTTC products and SLU

- 6.119 A number of respondents sought clarity over the link between BT's provision of its own FTTC products and its provision of SLU. In particular, they wanted clarity on whether BT would be using the SLU products itself when provisioning its own FTTC products, and how BT would manage information obtained through requests for SLU.
- 6.120 On the issue of whether BT would be using the SLU products itself when provisioning its own FTTC products, this issue is discussed below under 'Publish internal RO'.
- 6.121 On the issue of how BT would manage information obtained through requests for SLU, we understand that CPs are concerned that BT could use information on SLU demand to inform its own FTTC deployments. This appears to be a General Condition issue rather than an SMP issue. In particular, this concerns General Condition 1.2 (information obtained during negotiations for network access), which specifies that information gathered in the course of providing network access should be used solely for the purpose for which it was supplied. The Condition goes on to state that such information should not be passed on to any other party (in particular other departments, subsidiaries or partners) for whom such information could provide a competitive advantage. We would expect BT to adhere to these requirements when handling information obtained through requests for SLU. Similar requirements would also apply to PIA.

### Publish internal RO

- 6.122 In the consultation document, we proposed a condition that requires BT to publish an internal Reference Offer (RO) in the situation where it provides to itself Network Access that is the same, similar or equivalent to that provided to OCPs, in a manner that differs from the access provided to OCPs – Condition FAA5.4.
- 6.123 In response to our proposals, CPs sought greater clarity over how this condition applied to the provision of SLU-based services, and when BT would be providing its internal RO. CPs also sought clarity about the relationship between the Undertakings and the application of the SMP conditions.
- 6.124 This condition is intended to provide greater transparency. In the deployment and operation of its FTTC network BT will be deploying and operating equipment within or near its street cabinets and will need to jumper end users connections in these cabinets. We consider that some of these processes/activities (principally those concerned with SLU provision, repair, migrations and transfers) will be the same, similar or equivalent to the processes/activities offered to OCPs within the SLU RO.
- 6.125 BT is not required to use SLU itself (e.g., on the basis of EoI) under the BT Undertakings. Indeed, last year we agreed a variation to BT's Undertakings ("the FTTC Variation")<sup>92</sup> which explicitly allows BT to operate as a vertically integrated operator across the SLU boundary.
- 6.126 We would expect BT to use the same or very similar products, processes and systems for both SLU and its own FTTC deployments where this is practical. Indeed, if BT were artificially to introduce differences between SLU and its own FTTC

<sup>92</sup> <http://www.ofcom.org.uk/consult/condocs/fttc/statement/>

deployments or maintain differences without an objective justification then it is possible that it would fall foul of its requirement not to unduly discriminate.

- 6.127 Notwithstanding this general expectation, we accept that there could be legitimate differences between some of the SLU products, process and systems and those 'similar' activities associated with BT's FTTC deployment and operation. If this is the case then we would expect BT to identify these differences in an internal RO – as per Condition FAA5.4. We would also note that Condition FAA5.4 also applies to PIA.
- 6.128 We consider that BT should only be required to produce its internal RO once the external RO has been published. For SLU, BT published its RO in 2001. Given that Condition FAA5.4 was carried forward from the previous review and BT started its FTTC deployment last year, there is an argument that BT should have already published an internal RO. However, we recognise that in the early stages of BT's FTTC deployments, BT's own processes would have been subject to many changes, thus making it difficult to produce a meaningful internal RO. However, we consider that BT's own FTTC processes are now more established and accordingly could form the basis of an internal RO. We recognise, however, that the SLU products are currently under review, following the DRL SoR. We, therefore, consider that it is reasonable for BT to publish an internal RO, setting out any differences between the products and process it uses to support its FTTC network compared with the SLU products and processes, once the outcome of the current industry review of SLU is complete. We expect this review to be complete within two months following the publication of this statement. We, therefore, consider that it is reasonable to expect BT to produce and publish this internal RO within six months following the publication of this statement.
- 6.129 We are in discussions with BT about the level of information required in the internal RO. The condition is intended to provide transparency over the key products and processes. We are, therefore, seeking to ensure that sufficient information is provided to identify any material differences between internal and external provisioning and repair.

### SLU pricing

- 6.130 In the consultation document, we proposed that SLU should remain subject to a cost-orientation requirement. As part of that proposal, we recognised that in some cases it may be appropriate to introduce a risk premium. For example, where BT has made recent investments to upgrade its street cabinets to support FTTC and CPs request access to this.
- 6.131 In responses to the consultation document, CPs suggested that BT should review charges for SLU products including:
- Customer connection;
  - Customer disconnection charge;
  - SLU component prices;
  - SLU SMPF and MPF rental charges;
  - Initial site survey;
  - PCP chamber 'break-in'; and

- PCP copper tie-cable installation.
- 6.132 CPs argued that both the customer connection and initial site survey charges. £127.50 and £350 respectively, did not reflect cost efficiencies that may be achieved if BT either completed multiple customer connections at once or co-ordinated several site surveys. CPs considered that if multiple customer connections were completed at a single cabinet, the cost of completing each connection would be lower than BT's existing prices, as any travelling time would be spread over several connections. Similarly, if BT undertook five cabinet site surveys in one day through a scheduled process it may be able to achieve certain economies of scale.
- 6.133 Each of these suggestions would, in fact, involve changes to BT's existing SLU products and processes, and this in turn could impact on how a CP operates its network (e.g., does the CP need to place a multiple connection orders simultaneously, or does BT have to pre-specify the time window over which it will collect orders?). This highlights the point that it is essential for CPs and BT to refine the SLU products and processes together.
- 6.134 We understand that it is precisely these issues that are currently being discussed in the SLU industry group and we are of the view that currently this is the appropriate way forward. We also understand that, as part of this process, BT is reviewing the pricing for its SLU products.
- 6.135 Our interpretation of the basis of charges obligation is that BT's prices must, as a first-order test, be between DLRIC<sup>93</sup> and DSAC<sup>94</sup>. BT would be required to adjust its prices to comply with the obligation if they are or will in future be outside this range. The basis of charges obligation would provide BT with pricing flexibility between DLRIC and DSAC, thus ensuring its charges remained within an appropriate upper and lower bound, constraining it from setting excessive charges.
- 6.136 As previously discussed, demand for SLU to date has been very limited, but there may be a greater role for SLU to play in the future. We are of the view that a basis of charges obligation remains a proportionate remedy to BT's current SMP, and an SLU charge control would be premature given the nascent demand for SLU.
- 6.137 Our general approach to SLU pricing is that BT is required to set charges that reflect the cost of providing the services (including an allocation for common cost recovery and an appropriate return). Further, where parts of the SLU product or process are the same as products or processes within other products (which BT is also required to price on a cost-oriented basis), then our intention is to take a consistent approach when assessing costs. In such situations we would therefore expect these parts of the cost stack to be the same. However, it should be noted that while some processes may appear to be similar, there may be legitimate differences that cause the underlying costs to differ.
- 6.138 Finally, as in the case of LLU, there is a requirement on BT to have fair and reasonable terms, conditions and charges for SLU services. In addition, BT is required not to discriminate unduly between customers. We consider that these existing remedies are sufficient to enable us adequately to control BT's prices for LLU products and services, and where appropriate, to ensure consistency with other products or parts thereof. If stakeholders come forward with specific allegations of

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<sup>93</sup> Distributed Long Run Incremental Cost

<sup>94</sup> Distributed Stand Alone Costs

pricing behaviour which they consider may be in breach of these obligations, they will be considered in accordance with our established procedures.

## Conclusions

- 6.139 We have considered all responses to the consultation document. CPs requested changes to the existing SLU remedy through the addition of detailed new products and operational processes. CPs and Openreach are discussing a detailed SoR to specify a number of changes to SLU that could result in a more fit-for-purpose product, and could ultimately lead to more investment in SLU. We are encouraged by the OTA's involvement in this process, and we consider that industry-led working groups are the appropriate way to progress these issues.
- 6.140 The requirement for BT to publish an internal reference offer for SLU is intended to provide transparency over the key products and processes. We are, therefore, seeking to ensure that sufficient information is provided to identify any material differences between any network access elements that are common to BT's internal provision of FTTC and its external provision of SLU.
- 6.141 In relation to SLU pricing, BT has an existing cost-orientation obligation which we are seeking maintain. However, where CPs consider that BT's pricing is not cost-oriented and they are unable to reach agreement with BT on the appropriate level of those charges, CPs are able to submit formal disputes to us.
- 6.142 Whilst the discussion above has looked at the SLU obligation on a stand-alone basis, we consider that the conclusions drawn remain valid when SLU is viewed in combination with other WLA remedies. Our assessment of the combination of remedies is presented in Section 9. We also present how the SLU obligation meets the relevant legal tests, in Section 10.

## The NGA Recommendation

- 6.143 As set out in Section 2, when carrying out our tasks under the regulatory framework, we are required to take account of certain documents published by the Commission and by BEREC. One of these documents is the Commission's (new) NGA Recommendation<sup>95</sup>. BEREC also submitted an Opinion in May 2010 on the draft Recommendation<sup>96</sup>. Here we comment on issues in this section on which we have taken a different approach to the NGA Recommendation or that BEREC Opinion.
- 6.144 After taking utmost account of the NGA Recommendation in this section, we have decided not to implement the following provisions as part of the obligations on BT:
- unbundled access to the fibre loop (Articles 22 and 23), including fibre backhaul for SLU where appropriate (Article 29); and
  - providing multiple fibre lines in the terminating segment when deploying FTTH (Article 21).

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<sup>95</sup> [http://ec.europa.eu/information\\_society/policy/ecomm/doc/library/recomm\\_guidelines/nga/en.pdf](http://ec.europa.eu/information_society/policy/ecomm/doc/library/recomm_guidelines/nga/en.pdf) - European Commission, 20 September 2010

<sup>96</sup> BEREC Opinion to the Draft Recommendation on regulated access to Next Generation Access Networks (NGA) of 28 April 2010 – BEREC, 28 May 2010  
[http://www.erg.eu.int/doc/berec/bor\\_10\\_25.pdf](http://www.erg.eu.int/doc/berec/bor_10_25.pdf)

- 6.145 Our reasons for this approach are set out at paragraphs 6.54 - 6.99 above, in particular 6.71- 6.78 (fibre unbundling), paragraphs 6.93 - 6.97 (use of fibre for backhaul) and 6.82 - 6.88 (multi-fibre).
- 6.146 We assessed whether, over the forward look period of the review, it could be cost effective for CPs to unbundle BT's GPON network. We consider that this would be unlikely to support effective competition, due to significant cost disadvantages and the impracticality of physically unbundling a GPON. The availability of fibre in BT's access network is also currently very limited including for fibre backhaul. Also, in relation to fibre backhaul, we note that other alternatives are available for backhaul that lies within the scope of the WLA market. On multi-fibre deployments, we note that there is a lack of clear demand and that this obligation could disincentivise investment.
- 6.147 However, we will continue to monitor developments, and reconsider these positions if necessary. Also, a general access obligation is in place, which will require BT to develop fibre access products in response to reasonable demand, for example, if and when the viability of such products increases.
- 6.148 We note that the Commission's response to the consultation document did not challenge our finding that fibre unbundling would not be justified and proportionate today. Also, the vast majority of respondents agreed that our proposal not to mandate unbundling at this point is appropriate.
- 6.149 We also consider that our decisions on fibre access are consistent with BEREC's general comments in its 28 May Opinion on the draft Recommendation<sup>97</sup>, with regard to the importance of remedies being proportionate and taking into account both national circumstances and the existence of other remedies that can deliver equivalent effects.

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<sup>97</sup> At paragraphs 12, 14 and 15

## Section 7

# Specific access remedies (2): Physical Infrastructure Access

## Introduction

- 7.1 Fixed access networks are generally deployed in underground ducts or overhead on telephone poles. This physical infrastructure is costly to deploy and constitutes a large proportion of the overall capital expenditure of an access network, typically of the order of 50 to 70 per cent<sup>98</sup>.
- 7.2 BT has an extensive physical infrastructure network that reaches most homes and businesses in the UK outside the Hull Area. BT's ability to reuse this legacy infrastructure, much of which predates market liberalisation, gives BT a significant advantage over its competitors for NGA network deployment.
- 7.3 In the consultation document we proposed a new remedy which we called Physical Infrastructure Access ('PIA') which would require BT to allow OCPs to deploy NGA networks in the physical infrastructure of its access network. Allowing BT's competitors to use this physical infrastructure in BT's access network would promote competition and investment in NGA network deployment by removing a significant barrier to infrastructure deployment and would put BT's competitors on a similar footing to BT.
- 7.4 In support of our proposals we discussed the findings of our research on the potential for physical infrastructure remedies. This included:
- research into the use of physical infrastructure sharing in other countries;
  - a second sample survey of BT's access network physical infrastructure to assess its suitability and capacity to accommodate NGA network deployments. This complemented the sample survey undertaken for our Superfast Broadband consultation; and
  - an external assessment by CSMG of the economics of physical infrastructure access.
- 7.5 The key findings of the research are summarised below. Further detail on the reasoning and evidence for these proposals can be found in the consultation document in Section 7 and Annex 10.
- **Infrastructure sharing in other countries** - We found that infrastructure sharing has been a long established feature of communications network deployment in Australia, Canada and the USA and that it has been introduced more recently in Portugal, France and Spain. We found it difficult to draw inferences about likely take-up in the UK from experience in other countries because of the differences in the sharing arrangements and particularly the historical context. However, we concluded that the experiences of Portugal and France, where the incumbent

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<sup>98</sup> In the Super-fast Broadband statement, we discuss the opportunities presented by duct access and the challenges in realising them. Deploying the passive infrastructure – ducts, poles, etc. – is estimated to represent between 50 and 70 per cent of the costs of building out NGA infrastructure.

telecom operators are subject to a regulatory obligation to share their physical infrastructure, illustrate that whilst there are significant practical challenges, workable infrastructure sharing arrangements can be implemented.

- Demand for infrastructure sharing in the UK** - We noted that historically there had been little demand for infrastructure sharing in the UK. Our predecessor regulator Oftel consulted stakeholders on duct and pole sharing in 1996<sup>99</sup>. In its 1997 statement<sup>100</sup> Oftel concluded that there was insufficient demand to require BT to share its physical infrastructure. However, Oftel acknowledged the potential benefits and encouraged BT and other operators to make capacity available to each other on a commercial basis. More recently there had been renewed interest in the context of NGA deployment with two UK CPs expressing interest in infrastructure sharing in their responses to our Superfast Broadband Consultation in 2009. We also reported during the last year the level of interest in infrastructure sharing appears to have been maintained and possibly increased as evidenced by the interest from CPs in the Broadband Stakeholder Group work on physical infrastructure sharing<sup>101</sup>.
- Suitability of BT's physical infrastructure to accommodate NGA deployments** - We also discussed the findings of our sample surveys of BT's access network infrastructure. These indicative surveys of BT's ducts and poles show that there is a significant amount of unoccupied space that could potentially be used to accommodate NGA network deployments. However, prior to the development of detailed engineering rules, there is uncertainty about how this would translate into usable capacity, particularly in relation to poles. It is also clear that while PIA could considerably reduce the amount of new infrastructure construction required to deploy an NGA network, a significant amount would still be required to relieve congested segments and on routes where cables are buried directly in the ground without ducts, or where BT's physical infrastructure is otherwise not suitable for sharing.
- Economic assessment** – We commissioned CSMG to compare the cost of deploying an NGA network in shared physical infrastructure with deployment in newly built physical infrastructure and with the cost of supplying customers using a non-physical wholesale NGA product. This demonstrated that a PIA obligation would offer significant savings on the capital cost of network deployment compared with new build physical infrastructure and would therefore be attractive to CPs committed to infrastructure deployment. However the analysis indicated that a shared infrastructure based NGA network compared less favourably in cost terms with a wholesale NGA product such as BT's GEA product. The modelling showed that a shared infrastructure NGA network deployment would have significantly higher fixed costs than the GEA product at current prices even under very favourable assumptions about infrastructure sharing. These fixed costs mean that a shared infrastructure based NGA network deployment would be more expensive for a CP than GEA at all but high customer penetration. This suggests that it may be a less attractive option for CPs in areas where BT has deployed its own NGA network, at least while demand for NGA services remains uncertain. A PIA obligation looks to be a much more attractive option for areas where BT has not deployed an NGA network. In these areas a PIA obligation

<sup>99</sup> Duct and Pole Sharing: A Consultative Document, February 1996.

[http://www.ofcom.org.uk/static/archive/oftel/publications/1995\\_98/competition/ductpole.htm](http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/competition/ductpole.htm)

<sup>100</sup> Duct and Pole Sharing, October 1997

[http://www.ofcom.org.uk/static/archive/oftel/publications/1995\\_98/competition/dp1097.htm](http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/competition/dp1097.htm)

<sup>101</sup> <http://www.broadbanduk.org/>

would make entry easier by reducing CPs' costs and putting them on a more equal footing with BT. This could speed up the initial NGA network deployment.

- **Cost of competition** - The economic assessment also examined the static cost of competition (i.e., the overall additional costs collectively incurred by CPs from duplicative investment in network infrastructure) for more than one supplier to provide NGA services. Whilst physical infrastructure sharing would avoid duplicative investment in ducts and poles, CPs would still continue to duplicate investments in the fibre and active elements of their networks which drives up the cost of competition. The modelling demonstrated that the cost of this duplicative investment is significant. In the scenario modelled, having four competing networks instead of one would result in the cost per end user doubling.

7.6 When developing our proposals we also had regard to the draft NGA Recommendation at that time. In relation to physical infrastructure this stated that where operators were found to have SMP in Market 4, NRAs should:

- assess the availability of physical infrastructure including ducts owned by the SMP operator for the purpose of allowing alternative provider to deploy NGA networks;
- consult interested parties, in particular the SMP operator and potential access seekers, in cases where physical infrastructure can be used to deploy NGA networks, to assess the demand for access and the cost of access provision, as well as to establish operating procedures and parameters; and
- mandate access to physical infrastructure, in accordance with market demand.

## Wider context

7.7 In this document we are examining the case for infrastructure sharing in the context of our WLA market review. Our powers to impose infrastructure sharing are limited to those providers designated as having SMP. Therefore in this document, we consider only whether BT and KCOM should be subject to infrastructure sharing obligations, as these are the only providers that we have identified as having SMP in the WLA market.

7.8 We recognise there is a wider debate about the potential for infrastructure owned by other organisations to play a role in enabling NGA network rollout.

7.9 Infrastructure networks owned by other organisations outside the communications sector such as power and water utilities fall outside our remit. Therefore regulatory intervention in support of infrastructure sharing for these organisations is a matter for the Government. The Coalition Agreement committed the Government to introducing measures to ensure that the rapid roll out of superfast broadband across the country. The agreement also said that the Government would ensure that BT and other infrastructure providers would allow the use of their assets to deliver such broadband, and seek to introduce superfast broadband in remote areas at the same time as more populated areas. On 15 July 2010 BIS issued a discussion paper<sup>102</sup> about sharing non-telecom utilities infrastructure for superfast broadband access network deployment. BIS sought views by 15 September 2010 on the potential

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<sup>102</sup> Broadband Deployment and Sharing other Utilities Infrastructure, A Discussion Paper  
<http://www.bis.gov.uk/Consultations/broadband-deployment-and-sharing-other-utilities-infrastructure>

benefits and obstacles to sharing non-telecom utility infrastructure and how they might be addressed.

- 7.10 As discussed in more detail in Annex 1, the EU regulatory framework has recently been amended and the amendments have to be translated into UK law by May 2011. One of the amendments relates to infrastructure sharing, widening NRAs powers so that they can require any CP to share its physical infrastructure rather than just CPs designated as having SMP<sup>103</sup>. We plan to undertake some scoping work and expect to announce in the near future how we propose to consider the case for exercising the new infrastructure sharing powers.

## Consultation proposals: role and form of PIA remedy

- 7.11 In the consultation document we also set out our proposals for the key features of the proposed PIA obligation. These are summarised below, together with our reasoning.
- 7.12 We proposed that BT should be required to meet reasonable requests for duct and pole access on cost-oriented and non-discriminatory terms, and to publish a reference offer. To enable CPs to fully evaluate the suitability of the PIA service for their purposes we also proposed a set of minimum requirements for the reference offer. These can be found in Annex 11 of the consultation document.
- 7.13 In the consultation document we also discussed the key characteristics for the proposed PIA obligation. These are summarised below and are discussed in more detail in Section 7 of the consultation document.
- **Geographic scope and allowed uses of PIA** – as the purpose of the proposed remedy is to promote competition and investment in NGA network, most likely FTTC and FTTP networks, we proposed that the geographic scope and allowed uses of the remedy should be limited to this purpose. We therefore proposed that the geographic scope should encompass all infrastructure in BT's access network (i.e., ducts, poles and associated infrastructure such as chambers) - where the access network is defined as the network between business and residential end user premises and their serving exchange. We proposed that usage should be limited to the deployment of access networks for broadband and telephony services and SLU backhaul services between cabinets and serving MDF sites.
  - **Technology neutrality** – Whilst in practice we expect PIA to be used to deploy fibre cables we proposed a technology neutral remedy allowing other types of cable such as coaxial to be deployed.
  - **Cable maintenance** – We concluded that processes to support cable maintenance would be an essential feature of a PIA service. These would be likely to include arrangements for timely access to BT physical infrastructure for maintenance purposes and temporary occupation of additional duct capacity to facilitate installation of replacement cables.
  - **Capacity reservation** – There would be a need to specify rules for capacity reservation. There is a need to strike a balance between BT's and OCPs' need to plan ahead, and avoiding overly-long reservation periods that may ultimately hamper NGA network roll-out. We proposed that capacity reservation rules should apply to BT and OCPs on an equal basis and suggested that detailed

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<sup>103</sup> See paragraph 2.20 above

rules could be drawn up as part of the proposed industry implementation discussions.

- **New infrastructure construction** – An important aspect of the proposed PIA obligation is the arrangements which apply for new infrastructure construction. Our sample surveys indicated that congested sections would often be encountered in BT's access network infrastructure. Although we identified several approaches, we concluded on balance that it would be more efficient for BT to relieve congested sections than for CPs to by-pass those sections with their own infrastructure. We therefore proposed that BT should be required to take steps to relieve congestion with CPs paying the capital cost of any new infrastructure construction and to pay a rental charge that would reflect ongoing maintenance costs. For places where BT does not have any duct/pole infrastructure we concluded that there did not seem to be a strong case for BT to be required to extend its duct/pole infrastructure to such areas as the work could equally be carried out by OCPs or as is often the case in new housing developments by developers or partnerships between developers and CPs. However for very small jobs such as the installation of lead-in ducts to individual properties we thought there might be a case for BT to install the infrastructure on grounds of practicality. We proposed that such arrangements could be agreed by BT and CPs as part of the implementation process.
- **Over-build requirement** – We also considered whether as part of its own infrastructure construction projects BT should be required to install additional capacity for OCPs' future needs. The issue here is the potential effect that a sharing requirement might have on BT's incentives in relation to new infrastructure construction. We concluded that a general over-build requirement that did not take account of firm demand from CPs would not be the most efficient approach. There were also several further factors that tended to militate against an overbuild requirement. We thought that a co-investment arrangement might provide a more efficient alternative and would provide a useful compliment to the proposed congestion relief requirement. This would involve BT announcing infrastructure construction projects and installing capacity in response to firm orders. BT and CPs would share the capital costs and CPs would pay a lower ongoing charge for using the infrastructure, in recognition of their capital contribution. We considered that the practical process issues associated with a co-investment process would need to be addressed by industry and we therefore proposed that BT should make a proposal in its draft reference offer for discussion with industry.
- **Sharing new infrastructure** – We also considered whether BT should be required to share new infrastructure that it constructs for its own purposes such as NGA network rollout given the potential effect this might have on BT's incentives in relation to new infrastructure construction. We noted that the extent to which this is an issue in practice would depend on the design of the PIA service and particularly the capacity reservation rules. Our view was that the sharing requirements should apply equally to all BT access network physical infrastructure, however as discussed in more detail below we concluded that there may be a case for new physical infrastructure to be priced differently to existing infrastructure.

## Pricing

- 7.14 We first considered our approach to pricing for PIA in our Super-fast Broadband Statement<sup>104</sup>, concluding that prices should reflect the level of risk at the time the investment was made, allowing opportunities to recover costs and earn a reasonable rate of return. Building on this work, in the consultation document we proposed that cost orientation would be appropriate and prices for PIA services should be designed to cover the efficiently incurred long-run incremental costs including a return which reflects the associated risks plus an appropriate contribution to common costs, including the common capital and operating costs (an approach we refer to as LRIC+). We explained that this approach was in line with the draft NGA Recommendation, which stated that where NRAs mandate regulated access to new physical infrastructure, pricing should reflect a project specific risk premium.
- 7.15 Prior to development of a product specification it was not possible to set out specific details on pricing, however we set out our initial thoughts on the basis of charges and treatment of investment risk:
- **Basis of charges** - In order to encourage CPs to make efficient use of infrastructure capacity, we proposed that charges for infrastructure usage should reflect the proportion of the useable capacity that is occupied. We noted that this approach has been adopted in other countries where charges for duct usage are based on the cross sectional area of the cable and the length of the duct occupied. Typically there are also additional charges for cable joints and loops of cable that occupy space in chambers.
  - **Investment risk** - In the consultation document we considered that at a high level there would be three distinct cases of investment risk:
    - Existing infrastructure, most of which is legacy infrastructure for current generation services for which demand is well established and therefore investment risk was low;
    - New infrastructure constructed solely for current generation services. As with legacy infrastructure, demand is well established and investment risk would be low; and
    - New infrastructure constructed for new high bandwidth services for which in the short term at least demand is uncertain and therefore investment risk is higher.
- 7.16 Given the higher risk associated with infrastructure investments for new high bandwidth services, we proposed to conclude that in principle it should be treated differently from the infrastructure for current generation services. In particular to provide BT with a 'fair bet', accounting for the uncertainty and sunk costs of FTTP investment, prices should be set to earn a reasonable rate of return on the basis of the expected cash flows from the investment at the time of deployment. We acknowledged that in practice it may be necessary to seek to achieve this by using a risk adjusted cost of capital when setting charges in order to reflect the risk associated with NGA. Further, we proposed to conclude that the practical application of this principle would be likely to depend on the product specification and the operational processes adopted for PIA. In particular the ability to distinguish between

<sup>104</sup> See: Ofcom, 'Delivering super-fast broadband in the UK' statement, 3 March 2009, [http://www.ofcom.org.uk/consult/condocs/nga\\_future\\_broadband/statement/statement.pdf](http://www.ofcom.org.uk/consult/condocs/nga_future_broadband/statement/statement.pdf)

each of the three categories of infrastructure identified above would be key. Ideally, infrastructure prices would vary according to the investment risk but if it is not possible to distinguish between the categories of infrastructure then it would be necessary to adopt an alternative approach such as applying a cost of capital to all infrastructures which recognises the weighted average risk of the different categories of infrastructure. The efficiency benefits from ensuring that prices reflect the risk incurred by BT from investment in infrastructure would need to be weighed against the practical costs associated with differentiating between different categories of infrastructure.

## Implementation arrangements

- 7.17 Based on experience with other complex remedies we suggested that once BT had developed an initial RO it would be beneficial to build in a detailed review of the service by an industry working group in order to refine the service to meet CPs' needs and to iron out the operational details. We therefore proposed the following implementation timetable that incorporates an industry review of BT's initial Reference Offer ('RO'):
- First Draft RO (3 months) – BT required to publish a draft RO that meets the minimum specification within 3 months of the market review policy statement (we proposed that this be the only formal target specified in the SMP condition);
  - Industry Review (3 months) – Review of the draft RO by industry working group. We proposed a three month review period, aimed at agreeing changes to the draft RO;
  - Updated RO (2 months) – BT to produce an updated RO within two months of the conclusion of the industry review;
  - Service Launch (8 months after policy statement) – most likely a soft launch starting with low order volumes to test the operational processes; and
  - Ofcom Consultation/Statement – If necessary, we would consider any matters not agreed during the review period and consult on a direction settling these matters.
- 7.18 We suggested that one option would be for the working group to be facilitated by the OTA as it has successfully undertaken similar tasks in the past.
- 7.19 BT suggested that implementation work should be split into two work streams on the grounds that defining access arrangements for poles is likely to be more complex and more time consuming than for ducts. We agreed that dual work streams might be worthwhile but considered it is important that work on ducts and poles proceeds in parallel to keep any delay to a minimum. Our view was that in the event that the pole sections of the RO take longer to develop than the duct sections, BT should not delay publication of the duct sections enabling CPs to start using the service at the earliest possible date.
- 7.20 BT's view was that it would need 6 months following our statement to produce an initial RO for poles. We therefore proposed that BT should be required to produce the duct sections within 3 months and the pole sections within 6 months.

## Process industrialisation

- 7.21 In the consultation document we set out our expectations in relation to process industrialisation for the PIA service. We noted that at present the overall level of demand for PIA remains uncertain and may be low, at least in the short term. In order to keep costs to a minimum we therefore expect BT to ensure that investments in operational processes and associated operational support systems are commensurate with demand. Thus we would not expect BT to spend large sums on such systems unless there is clear evidence of demand to warrant the investment.
- 7.22 We also suggested that a demand forecasting process might be one way of matching operational capacity to demand.

## Review of PIA charges

- 7.23 In the consultation document we acknowledged there is a risk that BT and CPs may not be able to reach agreement about the charges for the PIA service. We therefore proposed that in this event that we would undertake a formal review of BT's charges with a view to consulting on a direction setting the charges.
- 7.24 We also proposed that if necessary, this future consultation could also consider any areas of disagreement about the PIA Reference Offer.

## Summary and analysis of consultation responses

- 7.25 Most of the consultation respondents supported our proposal that BT should be required to offer OCPs access to its local access network physical infrastructure. BT also supported our proposal in its consultation response, having already announced that it was willing to offer access to its ducts and poles. A third of respondents made some quite detailed comments on PIA, which may indicate a good level of interest in using it. Many of those respondents had previously participated in the Passive Infrastructure Sharing Working Group ('PISWG') of the Broadband Stakeholders Group ('BSG'), which had drawn up a set of user requirements for a PIA-type service. Some other respondents appeared to be more interested in the active remedies, saying very little about PIA.
- 7.26 Virgin Media said that it had identified significant opportunities for NGA network deployment using PIA, subject to the service and pricing meeting its needs. It therefore hoped to make significant use of PIA. Other respondents did not give details about how much they might use PIA. Sky thought that demand for PIA might not emerge until retail demand for NGA had been demonstrated. However, it considered it appropriate for us to proceed with PIA as it could take some time to bring PIA into operation.
- 7.27 A smaller group of respondents was less supportive of a PIA remedy. Scottish and Southern Energy was worried that work on PIA implementation would divert Openreach resources from work on the active remedies which they considered more important. The Federation of Communications Services ("FCS") doubted whether a PIA remedy was justified given the lack of demand and was also concerned that PIA would lead to a multiplicity of access networks complicating consumer switching/migration processes.
- 7.28 The main points raised by respondents about the detailed proposals concerned the scope of the remedy and the implementation process. These are discussed below.

## **Demand for PIA**

- 7.29 In the consultation document we reported that whilst interest in sharing BT's access network physical infrastructure appeared to have been maintained and had possibly increased over the previous year, demand still appeared limited with most CPs apparently regarding active NGA remedies as more important.
- 7.30 For the most part, the consultation responses support this assessment with most respondents still apparently more interested in active remedies and only a few indicating they might make significant use of PIA. However, Virgin Media's interest in PIA alone represents a significant increase in the potential level of demand for PIA.
- 7.31 A further factor is that some of the respondents are apparently interested in infrastructure sharing for purposes that may fall outside the scope of the proposed PIA remedy (such as mobile backhaul and leased lines) potentially meaning that in practice demand for PIA would be less than indicated by the responses. We discuss respondents' comments on the allowed uses below.
- 7.32 The level of participation in the BT requirements capture workshops that BT held after we published the consultation document is also evidence that interest in PIA is being maintained.

## **Other organisations' physical infrastructure**

- 7.33 BT said that our proposals risked creating local monopolies of NGA services to the detriment of consumers since the proposed remedies would apply to BT but not to other providers who have already deployed NGA networks, notably Virgin Media and operators who are the sole network providers in 'new build' areas. BT argued that we should address this by applying similar remedies to other NGA network providers, including Virgin Media.
- 7.34 BT also asked us to clarify whether it would use its powers under the new EU Framework Directive (due to be implemented into UK legislation in 2011) to require other communications providers to provide access to their physical infrastructure. BT thought that at a minimum, we should carry out a survey of Virgin Media's ducts to assess their suitability for sharing.
- 7.35 BT also suggested that Ofcom and the Government should require infrastructure owners outside the telecoms sector to share their physical infrastructure to facilitate NGA deployment.
- 7.36 The CWU also thought that OCPs such as Virgin Media and COLT (in the City of London area) should be required to share their physical infrastructure. The CWU suggested that Ofcom should seek voluntary undertakings from these CPs to share their infrastructure in advance of the enactment of the new EU Framework Directive into UK law.
- 7.37 As discussed in paragraph 7.7 above, in this market review our powers to impose infrastructure sharing are limited to those providers identified as having SMP, who in the WLA market are BT and KCOM. However, as also discussed above, BIS is currently seeking stakeholders views on the use of non-telecoms infrastructure for NGA deployment and we plan further work in connection with the implementation of the new EU Framework Directive to consider whether we should exercise our powers to require other telecoms operators to share their physical infrastructure.

- 7.38 We discuss our approach to a number of issues that arise from fibre network deployments in new housing developments in paragraphs 9.98 to 9.124 below.

### **Reciprocal access conditions proposed by BT**

- 7.39 Citing its support for open access, BT said that its commercial offer for PIA would include terms and conditions that would require reciprocal access to other providers' physical infrastructure and downstream wholesale access services.
- 7.40 As discussed above, we think that extending infrastructure sharing to other providers is something that has to be considered separately by Ofcom and the Government.
- 7.41 SMP remedies such as PIA are by nature asymmetric in that they require the SMP provider (BT in this case) to provide services to OCPs on regulated terms. In our view, contractual conditions as proposed by BT that would require users of PIA to provide reciprocal access to their infrastructure or other wholesale access services would be incompatible with an SMP service and in particular would be unlikely to constitute fair and reasonable terms as required under SMP Condition FAA12.2.

### **Scope of PIA**

- 7.42 C&WW, David Hall Systems, Energy Networks Association, Geo, Vtesse, O<sub>2</sub>, Virgin Media and a confidential respondent argued that the proposed scope of the remedy is too narrow in terms of the allowed uses and its geographic scope (i.e., the parts of the BT network in which it could be used).
- 7.43 C&WW said the proposed scope would make PIA completely unsuitable for C&WW and Geo stated that it would make PIA unworkable. Other respondents thought it would limit its usefulness.
- 7.44 BT supported the proposed scope of the PIA remedy, arguing that it aligned with the rationale for PIA, i.e., applying only to local access networks and for the purpose of rolling out new NGA networks.
- 7.45 BT noted that we had considered the case for passive remedies for leased lines in the Business Connectivity Market Review and argued that we should not disregard the BCMR market analysis potentially undermining investment in competing business networks by extending PIA to include leased lines as part of the WLA market review.
- 7.46 BT thought that in practice there may be difficulties in defining usage terms and conditions so that CPs would only be allowed to use PIA for the defined purposes. BT thought it might be necessary to seek our guidance or intervention, particularly if CPs subsequently decided to use fibre installed in BT ducts and poles for non-NGA purposes such as leased lines.
- 7.47 Stakeholders' comments about the scope of PIA are discussed in more detail below.

### **Geographic scope**

- 7.48 Some respondents argued that the geographic scope of PIA should not be restricted at all, enabling CPs to use it for backhaul and potentially core networks as well as access networks. Others suggested ways of widening the geographic scope such as allowing CPs to cable back to any BT MDF (rather than just the serving MDF) or the nearest node in their own network, however far away. Four main points were made in support of a wider geographic scope:

- NGA networks have a much longer reach than BT's existing copper access network and might therefore adopt different topologies as evidenced by BT's plans to use only about 1,000 of its 5,500 exchanges for NGA;
- CPs are much smaller than BT and would therefore generally have fewer NGA nodes and longer reach access networks than BT;
- BT would not have its NGA deployment limited to the existing exchange areas so neither should PIA be limited to existing exchange areas;
- preventing CPs from using PIA for backhaul is inconsistent the EU draft Recommendation on NGA, in particular recital 21 (i.e., paragraph 21 of the explanatory text);

7.49 We have proposed PIA as a remedy to promote effective competition in the WLA market and therefore the geographic scope of the remedy that we can impose is restricted to the WLA market, i.e., local access networks. It would not therefore be possible to extend the scope of PIA to include backhaul or core network infrastructure as part of this market review. However, we recognise that fibre NGA networks will be free from the copper network transmission limitations and may therefore adopt a different topology, particularly in relation to their reach (i.e., the area served from the access nodes) which in some cases may be larger than for copper local access networks.

7.50 Based on the consultation responses we consider it would be appropriate to allow PIA to be used over an area that more accurately reflects local access in the NGA context. We have therefore modified the SMP condition (FAA12) to allow PIA to be used in infrastructure between end user premises and the serving BT NGA exchange (existing and planned) or other BT exchanges that are broadly equivalent in terms of distance from the end user premises and level of aggregation. Given our understanding of BT's current NGA deployments we would expect the local NGA exchange to be one of the exchanges that have been identified as being in Market 3 within the WBA market<sup>105</sup>.

7.51 It is important to note that the geographic scope is intended only to limit use of PIA to local access deployments, and does not imply a requirement for CPs to serve premises from BT's NGA exchanges (though they could if they wished to), and will allow them to serve end user premises from their own exchanges and to 'break-out' from the BT duct/pole network at intermediate points before the BT NGA exchange to connect to their own networks.

7.52 It will be necessary for BT to publish details of its 'NGA exchanges' and their serving areas in much the same way as it publishes exchange information for LLU. We think that BT and industry should agree the details as part of the implementation process.

7.53 Finally, regarding consistency with the NGA Recommendation, we acknowledge that, in the June 2009 version, reference was made to a physical access product for backhaul in recital 21. However, this is clearly set in the context of Market 4 (i.e., the WLA market). We also note that (following further consultation with Member States) the Commission made modifications to its draft of the NGA Recommendation, which are reflected in the final NGA Recommendation. Amongst other things these

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<sup>105</sup> We note in the WBA consultation document that any serving NGA exchanges are expected to be classified as being in WBA Market 3

modifications remove the reference to backhaul in the relevant recital (now number 20).

### Allowed uses

- 7.54 Most of this group of respondents argued that we should not restrict PIA usage at all, thereby allowing CPs to use PIA for purposes other than NGA access network deployment such as leased lines, fixed and mobile backhaul services. The main points made were:
- usage restrictions would artificially limit CPs' use of their PIA based access networks, reducing economies of scale and scope thereby making PIA less attractive;
  - we should not restrict the scope of remedies and therefore any use that falls within the scope of the WLA market should be permitted, including upstream inputs to leased lines;
  - fixed and mobile backhaul services would support the provision of NGA services and therefore should be permitted;
  - BT will not be subject to any restrictions in the use of its ducts and poles so neither should OCPs;
  - In practice it would be difficult for BT to prevent CPs from using PIA for leased lines;
  - the proposed scope would prohibit the use of PIA for networks serving only business and public sector users;
- 7.55 The main argument here seems to be that allowing CPs to use PIA for leased lines (including fixed and mobile backhaul circuits) as well as for NGA network deployment would improve the business case for NGA deployment using PIA.
- 7.56 Leased line and backhaul services are currently regulated under the business connectivity market, where BT is required to provide these products on a cost orientated basis and in many cases in accordance with a specific charge control. We, therefore, consider that introducing PIA as a remedy into the business connectivity market could undermine the remedies that we have already imposed in that market.
- 7.57 For instance, some of the regulated prices in the business connectivity market reflect the fact that high value business services such as high-bandwidth leased lines are able to make a relatively large contribution to the recovery of BT's common costs. But if PIA charges are set at levels which might encourage investment in NGA, then this could mean that CPs would have an incentive to use PIA rather than the regulated leased lines to selected large businesses, not because it is more efficient to do so, but simply because of differences in the way the charges have been set. As well as being potentially inefficient, the use of PIA for arbitrage of BCMR remedies in this way could then mean that BT was unable to recover its common costs.
- 7.58 Given this, it is our view that it would be inappropriate for us to extend the scope of PIA without assessing the need for and impact of a PIA remedy in the business connectivity market. We have therefore decided to maintain the scope of PIA as proposed in the consultation document, allowing it to be used for the deployment of access networks for broadband and telephony services and also for SLU backhaul

services between cabinets and the local NGA exchange. We will consider the case for allowing PIA to be used for leased lines in the next business connectivity market review, which we intend to commence in the first half of 2011.

- 7.59 In terms of using PIA for leased lines improving the case for NGA deployment we consider that generally the contribution made by leased line deployments to an NGA business case is likely to be weak. This is because we consider VULA to be the primary focus of NGA-based competition over at least the next four years, with PIA providing an additional option to support competition and investment in NGA networks, mainly in areas where BT does not deploy NGA and therefore VULA is not available. As BT plans to deploy NGA in predominantly urban areas, the value of PIA in extending the reach of NGA is likely to be greatest in rural areas. However as these are areas where there are relatively fewer businesses, particularly large businesses that are the main users of high bandwidth leased lines, CPs are unlikely to be able to derive significant benefit, in terms of NGA deployment, from the ability to use PIA to provide leased lines in any case. Further, areas with the highest concentrations of large businesses often already have fibre networks in place.
- 7.60 Thus, in our view, extending the scope of PIA to include leased lines would be unlikely to stimulate much additional investment in NGA networks in the short term.
- 7.61 We do not consider that excluding fixed and mobile backhaul services would have a detrimental effect on the deployment of mobile and wireless networks since BT is already required to supply a range of regulated leased lines and backhaul products.
- 7.62 In relation to policing usage, we acknowledge there may be some practical difficulties in preventing PIA from being used for leased lines. However, we think it should be possible for BT to define the PIA service in a way that limits, if not entirely excludes, uses that fall outside the scope of the remedy. This might include contractual provisions about usage, minimum contract terms and requirements to serve multiple premises or designated areas.
- 7.63 In response to the point about BT not being subject to any restrictions in the use of its ducts and poles, we would note that the purpose of remedies is to appropriately address the identified SMP in the relevant market. We consider that our proposed approach to PIA does this. Further, we already regulated BT's use of duct and poles in other markets, by regulating services in those markets, e.g., leased lines, and as discussed above it would be inappropriate for us to extend the scope of PIA without assessing the need for and impact of a PIA remedy in those other markets.
- 7.64 Finally, we respond to the concern that the requirement for PIA to be used to serve multiple business and residential premises would prevent it being used to deploy access networks that serve only business premises or public sector organisations. Our intention is that PIA should be used to deploy NGA networks serving multiple premises regardless of type, for example a geographic area such a housing estate, an industrial estate, village or town. We have therefore modified the text in the SMP condition to clarify this.
- 7.65 Also in relation to allowed uses, we noted in the consultation document (paragraph 7.152) that we were proposing a technology neutral remedy, in which CPs would be permitted to deploy other types of communications cable such as coaxial cables. For clarification, we consider that the use of PIA to deploy cable TV services is permitted, for the following reasons. Firstly, this does appear to be an NGA deployment in that the local access network is being upgraded to serve multiple premises in particular geographic area. Further, this new access network would general be used to support

voice and broadband services, although clearly the intention is to also support TV services. However, the reality is that most NGA deployments will be used to support TV services, in one way or another. Also, and perhaps more importantly, unlike the situation with leased lines, BT does not rely on TV services for the recovery of its common costs and we do not regulate the prices of BT provided TV services. Thus, there is no scope for an arbitrage opportunity to exist between PIA and TV services.

### Backhaul from NGA exchanges

- 7.66 As discussed above, under geographic scope, we have extended the geographic scope of PIA, such that it now applies to the area between end user premises and the serving BT NGA exchange (existing and planned) or other BT exchanges that are broadly equivalent in terms of distance from the end user premises and level of aggregation.
- 7.67 Given BT's stated NGA deployment plans, we expect BT to identify about 800 – 1000 NGA exchanges nationally and each of these will serve about 30,000 premises. Whilst these NGA exchanges are expected to be predominantly located in towns and cities, it is still likely that CPs will require BT to provide a backhaul solution from these exchanges to their own network nodes.
- 7.68 We recognise that the combination of greater aggregation and the higher access speeds provided by NGA is likely to affect the demand for backhaul. In particular, it is likely that higher capacity backhaul links will be required. We consider that this may lie behind some respondents' requests to extend the geographic scope of PIA further, to include backhaul. However, we have discussed above that we are introducing PIA as a remedy in the WLA market and therefore the geographic scope of the remedy that we can impose is restricted to the WLA market, i.e., local access networks. As also discussed above BT is currently required to supply a range of regulated leased lines and backhaul products, under its SMP obligations in the business connectivity market.
- 7.69 If CPs do require alternative backhaul solutions then we consider that they can, to some extent, request new services under the terms of BT's general access obligations in the business connectivity market. However, as noted above we intend to commence a review of the business connectivity market in the first half of 2011. As part of this we will assess whether additional or different remedies are necessary in light of any change in the demand for backhaul products, due to the deployment of NGA networks.

### **Using dark fibre to deal with congestion**

- 7.70 Some respondents suggested that PIA should be complemented by fibre remedies to deal with congestion. Three main points were made:
- where spare duct or pole capacity is limited, BT should be required to provide new fibre and lease it to CPs in order to use the remaining capacity most efficiently;
  - where no spare duct/pole capacity or alternative routes are available, BT should be required to lease dark fibre to CPs (as is the case in Spain and Germany); and
  - the CP that uses the remaining duct or pole capacity should be required to lease fibre to OCPs.

- 7.71 The underlying argument here is that incremental duct construction could sometimes be avoided because a single fibre provider would use the remaining duct space more efficiently than multiple providers. Theoretically this would appear to be the case since multiple providers would each require sub-ducts potentially leading to sub-optimal duct and sub-duct utilisation. However, it is unclear to what extent utilisation could be improved in practice. For instance, gains may only be made where multiple CPs require the same cable runs and there may be other operational reasons for deploying new sub-ducts, such as reducing disturbance to existing cables and maintaining physical separation between operators' cables. Also it is not clear how often a dark fibre congestion solution would enable incremental duct construction to be avoided as in many cases there would still be insufficient duct capacity to fulfil orders.
- 7.72 Our concern is that a dark fibre congestion solution may not be particularly effective in practice and there would be additional costs and complexities associated with operating it which would also offset some of the gains. Therefore, whilst we understand the desire to avoid additional duct and pole construction, in our view a dark fibre congestion solution seems a more complicated way of dealing with duct congestion than methods we suggested in the consultation document, namely:
- repairing existing unusable infrastructure such as collapsed ducts;
  - recovering redundant cables;
  - rearranging existing infrastructure; and
  - installing new infrastructure.
- 7.73 As discussed in the consultation document, we consider that the practical issues associated with dealing with congested infrastructure are best considered by BT and industry during the implementation process. We note that BT has already made an initial proposal at the requirements-capture workshops that it could allow CPs to instruct its contractors to clear duct blockages or to provide new ducts where required.
- 7.74 On the third point, we have no current legal basis for requiring CPs that do not have SMP to offer dark fibre to others when they fill the remaining spare capacity in BT's ducts, so this approach would not provide a viable regulatory solution.

### **Basis of charges for PIA**

- 7.75 As discussed in paragraph 5.72, most respondents supported our proposals in relation to the basis of charges obligation. In relation to PIA specifically, Virgin Media agreed that LRIC+ would be more appropriate basis of charges than ECPR. Geo also supported a LRIC+ regime, but said that the allocation of joint and common costs between PIA and Openreach's downstream products needed to be carefully considered. It also said that a degree of price constancy over time was required to provide investment certainty. BT argued that we were wrong to reject ECPR in favour of LRIC+ for PIA.
- 7.76 As discussed in paragraph 7.14, in the consultation document we proposed that BT's charges for PIA should be cost oriented and set on a LRIC+ basis. Having analysed the consultation responses we still consider that LRIC+ is the most appropriate approach (see Section 5 above). BT's charges for PIA will therefore be subject to the

basis of charges obligation specified in Condition FAA4 which specifies the LRIC+ obligation.

7.77 As discussed in paragraph 7.23, if BT and CPs are unable to reach agreement about its charges for PIA we would consider whether it would be appropriate for us to undertake a formal review of BT's charges. If relevant, we would consider the allocation of joint and common costs between PIA and downstream services.

### **Other comments about PIA charges**

7.78 Respondents also made other comments about PIA charges. The main points were:

- BT said that opportunity costs for BT might differ between VULA areas and non VULA areas. It suggested that pricing may need to consider these factors, and said that this linked to our suggestion that the primary purpose for PIA is to make new investment contestable, not that it should prevent investment by BT;
- BT said that investment risk might differ between VULA and non VULA areas;
- Sky said that applying a risk premium to new duct deployed by BT for NGA would be complex in practice and therefore a co-investment/cost sharing approach to new duct construction would be better;
- BT said that PIA charges should potentially reflect rental term and volume commitments made by CPs given the long-term nature of duct and pole infrastructure investments;
- BT said that PIA charges might need to reflect cost differences in different parts of the BT network (e.g., regions or genotypes);
- BT said that in order to maintain efficient incentives there would be a case for CPs to pay the capital cost of clearing or repairing congested ducts if under existing planning rules they would not normally be expected to be cleared. This may differ from normal maintenance costs which could be averaged into the duct rental price; and
- several respondents urged us to take a proactive approach to reviewing BT's PIA charges rather than waiting for a dispute to arise.

7.79 We consider that the first point above relates to BT's arguments on the suitability of the ECPR approach to PIA charges (which sets prices based on the opportunity costs to the access provider of providing access to third parties). As discussed earlier we think that LRIC+ is a more appropriate basis for PIA charges. In our view an opportunity cost element for PIA charges would be unlikely to be compatible with the basis of charges obligation.

7.80 We note that the risk of providing PIA is likely to vary according to whether it requires new investment and on whether it is to be used for new risky services. We set out our approach to reflecting risk in paragraphs 7.15 and 7.16, including how risk should be reflected in principle, and how we may need to reflect it in practice.

7.81 As stated earlier we support a co-investment approach and have made this a requirement for BT's PIA service. We consider that in principle higher risk investments in new infrastructure should be treated differently from the infrastructure deployed for current generation services. Whilst we acknowledge there may be

practical difficulties we note that other NRAs such as OPTA have estimated and applied risk premiums for risky investments associated with NGA deployment. We remain hopeful that practical solutions can be identified as this would be likely to create more efficient incentives for both BT and CPs than applying the same risk premium to all infrastructure.

- 7.82 Where arrangements such as co-investment or rental terms either compensate BT up-front for its investment or otherwise offset BT's investment risk it may be appropriate for PIA charges to be adjusted accordingly.
- 7.83 We recognise that the cost of infrastructure may vary across the BT network and if we review BT's charges we would consider whether it would be proportionate for those differences to be reflected in BT's charges.
- 7.84 On the cost of clearing and repairing congested ducts, we consider that there is a trade-off between up-front charges and ongoing rental. BT and OCPs need to work out their preferred trade-off but, as a matter of principle, CPs should not pay these costs twice (i.e., when the duct is made available and when it is used).
- 7.85 As discussed in paragraph 7.23, we acknowledge there is a risk that BT and CPs may not be able to reach agreement about BT's PIA charges, notwithstanding the basis of charges obligation. In this event we would consider whether it would be appropriate for us to undertake a formal review of BT's PIA charges. This might lead to a consultation proposing either a direction setting BT's charges or a charge control.

### **No undue discrimination obligation**

- 7.86 Virgin Media said that the proposed obligation would be insufficiently strict to prevent BT discriminating in favour of internal consumption of physical infrastructure over CPs PIA orders. Also, it stated that CPs would have difficulty determining whether discrimination occurred because they would not have visibility of BT's internal consumption of physical infrastructure. It felt that, given that BT will be in direct competition with many of the purchasers of a PIA product, it would have a very strong incentive to give preference to its own consumption, particularly where BT and PIA-purchasing CPs have concurrent roll-out plans in disparate geographies. Virgin Media therefore recommended that we should apply the specific form of the obligation, as proposed for the VULA remedy.
- 7.87 Virgin Media argued that the reasons for imposing a specific form of no undue discrimination obligation on VULA applied equally to PIA. Specifically they asserted that PIA has the potential to be a principal component in the competitive dynamic of NGA deployment; that VM and other CPs can demonstrate a significant potential demand for the PIA product; and that PIA is a new product and therefore, there would be no need to re-engineer existing products, processes or systems.
- 7.88 As discussed in Section 5 we recognise that applying the specific form of no undue discrimination obligation (equivalence) in all cases could in certain circumstances lead to inefficiencies and, therefore, might in some cases be considered disproportionate. In particular, where the dominant provider may need to re-engineer existing products and processes, which could be both costly and disruptive. Whilst PIA may be a new product from the point of view of a CP customer, BT's own use of its duct and pole infrastructure has been extensive over many decades. We therefore, consider that BT would be required to significantly re-engineer its own internal processes and systems if it was required to use its duct and pole

infrastructure on a completely equivalent basis. Therefore, we remain of the view that the specific form of non-discrimination obligation proposed for VULA would not be proportionate at this stage.

- 7.89 Finally, regarding transparency about BT's internal consumption of passive infrastructure, SMP Condition FAA5.4 is intended to address this concern. It requires that where BT provides network access to itself that is similar to that provided to OCPs it must publish a reference offer describing the service that it consumes internally and how that service differs from the external product.

## Implementation arrangements

- 7.90 BT said it would endeavour to meet the timetable that we proposed but noted that the European experience indicated that infrastructure sharing could take longer to implement than the timetable proposed by us. BT also said that its initial investigations into pole sharing arrangements had identified significant concerns relating to safety and legal liability. BT was concerned that these issues might prevent it from delivering a pole sharing reference offer within 6 months. BT therefore asked us to consider modifying the draft SMP condition to provide additional flexibility for us to extend the deadline for publication of the RO if required.
- 7.91 Contributors to the BSG PISWG work on duct and pole thought that the implementation timetable proposed by us is not challenging enough and could be accelerated using the outputs of the BSG PISWG. Some respondents argued that duct and pole ROs should follow the same timetable, as CPs would require both.
- 7.92 TTG and Virgin Media were concerned that BT might delay implementation or deliver a sub-standard service and asked us to adopt a more prescriptive approach. Both thought that the OTA should be involved at an early stage to supervise industry discussions and implementation activities. Virgin Media also recommended that we should formalise the implementation timetable for the updated reference offer and strengthen the minimum requirements for the reference offers specified in the SMP condition as it considered the proposed requirements to be too vague.
- 7.93 All of the respondents that commented on it supported OTA involvement in PIA implementation. BT also supported OTA involvement, provided that the OTA's role is clearly defined and is limited to facilitation and practical dispute resolution.
- 7.94 The BSG PISWG work has made a valuable contribution to the development of PIA, by providing a detailed set of CPs requirements for duct and pole sharing. However, developing detailed engineering rules, operational processes and a commercial reference offer is still a significant undertaking. We remain of the view that the requirement to produce the duct reference offer within three months is reasonable.
- 7.95 In relation to poles, BT has told us that its concerns relate to the hazards associated with overhead working, potential hazards to members of the public associated with pole work such as low hanging wires and the division of responsibility for the associated legal liabilities between BT and CPs. Whilst we acknowledge there are some pole specific issues to address, we also think it would be beneficial for industry discussions on the pole reference offer to commence at the same time as those for ducts so that industry can give early feedback to BT on its proposals. We have therefore decided that BT should publish the poles sections of the RO alongside those for ducts (i.e., after three months rather than six months). The poles sections may, by that time, be less developed than the duct sections and would therefore be suitable for industry review but possibly not for field trials.

- 7.96 Our hope is that work on both ducts and poles will be able to proceed in parallel, leading to publication of an updated reference offer in June 2011 encompassing both ducts and poles. However we recognise that extra time may be required to develop the poles sections to the same level of detail.
- 7.97 In the event that the poles sections do take longer than the ducts sections we think that BT should not delay publication of the updated RO for ducts so that CPs can start to use PIA for ducts at the earliest opportunity. Moreover, at each stage of the development of the RO, we expect BT to publish updated sections on poles, to assist with CPs' future planning on the use of PIA as a whole.
- 7.98 In order to acknowledge that the deadline for publication of the ROs would have fallen directly after the Christmas holiday period, we have extended the deadline in the SMP Condition to mid-January. Therefore the implementation timetable will be as follows:
- First draft RO for both ducts and poles (~14 weeks) – BT is required to publish a draft RO that meets the minimum specification in the SMP condition by 14 January 2011;
  - Industry Review & Field Trials (3 months) – OTA supervised review of the draft RO (ducts and poles) by an industry working group accompanied by field trials of PIA;
  - Updated RO (2 months) – BT to produce an updated RO within two months of the conclusion of the industry review. The pole sharing sections may be less developed than those for duct sharing;
  - Service Launch (~8 months after policy statement) – at a minimum for duct sharing and preferably also for pole sharing. Most likely a soft launch starting with low order volumes to test the operational processes; and
  - Ofcom consultation/statement – If necessary, we would consider any matters not agreed during the review period and consult on a direction settling these matters.
- 7.99 The time required to complete the industry review and subsequent activities will be dependent to some extent on the issues that come up and the level of stakeholder engagement. Therefore we do not think that the publication target for the updated reference offer should be specified in the SMP condition.

### OTA involvement

- 7.100 In view of the support for involvement of the OTA in PIA implementation, our view is that the OTA should take on this role. We consider this is the best way to ensure that implementation of the PIA service progresses as quickly as possible.
- 7.101 The OTA has indicated that it would be willing to take on this role. The OTA considers that it is reasonable for this work to fall within its remit. However, it is necessary for the OTA to be given a clear definition of the scope of its involvement in PIA with Ofcom, industry and BT.
- 7.102 Our view is that the OTA should perform a similar role to that it undertakes for other products such as LLU, namely facilitation and coordination of industry discussions about implementation, trials and coordination between products that fall within its remit.

7.103 We agree with respondents that it would be useful for the OTA to commence its work as soon as possible so that as much progress as possible can be made before BT publishes its draft reference offers. In September we therefore discussed this extension with BT, and wrote to the OTA formally asking it to extend its remit to PIA. Its roles in relation to PIA will, in broad terms, follow those for the other products in its remit<sup>106</sup>.

### Reference offer minimum requirements

7.104 We specified the minimum requirements for the PIA reference offer based on a range of inputs, including our research into foreign infrastructure sharing services and the BSG PISWG work. We consider it would be difficult for us to add more detail in advance of BT's detailed proposals and industry feedback. There would also be a risk that adding more detailed requirements might unnecessarily constrain the design of the PIA service.

### **Capacity reservation rules**

7.105 Whilst broadly agreeing with the approach to capacity reservation proposed by us for congestion and new build locations, Virgin Media said that we should be more prescriptive in setting out the approach that it expected BT to follow in over-build situations and for sharing newly deployed infrastructure. Virgin Media thought that we had placed too much reliance on BT making proposals to industry which they considered would be likely to lead to a lengthy implementation process and possibly a requirement for further formal intervention by us.

7.106 We have set out our views on the approach that BT should take to capacity reservation in some detail in the consultation document and in this statement. We have also specified in the minimum requirements for PIA in SMP Condition FAA5 that capacity reservation rules should apply equally to BT and CPs. We consider it would be difficult for us to add more detail before the operational processes for PIA have been specified. There would also be a risk that adding more detailed requirements might unnecessarily constrain the design of the PIA service.

### **Provision of infrastructure information to CPs**

7.107 Virgin Media emphasised the need for the timely provision of maps, network diagrams, inventories and survey results to CPs. It urged us to be more prescriptive about these requirements in order to ensure they are provided without undue delay and on a strictly non-discriminatory basis.

7.108 We agree that the timely provision of infrastructure information will be an important part of the PIA service. In order to specify BT's obligations in more detail, we consider we would need a more detailed understanding of BT's infrastructure records and associated capabilities. Also, our assessment, particularly in relation to the provision of infrastructure databases and operational support systems would be likely to depend on the level of demand for PIA which is currently unclear. We therefore consider that we are not able to specify BT's obligations in relation to infrastructure records in more detail than already specified in the minimum requirements for the PIA RO in SMP condition FAA5 (see Annex 11 for more detail). Several of these requirements deal with the provision of information to CPs about BT's infrastructure.

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<sup>106</sup> The current OTA terms of reference are available at <http://stakeholders.ofcom.org.uk/telecoms/groups/telecoms-adjudication-scheme/annex5>

We also note that SMP condition FAA3 also requires BT not to unduly discriminate in the provision of PIA services.

## Survey processes

- 7.109 Virgin Media said that it is important that the survey processes should be efficient and timely. They also said that BT should not be allowed to recover any of the costs of collating information about its infrastructure via survey charges or to load any other costs onto surveys that might undermine the viability of the service. Again Virgin Media suggested that we should adopt a more prescriptive approach setting out BT's obligations in more detail.
- 7.110 We agree that the survey processes will be an important component of the PIA service. As discussed below, BT's initial proposal is that CPs should undertake their own surveys with BT's involvement being restricted to authorising survey requests. However, if BT were to undertake surveys, we agree that a timely and efficient process would be important.
- 7.111 In our view, it would be appropriate for charges for BT provided surveys to include costs incurred directly as a result of survey activity. An alternative approach might be appropriate for start-up costs not directly associated with individual surveys and we would consider this if we were to formally review BT's PIA charges.
- 7.112 Whilst we understand the desire for more prescriptive approach we consider it would be difficult for us to add more detail prior to the PIA service being specified and the charging proposed.

## Cable installation and recovery

- 7.113 Virgin Media suggested that CPs should be allowed to do a significant proportion of cable installation and recovery work themselves, provided that they adhered to agreed operating procedures. Conversely, Telent said that there would be considerable operational complexity associated with multiple CPs maintaining their networks in BT's infrastructure. It therefore suggested that maintenance should be performed by a single contractor.
- 7.114 As discussed below, BT's initial proposal is that except in exceptional circumstances, CPs should install, maintain and recover their cables. Whilst we acknowledge there will be some complexity associated with infrastructure sharing, these do not appear to be insurmountable as workable infrastructure sharing services have been implemented in other countries.

## Other implementation issues

- 7.115 Respondents raised a number of more detailed points about the design of BT's PIA service. These included:
- **Private wayleaves** – C&WW suggested that BT should offer a dark fibre service to CPs in areas where BT infrastructure crosses private land in order to avoid the need for CPs to negotiate their own wayleaves with landowners;
  - **Survey results database** – several respondents suggested that BT should create a database to hold results of infrastructure capacity surveys so that the survey results could be made available for subsequent enquiries;

- **Bulk ordering processes** – Virgin Media envisaged that it might wish to submit large orders e.g., for whole towns and therefore BT should create separate bulk ordering processes to deal with bulk requests more efficiently than large numbers of standard orders; and
- **Independent contractors** - Virgin Media suggested that PIA services could be administered and delivered by an independent contractor rather than BT Openreach. This would address BT's resourcing issues and allay CPs concerns about potential discrimination.

7.116 We think these points would be best considered by BT and industry as part of the implementation process.

## BT's initial proposals for PIA

7.117 In the consultation document we reported that in February 2010 BT announced it would be willing to offer an infrastructure sharing service and that BT and CPs had indicated that they would participate in preliminary discussions about infrastructure sharing during the consultation period. These discussions subsequently commenced in July with a series of requirements-capture workshops organised by BT. BT used these workshops to share its initial thoughts on the form of its PIA service with CPs and to gather their feedback and requirements.

7.118 BT indicated that it planned to deliver draft reference offers in line with the timetable proposed by us (i.e., draft duct reference offer within three months of this statement and a draft poles reference offer within six months). BT has also proposed that the industry discussions should be complimented by field trials of PIA by CPs.

7.119 The main features of BT's initial PIA proposals for discussion were as follows:

- CPs would undertake most of the key activities such as surveying, cable installation, maintenance and recovery themselves;
- Openreach would reserve the right to undertake activities themselves where there is a high risk to existing Openreach plant;
- CPs would use an updated version of the BT Cablelink product<sup>107</sup> to cable into BT exchanges to access collocation space;
- Openreach would require all work to be undertaken by accredited personnel who are properly trained for the work;
- BT would provide CPs with network plans and maps upon request using a modified version of its existing Map by Email<sup>108</sup> service;
- CPs would submit cabling plans to BT for approval;
- BT would reserve some duct capacity for its own use after which CPs would be able to reserve capacity for their requirements;

<sup>107</sup> <http://www.openreach.co.uk/orpg/products/ethernet/cablelink/cablelink.do>

<sup>108</sup> <http://www.openreach.co.uk/orpg/networkinfo/locatenetwork/mapbyemail.do>

- Cable installation would be in accordance with standard BT engineering rules and would for instance use the same duct utilisation and sub-ducting rules already used by BT;
- To enable BT to assess the quality of the work and that it has been carried out in accordance with the plans, CPs would be required to submit photographs of their work;
- BT would also audit CPs work on a sample basis using the same approach that it applies to its existing contractors; and
- Where congestion is encountered CPs would be able to get BT's contractors to clear duct blockages or provide new ducts at their expense.

7.120 CPs raised a range of issues and requirements which Openreach will take into account in developing its RO. Generally we think these are best considered as part of the industry discussions.

7.121 We have, however, had some discussions with Openreach about its proposed approach, particularly to clarify our expectations in relation to capacity reservation. On this issue, we accept that Openreach will need to reserve some capacity for purposes such as maintenance and resilience, but beyond that we consider that BT and OCPs should be able to reserve capacity on an equal basis. This symmetrical approach to capacity reservation was proposed in the consultation document and put forward as one of the minimum requirements for the BT's reference offer (Condition FAA5.3(e)). We see no reason why the rules should favour BT's NGA deployment over other NGA requirements of OCPs.

## Conclusions on formal obligations

7.122 In the light of stakeholder comments we have decided to confirm the proposed SMP condition for PIA (FAA12) with the following amendments:

- Revisions to condition FAA12 having the effect of widening the areas in which PIA can be used from the copper network exchange areas to the NGA exchange serving areas. This is achieved by
  - Definition of a new term 'Local Access Node' in FAA12.4 (d) meaning exchanges from which BT provides NGA networks or has designated for future provision of NGA networks and other BT exchanges that are reasonably equivalent to the BT nominated buildings in terms of distance from the Network Termination Points and number of Network Termination Points served;
  - Definition of a new term 'ODF Site' in FAA12.4(f) meaning the site of a BT operational building housing an optical distribution frame for optical fibre access networks;
  - Consequential amendments to the number of the definitions in FAA12.4;
- A revision to condition FAA12.1 to clarify that whilst PIA must be used to serve multiple premises in a particular geographic area it is not a requirement that both business and residential premises are served. This is achieved by deletion of the words 'business and residential';

- A revision to SMP condition FAA5.5B to require BT to publish a draft reference offer for both ducts and poles by 14 January 2011, about 14 weeks of publication of this statement rather than within three months for ducts and six months for poles as originally proposed.

7.123 Whilst the discussion above has looked at the PIA obligation on a stand-alone basis, we consider that the conclusions drawn remain valid when PIA is viewed in combination with other WLA remedies. Our assessment of the combination of remedies is presented in Section 9. We also present how the PIA obligation meets the relevant legal tests, in Section 10.

## The NGA Recommendation

7.124 As set out in Section 2, when carrying out our tasks under the regulatory framework, we are required to take account of certain documents published by the Commission and by BEREC. One of these documents is the Commission's (new) NGA Recommendation<sup>109</sup>. BEREC also submitted an Opinion in May 2010 on the draft Recommendation<sup>110</sup>. Here we comment on issues in this section on which we have taken a different approach to the NGA Recommendation or that BEREC Opinion.

7.125 After taking utmost account of the NGA Recommendation in this section, we have decided not to implement the following provision as part of the obligations on BT:

- strict equivalence of access to ducts and poles (Article 13).

7.126 Our reasons for adopting this approach are set out at paragraphs 7.86 - 7.88 above. There, we state that BT would be required to significantly re-engineer its own internal processes and systems if it was required to use its duct and pole infrastructure on a completely equivalent basis, which could be both costly and disruptive. Therefore, we consider that a strict non-discrimination obligation for PIA would not be proportionate at this stage.

7.127 We note that the Commission's response to the consultation document did not comment about this aspect of our PIA proposals. We also consider that our decisions on fibre access are consistent with BEREC's general comments in its 28 May Opinion on the draft Recommendation<sup>111</sup>, with regard to the importance of remedies being proportionate and taking into account both national circumstances and the existence of other remedies that can deliver equivalent effects.

<sup>109</sup> [http://ec.europa.eu/information\\_society/policy/ecom/comm/doc/library/recomm\\_guidelines/nga/en.pdf](http://ec.europa.eu/information_society/policy/ecom/comm/doc/library/recomm_guidelines/nga/en.pdf) - European Commission, 20 September 2010

<sup>110</sup> BEREC Opinion to the Draft Recommendation on regulated access to Next Generation Access Networks (NGA) of 28 April 2010 – BEREC, 28 May 2010

[http://www.erg.eu.int/doc/berec/bor\\_10\\_25.pdf](http://www.erg.eu.int/doc/berec/bor_10_25.pdf)

<sup>111</sup> At paragraphs 12, 14 and 15

## Section 8

# Specific access remedies (3): Virtual Unbundled Local Access

## Introduction

- 8.1 As set out at the start of Section 6, access remedies can be distinguished by the degree of electronic processing that is involved in operating them. A remedy that relies on access to physical network infrastructure such as copper, fibre and duct are sometimes called ‘passive’ remedies, on the basis that they do not include any active electronic equipment. In Sections 6 and 7 we considered a number of such remedies.
- 8.2 Conversely, a non-physical (sometimes called an ‘active’) remedy includes active electronic equipment that is connected to the physical infrastructure. CPs purchasing a non-physical access remedy would need to interconnect with equipment located at a local aggregation point. VULA, which we consider in this section, is such a remedy.
- 8.3 As stated in Section 3 (paragraphs 3.49 to 3.72), we have concluded that non-physical remedies can be imposed in the WLA market as long as they have the right characteristics, in that they should offer the same kind of features as a physical product. In the consultation document, we proposed the specific key characteristics that VULA would need to have. In simple terms, we described VULA as providing CPs with a ‘raw’ connection from the nearest ‘local’ aggregation point to the customer premise.
- 8.4 We considered that VULA could allow significant product differentiation and innovation, potentially similar to the opportunities available using physical access products. For example, a CP would be able to provide a range of services over this connection, e.g., voice, video, internet services. It would also have total control over the dimensioning and operation of the backhaul and core networks needed to support these services.

## Consultation proposals

### The rationale for VULA

- 8.5 In the consultation document we set out our view that competition in NGA-based services, at least in the short term, may be best served by CPs sharing a single network. We considered the incremental costs associated with deploying competing FTTC and FTTP networks to be significant, and so saw the case for doing so to be unclear, at least in the early stages of market development where demand is likely to be low.
- 8.6 As such, we proposed that in areas where BT has deployed a NGA network (FTTC or FTTP) it should be required to provide access to these networks. This access would be a form of non-physical (virtual) access, which would, as far as possible, replicate many of the features of a physical access remedy, such as LLU.
- 8.7 The underlying objective of requiring BT to provide this form of access was to support competition and investment in the supply of NGA-based products in downstream markets. As such, we set out that the access should be flexible and capable of

supporting innovation. We called this access remedy Virtual Unbundled Local Access, or VULA.

- 8.8 Our analysis in the consultation document suggested that in areas where BT has deployed an NGA network the economic case for alternative CPs to deploy a duplicate network in parallel would be relatively weak<sup>112</sup>. We therefore considered that, in the absence of an access remedy such as VULA, in areas where BT has deployed NGA, OCPs would not have a viable WLA remedy with which they could compete with BT in the downstream markets. We considered that such an outcome could limit competition in the supply of broadband services, particularly at the retail level, to the detriment of consumers.
- 8.9 We proposed that requiring BT to provide VULA is likely to be the most cost effective way to support competition in downstream markets in cases where BT has deployed a NGA network. We suggested that VULA would reduce entry barriers to CPs wishing to provide telecommunication services to consumers<sup>113</sup>, allowing them to enter new markets and expand their businesses.

### The key characteristics of VULA

- 8.10 In the consultation document we set out our view that the most effective way to support the development of downstream competition would be to provide significant scope for alternative providers to innovate and differentiate in how they package and deliver services. We considered that the benefits of VULA would be greater if it was provided as a 'raw' product, which provided CPs with significant flexibility over their own networks and the services that they could deliver to end users. This would replicate many of the features associated with LLU. As a technology neutral remedy, VULA would be relevant to both FTTC and FTTP deployments which means that, based on current roll-out plans, it could support competition in up to 66 per cent of the UK.
- 8.11 In the consultation document we also described five high-level characteristics that we considered VULA would need to have in order to meet the above objectives and to be consistent with the WLA market definition<sup>114</sup>. These are described below.

### Local access

- 8.12 Interconnection, by the access seeker, should occur locally; that is at the first technically feasible aggregation point. In practice this is likely to be in the local serving exchange where the first Ethernet switch is located (NGA exchange)<sup>115</sup>. This means that CPs only purchase the access connection, allowing competing CPs to

<sup>112</sup> Summarised in detail in Annexes 9 and 10 of the consultation document

<sup>113</sup> The evidence suggests that the costs of VULA for CPs are likely to be significantly less than NGA based on some level of additional access network build

<sup>114</sup> We have previously undertaken considerable work to encourage industry to develop a common standard for wholesale bit-stream access. This standardised wholesale bit-stream access is known as active line access (ALA). Our most recent publication on ALA is a discussion document: *Ethernet Active Line Access: Updated Technical Requirements*, published on 3 March 2009<sup>114</sup>. Whilst ALA is not a regulatory remedy for a particular market failure, it has provided a useful reference when considering the key characteristics of VULA.

<sup>115</sup> Note that the local serving exchanges for NGA (FTTC and FTTP) will not necessarily be the same local serving exchanges as for CGA ('copper' loops), as fibre does not have the same distance limitations as copper and therefore a higher level of aggregation is possible. For example, BT currently has c.5,600 local serving exchanges in its CGA network but plans to reduce the number of local serving exchanges to around 800 - 1000 in its NGA network.

arrange (or build) their own backhaul and core networks, maximising CPs control. Local interconnection also provides foundations which support some of the other key VULA characteristics, for example uncontended access becomes more difficult (and costly) as the point of interconnection moves deeper into the backhaul/core network.

### Service agnostic access

- 8.13 We consider that VULA, like LLU, should be a generic access product. That is, it should provide service agnostic connectivity, replicating one of the key features of LLU.

### Uncontended access

- 8.14 The connection, or capacity, between the consumers' premises and the local serving exchange where interconnection takes place should be dedicated to the end user, i.e., the connection should be uncontended. The availability of an uncontended access connection, alongside the control options discussed below, would ensure that the full innovation benefits can be realised.

### Control of access

- 8.15 Given the aim of realising competition benefits by allowing CPs maximum flexibility in their ability to offer differentiated products to consumers it is necessary for VULA to provide a high degree of access control to the interconnecting CP.
- 8.16 CPs would need freedom of control in order to provide different types of service and, potentially, also vary the QoS parameters in delivering those services to enable them to effectively compete with other providers.
- 8.17 It is possible that some control of the underlying technical elements of VULA would need to remain with the access provider (BT) to maintain network stability. However, allowing CPs the greatest freedom possible to alter certain control parameters, where possible, is critical to ensure that CPs are able to determine and control the type and level of service they provide.

### Control of customer premises equipment (CPE)

- 8.18 Similar to the control characteristic described above, allowing competing CPs the ability to control CPE is crucial in ensuring that the potential benefits of VULA are realised. Allowing CPs the freedom to choose CPE provides the flexibility needed to ensure CPs are able to differentiate how they deliver services to their customers.
- 8.19 Unnecessarily preventing, or limiting, the control CPs have over CPE risks undermining some of the benefits to consumers that VULA may provide. Restricting the type of CPE (other than in accordance with generally recognised and accepted standards) would limit CPs ability to offer different and innovative products.
- 8.20 However, as with other aspects of the key characteristics supporting VULA, we recognise that some restrictions may be necessary in order to protect network security and integrity. However the principle that should apply is that maximum control of CPE should be afforded to competing CPs, and control should not be subject to undue restrictions by the access provider.

## **Provision of VULA on a stand-alone basis**

- 8.21 In the consultation document we set out our view that in order to meet the key characteristics of VULA BT must offer VULA on a stand-alone basis. That is to say that VULA should not be inextricably linked, or bundled, with other products, such as a voice product, though such additional products could be purchased by CPs if desired. The objective of this requirement was to ensure that VULA was, as far as possible, a ‘raw’, service-agnostic, access product.

## **Comparison of GEA with VULA characteristics**

- 8.22 In the consultation document we recognised that BT had been developing a set of generic Ethernet access (GEA) products based on its FTTC and FTTP NGA deployments. As such we provided a high-level view of how we thought GEA measured up to the VULA key characteristics (see paragraphs 7.268 to 7.280 of the consultation document). In summary we considered that GEA was moving in the right direction, though some issues, particularly around the level of CPE control, remained.

## **GEA and multi-port presentation**

- 8.23 The consultation document also considered BT’s proposed multi-port presentation of GEA, when provided over FTTP. In the consultation document we recognised some of the potential benefits of multi-port presentation, but also had some concerns about how it would operate in practice. In particular we had some concerns regarding a possible reduction in functionality available on an individual port, and around the pricing of additional connections. As such our view in the consultation document was that BT should be able to proceed with development of multi-port presentation, but should also be prepared to meet reasonable requests for alternative forms of presentation in accordance with the proposed access obligation(s).

## **No undue discrimination for VULA**

- 8.24 We also set out in the consultation document our proposal to adopt a specific form of no undue discrimination in relation to BT’s provision of VULA (paragraphs 7.262 to 7.264). We considered this approach to be appropriate because we expect VULA to be the main basis of competition over the period covered by this review. We also considered this approach to be proportionate as VULA is a new product and as such there would be no need to re-engineer existing products.
- 8.25 In the proposed condition requiring VULA (Condition FAA11), we set out that VULA should be provided on an Equivalence of Input basis and provided a definition of “Equivalence of Inputs”. This would require BT to make VULA available to third parties 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 as it does to its own downstream divisions. Although this definition is similar to that set out in the BT Undertakings, it is important to note that the SMP requirements are completely separate to and independent of the BT Undertakings.

## **Pricing of VULA**

- 8.26 Another critically important aspect of VULA concerns the approach to pricing. In the consultation document we set out our view that, in the near term, BT should be given pricing flexibility and as such we did not propose any form of cost orientation.

- 8.27 This approach was based on a number of factors. Firstly, we considered that there is significant uncertainty over both the cost and revenues associated with this type of investment. Thus, determining what a cost orientation charge is would be very difficult. If we did set a charge then there is a risk that we could set it too low, which in turn could stifle investment. We recognised that if the charge were set too high, this could reduce potential consumer benefits from NGA. However, our view was that, over the next few years, there would be a single market for all broadband speeds, including super-fast broadband. Given that, we considered that the existing CGA services, together with the services offered by Virgin Media over its cable network, would act to constrain the prices for the new NGA services.
- 8.28 We noted, however, that it was possible that certain pricing approaches could produce undesirable outcomes. We therefore proposed that any pricing approach adopted by BT would need to be fair and non-discriminatory.
- 8.29 We also noted that BT would continue to be subject to general competition law requirements, limiting its ability to act in an anti-competitive way given its position in the market.
- 8.30 We made clear in the consultation document that whilst we considered that setting regulated prices for new non-physical NGA products in the near term would be disproportionate, we would propose to closely monitor specific pricing approaches adopted to ensure against the risk of anticompetitive outcomes.

## Summary and analysis of consultation responses

- 8.31 There were a total of 27 respondents to the consultation document, of which 22 explicitly commented on our VULA proposals. Below we summarise the key points made by respondents for each theme.

### The rationale for VULA

- 8.32 Of the 22 respondents who explicitly commented on our VULA proposals, 18 agreed that VULA was a necessary access remedy in the WLA market. The four respondents who disagreed were: Corning, Geo, FTTH Council and Vtesse.
- 8.33 Corning and FTTH Council make very similar arguments. They both argued that an appropriate demand and supply analysis had not been conducted to justify having an active remedy (VULA) in the WLA market and that it would undermine investment incentives for alternative access operators. Neither of them seemed to disagree with a VULA type remedy in principle but rather seemed to believe that only physical remedies should be introduced within market 4 (WLA).
- 8.34 Geo acknowledged that VULA may have a role to play but questioned whether it should be a market 4 (WLA) or market 5 (WBA) remedy.
- 8.35 Vtesse said that VULA represents a long-term threat to competition, and may reverse the benefits brought about by Local Loop Unbundling. Vtesse recognised that the majority of CPs seem to accept the idea of VULA but concluded that this had been orchestrated by BT by making its GEA products attractive compared with sub-loop unbundling (SLU).
- 8.36 In terms of VULA being an appropriate WLA remedy, within our assessment of market definition we considered the vertical market boundary between the WLA and WBA markets and set out our reasons for concluding that, in the context of NGA, it is

possible that non-physical products could form part of the WLA market, if they have certain characteristics. When assessing potential remedies we concluded that physical remedies alone, i.e., SLU and PIA, were unlikely to support effective competition in NGA-based services in downstream markets, due to the high cost of deploying multiple NGA networks in parallel and given the current uncertain demand. Based on this we concluded that VULA is an appropriate WLA remedy. We also noted that the European Commission (EC) commented that in its view the proposals for VULA gave significantly different levels of control to other (active) bit-stream products, and therefore did not contest our proposal that VULA could be a remedy in the WLA market.

- 8.37 In terms of VULA undermining investment incentives for alternative access operators, we would firstly note that VULA will only be available in those areas where BT has deployed NGA. Within such areas there seems to be general agreement amongst CPs that at the current time there is no case for CPs to deploy additional NGA networks in parallel with BT's NGA network. It therefore seems unlikely that the availability of VULA would undermine alternative investment in this case. More generally, we would note that we are also mandating physical remedies as part of this review, in particular, SLU and PIA. Therefore, if CPs did want to make alternative investments, either in areas where BT has deployed its NGA or elsewhere, then they would be able to do this. Finally, CPs also have the option of investing in a completely new network, i.e., totally unrelated to BT's network. We therefore consider that the existence of VULA as a remedy does not undermine the ability of CPs to invest in alternative networks.
- 8.38 In response to Vtesse's comments, we would note that the deployment of NGA generally will impact on competition based on the current LLU model. This is because the services that can be provided using LLU are inherently more limited (slower speed) than those available over NGA. Thus, as the market evolves towards NGA the benefits of competition based on LLU will diminish. Indeed, it is precisely for this reason that we are looking to introduce a remedy that will continue to support downstream competition in situations where NGA has been deployed. In the consultation document we considered a number of NGA remedies, including SLU. However, we concluded that SLU was unlikely to provide a suitable basis for downstream competition on a significant scale in the next few years. As discussed in the consultation document, in particular in Annex 9, our assessment of the prospects of SLU was not simply based on the current products provided by BT, but was instead assessed assuming a number of scenarios and potential improvements to SLU. Even so, we concluded that given current demand and cost levels there were high static costs of competition based on SLU. We, therefore, proposed VULA as an additional remedy to ensure that downstream competition could be maintained for NGA services.

### **The key characteristics of VULA**

- 8.39 Many of the respondents made very detailed comments in relation to the proposed key characteristics of VULA. However, we consider that many of these comments are in fact about the detailed implementation of a particular technology or the technical requirements of a given product.
- 8.40 When we set out the key characteristics of VULA in the consultation document we were trying to identify the high-level features that we consider are necessary in order to be consistent with the WLA market definition and to meet our objective of supporting downstream competition and not to write a technical requirement or product specification.

- 8.41 This being said we recognise that CPs will be developing detailed specifications and products and so it is only natural that they will comment on these issues. We have therefore identified and responded to these comments below to the extent that it is possible to do so at present.

### Local access

- 8.42 One confidential respondent said that without an additional backhaul element VULA would be restricted to larger CPs who have already unbundled the majority of the future NGA exchanges. It therefore called for an optional backhaul arrangement to be added to VULA.
- 8.43 One confidential respondent commented that it believes that BT should be required to provide a variant of VULA whereby backhaul is provided to the 27 aggregation points that were previously identified in the context of BT's 21C programme.
- 8.44 We have proposed VULA as a remedy in the WLA market and therefore the geographic scope of the remedy that we can impose is restricted to the WLA market, i.e., local access networks. It would not therefore be possible to extend the scope of VULA to include backhaul (beyond the local aggregation node) or core networks as part of this market review. However, as discussed in Section 7, backhaul is currently regulated under the business connectivity market.
- 8.45 We would also note that VULA is intended to support downstream competition in NGA services in the same way that LLU supports downstream competition in CGA services. Further, the expectation is that both LLU and VULA could use a common backhaul link from any local exchanges where they overlap. It is, therefore, highly likely that current LLU operators will be the main users of VULA.

### Service-agnostic access

- 8.46 Sky commented that by embedding an analogue telephone adapter (ATA) in the FTTP NTE, BT would not be offering a purely service agnostic product. However, it concluded that it would not be practical to exclude the ATA in the situation where BT provides an active NTE. It also said that in this situation the ATA should be an optional feature.
- 8.47 We discussed a very similar point in the consultation document (paragraph 7.270). We agree with Sky, that the ATA is voice specific and thus not service agnostic. However, like Sky we also consider that there are good reasons for embedding an ATA into the NTE. We, therefore, agree with Sky that in this situation, use of the BT ATA should be optional and we understand that this is how BT intends to structure its FTTP products. However, as set out in the consultation document, although ATA does not belong in the WLA market, because it is embedded into VULA it is our intention to apply the same level of regulation to it as we do for VULA. We would also note that since the consultation document was published, BT has proposed to make an open ATA product available, and to use this itself. We welcome this development as we consider that it will maximise the innovation and commercial opportunities for CPs.

### Uncontended access

- 8.48 One of the key characteristics of VULA that we set out in the consultation document was that access should be uncontended. Whilst respondents agreed with the idea that VULA should provide uncontended access, they questioned whether this would

be the case in practice. In particular, respondents were concerned that because BT is specifying its current GEA products, for both FTTC and FTTP, with a 'prioritisation rate' (of 20 Mbit/s or 30 Mbit/s) and a 'peak rate' (of between 40 Mbit/s and 100 Mbit/s depending on the product), access was not actually uncontended. TTG suggested that more specific obligations are needed in relation to contention.

- 8.49 Our view is that VULA should be uncontended or, to put it another way, that it should provide an agreed and specified amount of dedicated capacity between the interconnecting CP and the end user. This will ensure that the purchasing CP retains control of the degree of contention involved in providing services to end users, and will thereby support innovation.
- 8.50 In terms of the amount of dedicated capacity that VULA should provide, we consider that this should be agreed between users of VULA and BT. The amount of dedicated capacity demanded/provided is likely to depend on several factors. For instance, the underlying technology may inherently put limits on the amount of dedicated capacity that can be provided. Also, the amount of dedicated capacity required will depend on the services that need to be delivered to the end user. Further, the cost associated with providing different amounts of dedicated capacity is clearly likely to have an effect on the amount demanded/requested.
- 8.51 It is our view that CPs should be able to request any amount of dedicated capacity, provided it is technically feasible and that the overall request is reasonable.
- 8.52 It is clear from the above that different CPs may well have different requirements for dedicated capacity. Once these requirements are understood, BT along with its VULA customers will need to agree a suitable product set.
- 8.53 Thus, we expect any access product that BT provides under its VULA obligations to have a specified amount of dedicated capacity associated with it.
- 8.54 On the issue of peak rates or burstable allowances. We recognise that in some situations it is efficient to allow connection speeds to peak above the dedicated capacity allocated to that connection, albeit that this peak speed is subject to certain restrictions and is thus not guaranteed. We would, therefore, not want to prevent industry from pursuing this. Indeed, we would expect industry to discuss this option when agreeing the VULA products.
- 8.55 If VULA users want to establish a peak rate, above their dedicated capacity, then like the dedicated capacity this needs to be agreed with BT. Also, as for dedicated capacity, it is possible that different CPs will have different requirements for a peak rate. The variation in these requirements is likely to affect how such a feature is introduced into the access network and accordingly the structure of the product.
- 8.56 We do not consider that the specification of peak rates would undermine the objectives of the proposed requirement for uncontended access, as it would not dilute the incentive for the capacity to be efficiently used, or the scope for product innovation.
- 8.57 In terms of BT's current GEA products, it is our understanding that the prioritisation rate is basically dedicated (un-contended) capacity and that the peak rate allows for some bursting above this, albeit on the basis of best efforts.
- 8.58 Users of VULA need to engage with BT to understand exactly how BT is specifying its products and BT needs to be responsive to CP requests. If BT's current products

do not meet CP requirements then the necessary improvements should be specified through this process.

### Control of access

- 8.59 TTG argued that greater control can be provided than just additional profiles (i.e., configurations trading off line stability and line speed) and it is possible for CPs to more directly monitor and control the parameters and operate their own DLM (dynamic line management) as though it was their own equipment. TTG further said that it believed that a request should only be considered unreasonable if it was technically unfeasible and that any costs associated with developing such features should be included in the core product, rather than being a separate charge. Related to this, TTG said that, in the context of BT's FTTC deployments, other operators should have the ability to install, or get BT to install, different line cards –in addition to the VDSL lines cards that BT plans to deploy.
- 8.60 Sky made a general point in relation to control of access, saying that in its view VULA should provide the highest degree of access control to the interconnecting CP, as technically and economically possible and practicable. Sky suggested amended the wording of this fourth characteristic to reflect this.
- 8.61 In terms of greater control, in principle we agree with the position set out by Sky that the highest degree of access control should be made available to interconnecting CPs where it is technically and economically possible and practicable. We would, however, note that the assessment of what is economically possible and practicable is very often subjective.
- 8.62 We assume that TTG is referring to FTTC and the profiles used on the VDSL modems. We addressed this point in paragraph 7.272 of the consultation document where we concluded that should additional profiles or greater control be required by CPs we would expect BT to meet reasonable requests to provide them. Thus, if CPs believe that an arrangement that would enable them to operate their own DLM was technically possible and that there was reasonable demand for this then they can make a request to BT.
- 8.63 In terms of what is a reasonable request, in the context of implementing an arrangement that would enable CPs to operate their own DLM, we have not seen any technical, economic or demand information related to this and accordingly are not in a position to assess whether such a request would be reasonable. However, we disagree with TTG that anything that is technically feasible should be considered reasonable. Rather we consider that the assessment of reasonableness should include consideration of factors such as: cost, benefit, demand and willingness to pay.
- 8.64 Following on from this, we do not consider that, as a matter of principle, the costs of developing product features should necessarily be included in the core product, although we accept that in some cases this may be appropriate. With regard to the control requirement for DLM, if all or the vast majority of CPs wishing to purchase FTTC products wanted this feature then there would seem to be a good case to build it into the standard product. If, however, there is a cost associated with implementing this feature, then it would seem inappropriate to charge some CPs for this feature if they do not want or need it.
- 8.65 In terms of enabling the ability to install different line cards, as per the discussion above on DLM we have not seen any technical, economic or demand information

related to this and accordingly are not in a position to take a view on whether this is a reasonable request or not. We, therefore, consider that, if CPs are interested in such an option, then they should pursue it under the general access obligation.

### Control of customer premises equipment (CPE)

- 8.66 The main comments made under this heading were in relation to the presentation of the service, i.e., wires-only and how this would impact on the installation of the service in the end user premise.
- 8.67 BT agreed with the view we presented in the consultation document (see paragraphs 7.277 to 7.279), which was that our current understanding was that the standards for neither FTTC (VDSL) nor FTTP (GPON) were sufficiently mature to enable a wires-only presentation to be readily implemented. BT noted that, for the NGA infrastructure provider, sufficient control and demarcation of the access network is essential to making the access 'next generation' and not just a new manually maintained network. BT considered that the active element of the service is an important and integral part of both FTTC and FTTP, adding that such network control is essential to provide functions beneficial to all layers of the value chain.
- 8.68 BT put forward several reasons why its focus should not, at present, be on the development of a wires-only offering. These included; the technology being immature and therefore not providing a suitable basis on which to develop an offering; the need for a standard FTTC and FTTP interface during early market developments; the benefits of an active NTE allowing CP switching and allowing for the possibility of two (or more) CPs providing services to the home (e.g., different voice and broadband providers).
- 8.69 Four respondents - C&WW, O<sub>2</sub>, Sky and TTG - disagreed with our assessment of the current practicability of a wires-only presentation. All of these respondents highlighted a number of additional consumer benefits that they believed would be realised by a wires-only presentation.
- 8.70 Sky and C&WW noted that the level of competition seen in CGA could only be replicated in NGA if wires-only becomes available. TTG said that it believes that FTTC wires-only is available in both Germany and New Zealand. Both O<sub>2</sub> and C&WW argued that the standards for VDSL (FTTC wires-only) are expected to be fully established in the next 6 – 9 months (though they acknowledged that the FTTP (GPON) standard is some way behind). O<sub>2</sub> added that interface standardisation issues can be addressed via publication of standards and equipment verification.
- 8.71 TTG suggested that more specific obligations are needed in relation to the development of wires-only and non-BT installation.
- 8.72 In the consultation document we said that our current understanding was that the standards are not sufficiently mature, for either FTTC (VDSL) or FTTP (GPON), to enable a wires-only presentation to be readily implemented. We did, however, go on to note that things may change in the future, making wires-only more viable and that if this is the case then the situation can be reassessed.
- 8.73 Respondents provided a considerable amount of information on this issue, both in their responses and in subsequent meetings and based on this we set out our considerations below. When discussing the issue of wires-only with BT and OCPs, it became apparent to us that it is necessary to consider the two technologies – FTTC (VDSL) and FTTP (GPON) – separately. It also became apparent that the current

feasibility of implementing a wires-only presentation differs between these two technologies. We have, therefore, addressed them separately below.

### VDSL (FTTC)

- 8.74 In our view there are two separate, but related, issues being considered under the heading 'wires-only'. The first is about who should be responsible for installing/setting-up the service in the end user premise. The second is about the presentation of the VULA service (i.e., Ethernet or VDSL).
- 8.75 The reason why CPs have grouped these two issues seems to be that they consider that if the presentation is Ethernet, then this means that BT will install the service, whereas if the presentation is VDSL ('wires-only') then they can install the service. While this may be the case for BT's current product offering it does not necessarily have to be so. For instance, in the situation where the presentation is Ethernet (and BT is responsible for the VDSL modem) it would be possible for BT to supply the CP with its modems (or request that they purchase a compatible modem) and then for the CP to install this in the end user premise in an agreed manner. Indeed, industry has been considering such an option under the name accredited installation. Conversely, even with a VDSL presentation, if the specified demarcation is a VDSL socket on a service specific face plate (SSFP), then in some situations it is possible that BT will still be required to go to the end user premise to install the correct NTE. We consider that this highlights the need to consider installation and presentation separately.
- 8.76 In the case of installation, we consider that there are two important issues that need to be considered to ensure a good end user experience. Firstly, we recognise that the installation of VDSL in the end user premise is likely to be more critical than that for ADSL. In particular there is more scope for the VDSL signal to interact with the end user's in-home wiring, resulting in a lower performance (slower speed) and/or being less reliable. We therefore consider that industry should ensure that the end user installation meets a certain minimum standard. Secondly, we consider that it is absolutely necessary for there to be a clear and easily accessible demarcation point in the end user premise, as this will enable the end user to switch between different providers more easily. We, therefore, consider that industry should agree to adopt a common installation arrangement in the end user premise. The priority, therefore, is that there should be a standard installation arrangement in the end user premise that both optimises the performance of the service and has a clear and accessible demarcation point.
- 8.77 We consider that, if there is a standard installation arrangement, it should be possible for any CP to install the service within the end user premise, even where a BT accredited modem is required. Essentially, the CP would install the service in accordance with the agreed arrangement and use a BT accredited modem. From the comments made by CPs this would appear to go a long way to fulfilling their requirements. It is also likely that a CP installation approach could be implemented quicker if, at least initially, a BT accredited modem was used, as it would remove the need for the publication of interface specifications, modem development and interoperability testing.
- 8.78 We, therefore, consider that BT should set out in its product roadmap a process for agreeing the installation arrangement and enabling CPs to install the service in the end user premise. This should include a suitable breakdown of the tasks involved and clear milestones. BT should then agree this with the industry working groups. BT has indicated its willingness to commit to a development path involving the

specification of a standard installation process, using a BT accredited modem, which can provide the basis for accredited installation. BT is also considering whether it would be possible to develop a process that would, in due course, allow self-installation by the end user. We welcome this commitment.

- 8.79 In the case of presentation, from the information we have received it appears that the VDSL standards have now been agreed. However, as most of the respondents seemed to accept, today there are likely to be a number of interoperability issues between different manufacturers' equipment. As pointed out by several respondents, interoperability issues can be resolved through a process of agreeing the interface to enable manufacturers to produce compatible equipment to and then testing the equipment in practice.
- 8.80 BT has argued that it should not be required to go through such a process, on the grounds that:
- It would represent a major shift away from the existing GEA product specification, and would require the development of different processes, procedures and systems for functions such as line testing, which could involve significant cost and delay to the roll-out of its NGA programme;
  - It would be an inferior product, because it would remove BT's ability to manage network control functions such as diagnostics, repair, upgrades and migrations which affect the end-to-end quality of the service delivered to end users; and
  - It would introduce significant differences between its FTTC and FTTP products, which runs counter to BT's aim of making the underlying technology invisible to the end user, based on a common set of processes.
- 8.81 We do not regard these arguments as being sufficiently strong as to mean that BT would be justified in refusing to consider reasonable requests, based on real demand, for the development of an FTTC product with a VDSL presentation. In relation to the first of BT's arguments, we recognise that its NGA programme is very ambitious and that careful prioritisation of resources is required. Nevertheless, we consider that it is essential that BT should be responsive to the needs and preferences of its CP customers. Moreover, given its position of market power, it should not prioritise resources in a way that discriminates unduly in favour of BT's own downstream business, and against its competitors in downstream markets.
- 8.82 In our view, BT's second and third arguments are not persuasive. BT's CP customers are best placed to assess what is likely to be in the interests of their end users. They would have no incentive to request a product that delivered an inferior customer experience, as it could place them at a competitive disadvantage in the retail market. Similarly, whilst we recognise that there may be some cost savings associated with having a common set of processes for FTTC and FTTP, it does not follow that CPs should be denied reasonable access to a different type of FTTC product, if that is what they want (and are prepared to pay for).
- 8.83 On BT's point about supporting multiple CPs (see paragraph 8.68 above) we note that in the case of FTTC, BT is currently intending to continue supplying analogue voice connections from the exchange. The voice service is, therefore, independent of the FTTC VULA product and as such this arrangement would support separate voice and broadband CPs if this is what the end user wanted. In the case of multiple VULA connections, we note that with FTTC it would not at present be practicable to support multiple VULA connections over a single VDSL enabled line. BT seems to

acknowledge this, as it is not currently planning to have multiple data ports on its FTTC services, where it provides the VDSL modem, although it has indicated that this may be an objective in the future. The issue of multi-ports and multi-VULA connections over a single physical link is, therefore, not currently relevant to FTTC.

- 8.84 For the reasons set out above, we consider that in the first instance BT and industry should concentrate on developing and implementing the standard installation arrangement and CP installation option, with a BT accredited modem, as this seems to address many of the issues raised by CPs and should be quicker to implement. If, however, CPs believe that, in addition to this, there is a need for a VDSL presentation then they can separately request this. We consider that BT should give serious consideration to such requests, in accordance with the established SOR process and the requirements of its general access obligation. However, we consider that the two issues should be pursued independently, as we would not want the CP installation option to be delayed.

### FTTP (GPON)

- 8.85 It is clear from the responses and from BT's plans for the deployment and launch of FTTP products that the development of FTTP (GPON) is significantly behind that of FTTC (VDSL). Given this we are intending to maintain the position we set out in the consultation document, which is that, the standards for FTTP (GPON) are not sufficiently mature to enable a wires-only (or potentially fibre-only) presentation to be readily implemented. However, the situation should be assessed again when the technology has developed further.
- 8.86 As and when the technology permits, the same considerations should apply as were discussed above in the context of FTTC. In other words, we would expect BT to develop a standard installation arrangement which could provide the basis for accredited installation by purchasing CPs. In addition, BT should be prepared to meet reasonable requests for alternative methods of presentation, and alternative network demarcation points, where this is technically and economically feasible.
- 8.87 We would also note that the experiences of FTTC are likely to be highly valuable when assessing FTTP options in the future. For example, we should have better information about the demand for multiple VULA connections into a single premise. This will help us to understand better the importance of multiple ports.

### A sixth key characteristic

- 8.88 In its response Sky set out its view that an additional sixth characteristic was needed to replicate the flexibility in technology and product evolution that is present in purely passive remedies. Sky referred to this sixth characteristic as 'technology and product evolution and standards'. When explaining what this would mean in practice Sky said that: as the relevant technology evolves and new standards emerge, they may support the deployment of, or withdrawal of, features that enhance the support for competitive implementation of access. Such competitively enhancing changes in product features should be planned for and implemented as soon as practicable, supported by the publication of, and commitment to, a transparent technology/product road map. The product should adhere at all times to industry standards, where available.
- 8.89 Our understanding of Sky's proposal is that BT should be required to 'automatically' upgrade its network and products in line with developments in technology and

standards. Based on this understanding we do not consider that this would be a reasonable key characteristic. We consider that a requirement to invest in new equipment and deployments just because new technology exists could result in significant inefficiencies, as the value placed by consumers on such upgrades may not cover the associated costs. We recognise that a monopoly provider may not have a strong commercial incentive to invest in new technology, even where end users would place a high value on such investments, as it may be more profitable to continue to exploit outmoded equipment. In the present case, however, we consider that several factors will mitigate this risk. Firstly, BT's own downstream divisions can be expected to apply pressure to introduce technology upgrades that will improve retail profitability, which will then have to be made available to OCPs on an equivalent basis. And secondly, if end users do value the new technology, but BT decides not to invest, then we would note that OCPs could deploy the new technology using the other remedies specified in this review, in particular SLU and PIA.

### **Provision of VULA on a stand-alone basis**

- 8.90 In the consultation document we set out our view that, in order to meet the key characteristics of VULA, BT must offer VULA on a stand-alone basis. That is to say, VULA should not be inextricably linked to, or bundled, with other products, such as a voice product, though such additional products could be purchased by CPs if desired. The objective of this requirement was to ensure that VULA was, as far as possible, a 'raw', service-agnostic, access product.
- 8.91 BT commented in its response that this is an issue best addressed in detail through the normal product development process. However, it clarified that it intended to offer a stand-alone FTTP GEA product, enabling CPs to add CPCA (voice) if they wished. In relation to FTTC GEA, they argued that FTTC GEA required a copper bearer to operate, in an analogous way to SMPF, and that the product had been designed to offer maximum flexibility by being available with both copper bearer variants (WLR and MPF). Variants which assumed a significant change to the underlying bearer necessarily open up a much wider debate.
- 8.92 The majority of other respondents supported the principle of the requirement for BT to make a stand-alone GEA offering, although several questioned what precisely was meant by stand-alone in practice.
- 8.93 Our response to these points is as follows. The WLA market is to a large extent service agnostic, in that it focuses on the underlying connectivity rather than services such as voice and broadband – although both these services could be provided over a WLA connection. Given this we consider that it is essential that the VULA connections are made available on their own. That is, CPs should be able to purchase VULA without being required to also purchase other services, such as analogue voice, or other features, such as call servers and backhaul. This is what we mean when we say that VULA should be made available on a stand-alone basis. CPs remain free to purchase other services/features alongside VULA.
- 8.94 We are encouraged by what BT said in relation to its FTTP products, in that the basic local access connection (VULA) would be the primary product and that CPs could then choose to purchase additional features from BT, such as voice enabled access, or self provide them.
- 8.95 In terms of BT's FTTC products, we recognise that the starting point for these products is different to that of FTTP, in that with FTTC, VDSL is being added to an

existing network whereas with FTTP an entirely new network is being deployed. Given this, we understand why BT has introduced FTTC GEA as an incremental product and priced it accordingly. Thus, with FTTC GEA, BT offers two options. Either: it is a requirement for BT to provide an analogue voice service (wholesale line rental - WLR) before it will provide FTTC GEA or it is a requirement for BT to provide the physical telephone line (metallic path facility - MPF) before it will provide FTTC GEA. In both these cases we recognise that BT is recovering the common network (copper) costs via the WLR or MPF charge and then pricing FTTC GEA on an incremental basis.

- 8.96 In the case of the MPF/FTTC GEA option we note that MPF is service agnostic in itself and therefore it could be argued that this option meets the service agnostic requirements. However, it is our understanding that with this option the MPF part of the service needs to be fully implemented in the local serving exchange, including being handed over to a LLU operator via a tie cable within the exchange – the LLU operator then has the ability to provide base band voice over the MPF.
- 8.97 If the two FTTC GEA options (plus WLR or MPF) are the only options required by CPs then there is clearly no reason for BT to introduce any other options. If however, CPs require a truly stand-alone FTTC GEA product (e.g., they do not want WLR or to have MPF delivered in the local exchange) then BT will need to respond to this demand. However, in doing this it needs to be recognised that BT will need to recover its common network (copper) costs and this means that the charge for the standalone product will be higher than the charge for the product which is sold incrementally to WLR or MPF. Even so, there may be an expectation that the charge for the standalone product will be lower than the combined charge for MPF and the current incremental product. Depending on what is involved in implementing a standalone product this may or may not be true.

### **GEA and multi-port presentation**

- 8.98 In its response BT said that if it was at all likely that an end-user might choose a second CP (for voice/broadband or a business line for example) then network management to a second physical port is the preferred engineering (and commercial) solution. It also noted that international experience in the area of FTTP has led to the standard optical network termination unit being multi-port.
- 8.99 In the context of FTTC Sky concluded that multi-port presentation will have little benefit for consumers. It did not comment on this issue explicitly in the context of FTTP, but did advocate an FTTP wires-only approach which if adopted would remove BT's ability to implement a multi-port presentation.
- 8.100 FCS and SSE set out their view that these new fibre access networks would allow multiple services to be delivered to end users potential by multiple providers. They therefore advocated the use of multi-channels over the access connection.
- 8.101 In response, the issue of multi-port presentation is closely related to the issue of wires-only presentation and we have discussed wires-only presentation above. In particular our position on multi-port in the context of FTTC is set out at paragraph 8.83. As set out in paragraph 8.85 it is unlikely that a wires-only (or potentially fibre-only) for FTTP could be readily implemented at this time and therefore, for the time being, it is likely that BT will provide/install the optical network termination unit and will use a multi-port unit. However, as set out in paragraph 8.86 we expect BT to be prepared to meet reasonable requests for alternative methods of presentation, and

alternative network demarcation points, where this is technically and economically feasible. This opens up the possibility of moving away for a multi-port arrangement. However, when assessing the reasonable of any request it will be instructive to assess what proportion of end-users choose to have a second CP and accordingly take a second connection/port. This is discussed at paragraph 8.87. If a high proportion of end users choose to have a second connection/port then the case for having an optical network termination unit with multi-ports is likely to be stronger. If, however, most end users choose to have only a single connection then the case for having an optical network termination unit with multi-ports is likely to be weaker.

## **No undue discrimination for VULA**

- 8.102 The majority of respondents welcomed our proposed specific form of no undue discrimination obligation on VULA, particularly in relation to the balance it will provide against the flexibility we have proposed for setting prices for VULA. TTG supported this form of no undue discrimination, considering that BT should be prevented from favouring particular product variants by discriminating in terms of price or quality between products.
- 8.103 However, BT in its response raised a number of concerns about our proposed approach to no undue discrimination in relation to VULA, as set out in Condition FAA11.3. In particular, BT was concerned about potential double jeopardy between the SMP framework and the BT Undertakings. Further, BT believes that the proposed condition goes beyond our powers to prescribe discrimination related SMP conditions under the Communications Act 2003. BT does, however, also say that we can already take a very robust position on undue discrimination on non-price differences, as set out in our 2005 guidance on Undue discrimination by SMP operators<sup>116</sup> and that it is in any event committed to providing VULA on the basis of equivalence of input (Eol) in accordance with the BT Undertakings.
- 8.104 In subsequent discussions BT explained that the definition of Eol in the BT Undertakings sits within a framework which allows a number of exemptions. For example Annex 2 of the BT Undertakings provides a list of BT groups that are exempt from the information aspects of Eol. Given this, BT expressed a particular concern that our proposed interpretation of the no undue discrimination obligation might go beyond the Eol requirements set out in the BT Undertakings, introducing the possibility that it might find itself in breach of the former, despite complying with the latter.

## Applicable legal framework

- 8.105 Article 8(1) of the Directive 2002/19/EC<sup>117</sup> (the “Access Directive”) 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

<sup>116</sup> <http://stakeholders.ofcom.org.uk/binaries/consultations/undsmp/statement/statement.pdf>

<sup>117</sup> 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 (Access Directive).

*others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners”.*

- 8.106 It is clear from these provisions that where a national regulatory authority exercises the power to impose obligations of non-discrimination, these obligations must as a minimum ensure equivalence as per Article 10(2).
- 8.107 Article 10 of the Access Directive is implemented into UK law by section 87(6)(a) of the 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*”. It follows from Article 10 of the Access Directive that any conditions imposed pursuant to this power require equivalence as per Article 10(2).
- 8.108 This position is reinforced by Recital 21 of the NGA Recommendation, in which in relation to mandating alternative active access products states: “*NRAs should be able to adopt measures for a transitional period mandating alternative access products which offer the nearest equivalent constituting a substitute to physical unbundling, provided that these are accompanied by the most appropriate safeguards to ensure equivalence of access and effective competition.*”
- 8.109 It is also supported by our 2005 guidance on Undue discrimination by SMP operators where we state at paragraph 1.1 that “*in wholesale markets Requirements not to unduly discriminate (under the Act) have the same meaning, and describes the same concept, as an obligation of non-discrimination (under the [Access] Directive)*”.
- 8.110 As explained at Annex 1, SMP services conditions must satisfy the tests in the Act (section 47(2)). Those tests 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. Although we address each of these tests in Section 10 of this statement in relation to VULA generally, in light of the points raised by BT we address these points specifically in relation to condition FAA11.3 below as well.
- 8.111 Where a vertically integrated SMP provider like BT is required to provide network access to third parties, there are incentives for it to provide the requested wholesale network access services on terms and conditions that discriminate in favour of its own downstream activities in such a way as to have an adverse effect on competition. Therefore, we consider that SMP condition FAA11.3 is objectively justifiable, in that it provides a safeguards to ensure that competitors, and hence consumers, are not disadvantaged by BT discriminating in favour of its own downstream activities or between different competing providers.
- 8.112 We further consider SMP condition FAA11.3 not to be unduly discriminatory, as the condition is imposed on BT, which is the only undertaking found to have SMP on which the obligation to provide VULA is being imposed.
- 8.113 We consider that this form of no undue discrimination condition is proportionate in the context of VULA which is a new product. We acknowledge that there could be situations, for example, where BT is supplying an existing product where it might be disproportionate to require BT to provide equivalence on the terms of SMP condition FAA11.3. However, having considered BT’s representations, and on the facts, we consider that condition FAA11.3 is appropriate and proportionate in requiring BT to

provide equivalence in relation to VULA. Further, SMP condition FAA11.3 provides that BT may seek our consent to affect the operation of that condition in particular circumstances.

- 8.114 Finally, we consider that SMP condition FAA3.1 is transparent as it is clear in its intention to require BT to provide VULA to third parties 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 as it does to its own downstream divisions, and its intended operation should also be aided by our explanations in this document.

### Legal basis

- 8.115 We disagree with BT's argument that our proposed interpretation of no undue discrimination goes beyond that allowed by the legal framework. It is clear from the above that the power in section 87(6)(a) is a power to impose an obligation requiring the operator to apply equivalent conditions in equivalent circumstances to other undertakings providing equivalent services, and to provide 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. In requiring BT to provide VULA to third parties on the same timescales, terms and conditions (including price and service levels) by means of the same systems and processes and with the same commercial information as BT provides VULA to its downstream divisions, SMP condition FAA11.3 is consistent with our power under the Act.
- 8.116 We would also note that in BT's response, as summarised above, it reminds us that we can already take a very robust position on undue discrimination on non-price differences, as set out in our 2005 guidance on Undue discrimination by SMP operators.
- 8.117 We therefore remain of the view that we have the power to impose SMP condition FAA11.3. We continue to expect VULA to be the main basis of competition over the period covered by this review and as it is a new product we expect it to be supplied on an equivalent basis.

### Interaction with the BT Undertakings and double jeopardy

- 8.118 As noted above, BT expressed concern that the proposed interpretation of the non-discrimination requirement could go beyond the existing EoI commitments set out in the BT Undertakings and that accordingly it could be compliant with the BT Undertakings but still in breach of the SMP requirements.
- 8.119 On this point, whilst we have used the term EoI in the SMP framework it is important to note that the SMP requirements flow from Article 10 of the Access Directive and therefore, are completely separate to and independent of the BT Undertakings. Whilst there are similarities between the EoI SMP obligations and the EoI requirements under the BT Undertakings, each is imposed pursuant to distinct powers and applies in a different context. Under the BT Undertakings EoI is used in the context of organisation separation and thus deals with the interaction between different groups of BT. However, under the SMP framework, EoI only applies to the provision of Network Access products within a defined market. However, we will interpret and apply each of SMP condition FAA11.3 and the EoI requirements under the BT Undertakings in a consistent and coherent manner.

## Amendments to the definition of EoI

- 8.120 In light of BT's representations we have made a number of changes (highlighted) to Condition FAA11.

**“Equivalence of Inputs”** means, unless Ofcom consents otherwise from time to time, the provision *by the Dominant Provider to a Third Party* on the same timescales, terms and conditions (including price and service levels) by means of the same systems and processes and with the same Commercial Information as the Dominant Provider provides for to its own services (including those of its *divisions*, subsidiaries or partners *operating in markets downstream of the market identified at paragraph 8(a) of this Notification*). ~~The Dominant Provider may be deemed to place itself at a competitive advantage and not to provide on an Equivalence of Inputs basis, unless the provision is exactly the same~~ subject only to: (i) trivial differences; and (ii) differences relating to: (i) credit vetting procedures, (ii) payment procedures, (iii) matters of national and crime-related security (*which for the avoidance of doubt includes for purposes related to the Regulation of Investigatory Powers Act 2000*), physical security, security required to protect the operational integrity of the network, (iv) provisions relating to the termination of a contract, or (v) contractual provisions relating to requirements for a safe working environment. For the avoidance of any doubt, *unless seeking Ofcom's consent*, the Dominant Provider may not show any other reasons in seeking to objectively justify the provision in a different manner.

- 8.121 We consider that these changes provide clarity and are not material.
- 8.122 O<sub>2</sub> asked us to clarify whether Condition FAA11.3 (EoI) has the same breadth as the general condition (FAA3). It notes that if FAA11.3 is narrower than FAA3 in any way then it would make sense to maintain FAA3 for VULA also. In reply, Condition FAA11.3 is not narrower than FAA3. In fact, the opposite is true: FAA11.3 sets out a stricter interpretation of no undue discrimination for VULA. We therefore do not consider that it is necessary to simultaneously also apply Condition FAA3 to VULA.

## **Pricing of VULA**

### Potential for inappropriate differentials in prices

- 8.123 BT welcomed our proposed pricing approach for VULA which would give BT flexibility in setting charges. It argued that a strict 'cost-based' approach using LRIC for example, would prove highly inflexible and would restrict investment incentives at an early stage of market development, particularly given the uncertain demand. BT agreed with our position, (set out in the consultation document), that competitive pressures from CGA services would exert a market constraint on the pricing of its GEA (VULA) products. For these reasons, BT considered that it would be disproportionate at this stage to impose price regulation on GEA (VULA).
- 8.124 The majority of other respondents had at least some concerns over the flexibility proposed in the consultation document. The Commission noted that access prices should be cost-oriented as a general rule (with appropriate adjustment for investment risk). Virgin Media and one confidential respondent in particular had serious concerns, and suggested that we revise our approach and put some form of price control in place. Virgin Media was concerned that the absence of any control would give rise to a very real risk of competitive distortions, which could undermine or

remove incentives for alternative network investment. The confidential respondent disagreed that existing CGA services would provide a real constraint on NGA services, given the significant speed differences that NGA could achieve. It also felt that the specific form of no undue discrimination obligation imposed on VULA, without cost orientation or price controls, could permit pricing structures which are applied to all equally but which effectively segment the market. It therefore believed that some form of LRIC price controls should be imposed.

- 8.125 A number of other respondents, including C&WW, O<sub>2</sub>, Sky and TTG highlighted similar concerns, particularly around the risk that BT would affect a margin squeeze between its GEA (VULA) products and downstream products at the wholesale or retail levels. One confidential respondent argued that the grounds for not applying some form of price control were relatively weak. It did not consider that the case for higher risk for NGA investment had been proven, nor that CGA services would provide an adequate constraint on NGA prices.
- 8.126 These respondents all suggested that some further steps were required to provide adequate assurance against a possible margin squeeze. Several of the respondents considered that, as a minimum, we should provide greater clarity/guidance as to how it would deal with any margin squeeze, and retain flexibility to apply the condition of 'fair and reasonable terms, conditions and charges' (FAA11.2) to cases of margin squeeze in an ex-ante manner. One confidential respondent added that a 'fast-track' process for dealing with margin squeeze should be adopted and that the prohibition on margin squeeze should be made explicit in the SMP condition.
- 8.127 As set out earlier, we do not intend to specify or set a price for VULA. Partly, this is because NGA services are at an early stage of development, which means that there is significant uncertainty over both the cost and revenues associated with this type of investment. Thus, determining what a cost orientation charge is would be very difficult. As we set out in the consultation document, we think that the flexibility to set VULA prices can promote investment by BT as it enables it to trial different pricing arrangements in the early uncertain period of NGA development. We also think that the price of VULA is likely to be constrained at this point by the ability of OCPs to purchase CGA services from BT on regulated terms and by the services offered by Virgin Media over its cable network. Our understanding is that BT is not planning to switch off its copper network for some time, at least not before we carry out a further WLA market review, therefore we expect these constraints from CGA services to be maintained until at least that point.
- 8.128 However, we recognise that these constraints may not be sufficient to prevent some anti-competitive strategies, such as the setting of inappropriate price differentials between VULA and downstream products. BT would, of course, be subject to competition law tests, that we could use to assess concerns about margin squeeze. However, we consider that, in some cases, relying solely on *ex-post* competition law may be insufficient to ensure that the purpose of an SMP remedy, i.e., to promote the development of a competitive market, is not undermined by BT adopting a particular approach to implementing that SMP remedy. In this case, we consider that there is a risk, which may not be addressed sufficiently by competition law, that the VULA remedy could be undermined if BT were to set an inappropriate differential between its wholesale price for VULA and the retail prices for its superfast broadband products (BT Infinity) or any downstream wholesale products based on VULA. This is of particular concern as we view VULA to be the primary focus of NGA competition in the WLA market.

- 8.129 VULA is an *ex-ante* remedy, which is intended to support the development of downstream competition. Therefore, BT is required to provide it in accordance with the applicable *ex-ante* conditions. We consider that the *ex-ante* conditions are an appropriate and proportionate mechanism to prevent BT from establishing an inappropriate pricing differential. Of particular relevance is Condition FAA11.2, which requires BT to provide VULA and any ancillary services on fair and reasonable terms, conditions and charges.
- 8.130 We recognise that it may be helpful to provide some more information on how we would be likely to approach any complaints that BT's pricing structure does not comply with its *ex-ante* conditions. We therefore set out below the types of considerations that may be relevant to assessing concerns that BT's pricing structure does not comply with its SMP obligations. Although any such analysis would depend on the specific circumstances surrounding any concerns, it would be likely to focus on assessing whether BT had breached FAA11.2. Such an analysis would be separate from any test that might be applied under a Competition Act 1998/Article 101 investigation.
- 8.131 We recognise that in the presence of bandwagon effects<sup>118</sup>, there may be a rationale for BT pricing VULA and downstream products based on VULA relatively low (relative to cost) during the early stages of development, in order to grow the market. We would however be concerned if wholesale VULA prices appeared to be unfair, relative to the prices (after discounts) of BT's downstream products. For example, if the price of VULA was high relative to cost, but the prices of BT Infinity products did not reflect the high VULA price, this might be indicative of an anti-competitive strategy. The main effect of low retail prices in that scenario might then be to hold back the development of a competitive market. However, it should be noted that concerns would not be confined to the situation where the price of VULA is high relative to cost: the key point would be the size of the differential between VULA and downstream products, such as BT Infinity products.
- 8.132 When considering the differential between retail and wholesale prices, we are initially likely to consider whether the current price differential was above the current long-run incremental cost of the downstream activities of a reasonably efficient operator, including an allowance for subscriber acquisition costs. Depending on the outcome of this initial analysis, we may conduct further work, including requesting evidence from BT.
- 8.133 For example, such evidence may include information from BT to demonstrate that its pricing structure did not result in an inappropriate differential between wholesale and retail prices over a particular time period. Given that BT will be using VULA on the same basis as OCPs and will want to set retail prices in light of its own commercial interests, and at the same time comply with its regulatory obligations (in particular not to discriminate unduly) and competition law, we expect that BT would need to maintain financial models that contain relevant information on VULA and downstream product costs and prices, and their development over time.
- 8.134 In undertaking any analysis of price differentials, we would take utmost account of the NGA Recommendation, which says that:

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<sup>118</sup> In the case of NGA, there may be "bandwagon effects": consumer demand for the network is likely to depend on the content and services available over it. However, content providers will not offer services over the network unless there is a sizeable customer base. This gives network operators an incentive to price low initially to "kick-start" demand, and price high later on, once the network has become more valuable.

*“In the specific context of ex ante price controls aiming to maintain effective competition between operators not benefiting from the same economies of scale and scope and having different unit network costs, a “reasonably efficient competitor test” will normally be more appropriate.”*

- 8.135 Therefore, when considering price differentials, any analysis would likely consider whether such differentials are set so that a reasonably efficient operator would be able to compete in the retail market. In particular, this means that the measure of incremental costs that is used should be adjusted to reflect the scale of a reasonably efficient competing operator, and that the assumptions used should be consistent with a competitive market.
- 8.136 We note that the ‘reasonably efficient operator’ assumption is consistent with that taken in our Pay TV review<sup>119</sup>, where we derived wholesale prices on a retail-minus basis for competitors that would be as efficient as Sky at equivalent scale, but do not actually have the same scale as Sky. It is also consistent with our approach to setting the margin between ATM interconnection and IPStream in 2004<sup>120</sup>.

### Pricing of GEA variants

- 8.137 A further concern expressed by some stakeholders was the potential for BT to use pricing flexibility to set different prices for different GEA (VULA) product variants in such a way as to discriminate in favour of its preferences. TTG give a number of examples of how BT might do this, including pricing BT ‘install’ options more favourably than CP ‘install’ options; setting higher prices for greater levels of CP control; pricing MPF/WLR variants in favour of WLR and BT retail; and using pricing flexibility to create barriers to switching. Sky and O<sub>2</sub> shared some of these concerns.
- 8.138 In its response TTG suggests adopting a ‘price consistency’ obligation. This would allow flexibility over the absolute price of VULA services but also ensure that the difference between prices for VULA product variants remained consistent. The degree of price differential would be reflective of the cost difference in supplying the product variant.
- 8.139 We note the concern of some stakeholders that pricing VULA variants differently could lead to distortions. As described earlier, in general, we expect that the pricing of VULA products would be constrained by the prices of CGA products. In addition VULA products (including variants) would be subject to the requirements set out above regarding the price differentials between VULA and other downstream wholesale or retail prices. This should mean that CPs using VULA variants would be able to compete effectively in downstream markets.
- 8.140 We do not consider, as some respondents have suggested, that a separate requirement on the consistency of prices for VULA product variants is required. However, where VULA variants are not consumed by BT’s downstream arm, there may be a greater risk of anti-competitive effects. We would expect BT to act in accordance with its general obligation to set charges on a “fair and reasonable” basis. Where there was evidence that BT was not acting in accordance with this obligation, or was discriminating when setting charges for VULA product variants, we would expect to take further action. In addition, as we set out in the consultation

<sup>119</sup> [http://stakeholders.ofcom.org.uk/consultations/third\\_paytv/statement/](http://stakeholders.ofcom.org.uk/consultations/third_paytv/statement/)

<sup>120</sup> [http://stakeholders.ofcom.org.uk/binaries/consultations/adsl\\_price/statement/statement.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/adsl_price/statement/statement.pdf)

document, if we were to see evidence of pricing structures that might damage competition this could cause us to review our overall approach to pricing flexibility.

### Inappropriate pricing practices

- 8.141 Virgin Media said that in addition to considering the potential for VULA to be priced excessively, we should consider the possibility that BT may price below cost. It said that this could disincentivise or undermine alternative investments in infrastructure.
- 8.142 We recognise that a possible strategy for BT to adopt is to price VULA relatively low during the early stages of development. As we set out above (paragraph 8.131), we recognise that there is a rationale for such a strategy in the presence of bandwagon effects, and that such a strategy can help to grow the market. However, we would be concerned by the potential for anti-competitive pricing strategies and we note that BT would continue to be subject to general competition law which would limit its ability to behave in a manner which is considered an abuse of its dominance in the market.

### Pricing of ancillary services

- 8.143 Several respondents, including C&WW, O<sub>2</sub>, Sky and TTG raise concerns over the lack of controls for ancillary services, particularly migrations. In its response C&WW note the problematic history of migration charges in relation to LLU, and suggest that some form of control in the case of NGA is required to prevent the same problems arising.
- 8.144 In its response, TTG raises similar concerns and suggests that in addition to its proposed 'price consistency' obligation, a cost orientation obligation, or charge control, on migrations may be appropriate. It argues that the absence of any controls presents a real risk that migration charges will be set too high, ultimately undermining consumer interests. Both O<sub>2</sub> and Sky suggested that we should retain the flexibility to use reasonable charges conditions to set appropriate migration prices.
- 8.145 We recognise the concerns raised by stakeholders in respect of the pricing of ancillary services, and in particular in relation to the pricing of migrations.
- 8.146 If ancillary services are consumed by both BT's downstream arm and OCPs, we consider that the total price of VULA (including ancillary services) is likely to be constrained by the availability of CGA wholesale products. In addition, as described earlier, the market is at an early stage of development and therefore at this stage we do not consider that it would be appropriate to set specific pricing obligations in relation to VULA.
- 8.147 However, we would expect BT to act in accordance with its general obligation to set charges on a "fair and reasonable" basis when setting migration charges. Where there was evidence that BT was not acting in accordance with this obligation, or was discriminating when setting these or other ancillary charges, we would expect to take further action. We would be particularly concerned in the case of ancillary services that were consumed by CPs but not BT's own downstream divisions. We would also be concerned if the pricing of migrations resulted in unnecessarily high switching costs between operators or artificially favoured BT's downstream operations.

### **Other issues/comments**

- 8.148 The Commission invited us to monitor development of VULA and its use, and to ensure that VULA is fully implemented with the characteristics identified. Further,

where variations of existing products must be implemented, the Commission called on us to ensure that those products fulfil all these characteristics. The Commission also noted that VULA should be replaced with fibre unbundling (i.e., wavelength unbundling on the GPON) once such a solution becomes ‘technically and economically’ feasible.

- 8.149 We are fully committed to monitoring the development of VULA and ensuring that it meets the characteristics identified. In Section 6 we set out our position in relation to fibre unbundling and wavelength unbundling on a PON. We fully agree with the Commission that once such solutions become technically and economically feasible they should be introduced and could displace VULA.
- 8.150 C&WW and TTG both argue that a business grade VULA product is needed. C&WW highlight the need for business grade and business orientate repair times and processes, SLA/G commitments, no contention or bandwidth sharing and service bandwidth symmetry. C&WW goes on to argue that the core part of a residential and business VULA service are the same and accordingly there should be no price difference between the network part of the service. Rather, any price difference should be limited to the enhanced service level. TTG said that businesses require (and are willing to pay for) faster repair, quality of service guarantees (e.g., low / no contention, traffic prioritisation) and service level guarantees.
- 8.151 Our product market definition concluded that there is a single market for WLA lines which are used to support business and residential services. We, therefore, fundamentally accept that VULA should be able to support NGA services for business use.
- 8.152 In terms of the technical characteristics identified by C&WW, our position on contention and bandwidth sharing is set out in paragraphs 8.48 to 8.58 above. In relation to bandwidth symmetry we would note that the technologies that BT currently plans to deploy, both FTTC and FTTP, are inherently asymmetric. However, to the extent that a CP can request a higher upstream speed and/or limited the downstream speed to match that available in the upstream direction then they can support symmetrical services over VULA.
- 8.153 In terms of faster repair times and SLAs/SLGs, in principle we consider that CPs should be able to request this and should be able to negotiate suitable commercial terms with BT. We would, however, note that all VULA connections, residential and business, will share a common network and probably have common processes and support systems. Therefore, the ability to sustain considerably different products, in terms of reliability (SLA/SLG) and faster repair times might be quite difficult in practice and may require the adoption of different systems and processes or upgrading all products to the higher assurance level. Introduction of these features may, therefore, be more complex than C&WW implies.
- 8.154 In its response C&WW questions why we have not imposed a condition on BT to publish a reference offer for VULA with a minimum set of requirements. In response we would note that Condition FAA5 requires BT to publish a reference offer. Condition FAA5.2 sets out a minimum list of things that need to be included in the reference offer. We consider that these conditions are adequate given our key characteristics of VULA and the current status of development of BT’s FTTC and FTTP products. However, we would further note that Condition FAA5.10 allows us to direct BT to modify its reference offer, if required.

- 8.155 In its response TTG argued that BT is currently arbitrarily constraining the access speeds for both its FTTC and FTTP GEA products. For example, on its FTTC products BT only provides access speeds between 15 Mbit/s and 40 Mbit/s. TTG believes that speeds below and above this range should be available. TTG also make reference to the access speeds currently available on BT's FTTP products.
- 8.156 As discussed above (within paragraphs 8.48 to 8.58) we consider that the capacity of the VULA connection, both dedicated capacity and where appropriate the burstable allowance, should be agreed between users of VULA and BT. There are, however, likely to be network cost implications associated with providing different speeds (amounts of capacity). In the case of FTTC/VDSL different access speeds may affect the backhaul requirements from the cabinet. In the case of FTTP different access speeds may affect the maximum number of end users that can share the GPON. Generally, we consider that such detailed product issues are best addressed in the industry working groups, whilst noting that there is a requirement on BT to provide network access on reasonable request.
- 8.157 In its response TTG noted that the definition of VULA, as proposed in Condition FAA11.5 (k), is unspecific, TTG, therefore, argues that the statement needed to be precise. It also said that VULA should adopt the ALA standards. We have set out and addressed many detailed issues in relation to VULA within this statement. We would, however, note that we fully expect the detailed product requirements to continue to develop as the market evolves. We consider that such detailed product issues are best addressed in the industry working groups. In terms of VULA adopting the ALA standards, we would note that the ALA technical requirements go beyond the WLA market and accordingly our VULA requirements. However, to the extent that they do overlap we agree that industry should adopt common standards where possible, as proposed in the ALA technical requirements.
- 8.158 TTG also said that the boundary of Openreach (a division within BT) may need to move as BT's GEA products evolve. However, within the context of the SMP framework our regulatory remedies apply to BT (Group) rather than sub-divisions within BT. Therefore, within this framework we cannot impose a particular organisation structure on BT.
- 8.159 TTG raised a concern that BT could introduce switching barriers through the use of a minimum contract period for VULA. It said that its understanding was that BT has introduced a 12 month contract period for its GEA products. TTG did note that minimum contract periods are usually used to de-risk the situation where a CP provides the installation below cost in the anticipating that they will eventually recovery this cost through the ongoing rental charges.
- 8.160 In reply, given that providers at the retail level frequently have minimum contract periods, as identified by TTG, it is not obvious that having a minimum contract period at the wholesale level will necessarily introduce any additional barriers to switching. This is particularly true if the wholesale purchaser and the retail provider are one in the same. We would, however, note that BT is required to provide VULA on fair and reasonable terms, conditions and charges. CPs can therefore negotiate terms and conditions with BT under this condition and if agreement cannot be reached the matter can be raised with us as a dispute.
- 8.161 The FCS and SSE raised concerns about the ability of customers receiving VULA-based serviced to migrate efficiently and economically between different retail service offerings. In reply, as a principle we look to make migration processes as simple as possible. With VULA in particular, we consider there to be good scope for a simple

migration process due to the ability to switch providers whilst remaining on the same network.

## Conclusions on formal obligations

- 8.162 On the basis of the above, and having given consideration to issues raised by stakeholders in response to the proposals for VULA set out in the consultation document, we conclude that BT will be required to provide VULA services on fair and reasonable terms, conditions and charges as soon as reasonably practicable to all CPs who reasonably request in writing such services.
- 8.163 Further, we conclude that the key characteristics that we set out in the consultation document should be maintained, noting that there are likely to be many additional considerations when developing and implementing the detailed product specifications.
- 8.164 We also conclude that we should implement our proposed specific form of no undue discrimination.
- 8.165 Finally, we conclude that there should be no explicit price regulation of the VULA products and that instead BT should be given pricing flexibility. However, we consider that the requirement on BT to provide VULA on fair and reasonable terms, conditions and charges may be important to ensure that BT does not introduce inappropriate pricing structures.

## The NGA Recommendation

- 8.166 As set out in Section 2, when carrying out our tasks under the regulatory framework, we are required to take account of certain documents published by the Commission and by BEREC. One of these documents is the Commission's (new) NGA Recommendation<sup>121</sup>. BEREC also submitted an Opinion in May 2010 on the draft Recommendation<sup>122</sup>. Here we comment on the consistency of our VULA proposals with the NGA Recommendation and the BEREC Opinion.
- 8.167 Whilst not covered by the Articles of the NGA Recommendation, Recital 21 seems to allow for it:

*“NRAs should be able to adopt measures for a transitional period mandating alternative access products which offer the nearest equivalent constituting a substitute to physical unbundling, provided that these are accompanied by the most appropriate safeguards to ensure equivalence of access and effective competition.”*

- 8.168 We also note that the Commission's response to the consultation document approved the use of VULA as a remedy, either on a transitional basis or possibly continuing alongside fibre unbundling after the latter becomes economically and technically feasible as a remedy. We note also that the Commission has also made some positive comments about VULA-type products in relation to WLA market proposals by some other NRAs since we published our consultation document.

<sup>121</sup> [http://ec.europa.eu/information\\_society/policy/ecom/comm/doc/library/recomm\\_guidelines/nga/en.pdf](http://ec.europa.eu/information_society/policy/ecom/comm/doc/library/recomm_guidelines/nga/en.pdf) - European Commission, 20 September 2010

<sup>122</sup> BEREC Opinion to the Draft Recommendation on regulated access to Next Generation Access Networks (NGA) of 28 April 2010 – BEREC, 28 May 2010  
[http://www.erg.eu.int/doc/berec/bor\\_10\\_25.pdf](http://www.erg.eu.int/doc/berec/bor_10_25.pdf)

8.169 The NGA Recommendation does not specifically comment on the pricing of a VULA-type product. We set out above why, after considering the Commission's consultation response, we do not consider that a cost orientation requirement on VULA is needed at this time. We note also that the BEREC Opinion expresses concerns about requiring cost orientation in all cases, referring to considerations that NRAs should have in order that obligations reflect the specific circumstances (in line with the Access Directive)<sup>123</sup>.

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<sup>123</sup> See paragraph 16 of the BEREC Opinion

## Section 9

# Specific access remedies (4): overall conclusions

## Introduction

- 9.1 In Sections 6 to 8 we considered a number of potential specific access remedies on BT on an individual basis, both in terms of the case for requiring each of them, and in terms of their optimal design when assessed against the objectives of promoting competition and investment.
- 9.2 We now move on to consider these specific access remedies in combination, and to assess the overall impact on stakeholders of our chosen combination of remedies. We consider that the remedies need to be assessed together because our decision on each one is linked to the approach taken on the others.
- 9.3 This section also covers our proposals, stakeholder's views, and our decisions on the regulation of KCOM.
- 9.4 We also cover a number of issues that are related to the SMP remedies considered in this document. These issues are covered here for the purpose of clarifying our current approach and other issues that may be relevant for different types of CP. These issues are:
- The link to the BT Undertakings;
  - Our approach on WLA regulation in new build areas;
  - Our approach to those CPs offering WLA services based on using physical remedies as an input; and
  - The relationship between access requirements based on SMP conditions and those based on contractual obligations where public funding is involved.

## Framework for considering specific access remedies on BT

### Introduction

- 9.5 Having identified and discussed each of the individual specific access remedies in Sections 6 to 8, we consider the appropriate combination of specific access remedies required to address the competition issues identified in our assessment of market power in Section 4. Addressing these competition issues is our primary objective when considering what combination of access remedies should apply to BT. This aim reflects our duty under section 3 of the Act, to further the interests of citizens on communications matters and the interests of consumers in relevant markets - where appropriate by promoting competition.
- 9.6 As well as addressing competition problems, a further relevant consideration is the extent to which the available remedies achieve our objective of securing efficient investment. Given current market circumstances, this primarily concerns promoting investment in NGA infrastructure. This objective relates to our duties under EC law

and the Act, which are summarised in Annex 1. Indeed, the revised EU framework implies that a greater weighting should be given to investment considerations when making decisions on regulatory remedies.

- 9.7 Of course, the competition and investment objectives are linked. This is because the WLA market, as defined in Section 3, covers both CGA and NGA networks. Investment in NGA infrastructure will therefore affect competition in the overall WLA market. In CGA, BT already has a network and so the best way for regulation to promote competition has proved to be for OCPs to access that network.
- 9.8 However, the prospect of NGA investment over the next few years offers an opportunity to maintain and potentially extend competition in the WLA market. The fact that BT is only in the early stages of deploying an NGA network, and hence does not already have a ubiquitous legacy network, provides an opportunity to ensure that the upcoming investments in new infrastructure are 'contestable'. This means that OCPs can be given an opportunity to deploy NGA networks before or at the same time as BT. This could have the effect of increasing competition in the long term as well as the short term, through OCPs owning more network elements and so having more control over costs and the potential for innovation.
- 9.9 Our decisions on the appropriate charging arrangements for WLA access remedies could also affect both competition and investment. For example, there is potential to disincentivise investment in NGA by adopting an excessively rigid approach to the pricing of some WLA services, especially in the initial stages of NGA deployment when costs and demand are less certain. While a parallel CGA network is still in place and constraining NGA prices, a less interventionist approach to pricing is likely to be appropriate.

## Consultation proposals

- 9.10 In the consultation document, we set out a number of issues that we considered relevant to meeting these two objectives of promoting competition and investment. We proposed that WLA regulations should:
- Support competition across the full range of downstream services, for example, covering all broadband speeds. CPs should therefore have access to both CGA-based and NGA-based access products in the WLA market;
  - Maintain effective competition (where it exists) in markets downstream of the WLA market. This means:
    - reproducing in an NGA world the benefits that LLU has delivered in CGA. LLU has been very successful, with over seven million unbundled local loops so far<sup>124</sup>. In the downstream WBA market, this has enabled a very significant degree of deregulation, covering over 70 per cent of the UK; and
    - ensuring that the right NGA remedies are introduced, early enough, to provide a suitable transition path over time for the range of competitors currently using CGA remedies;
  - Lower barriers to entry, so that alternative CPs have opportunities to make their own investments in NGA. In doing so, we also considered that we should

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<sup>124</sup> This figure is updated from that in the consultation document

acknowledge the possibility of public funding to promote NGA investment, which could affect the impact of some potential WLA remedies;

- Take account of BT's specific plans for NGA deployment. This includes:
  - BT's planned NGA architecture, which for its FTTP deployments is a GPON architecture. This affects which access remedies are feasible;
  - The mix of NGA deployment scenarios. BT's plan at the time that we published the consultation document was to make NGA available by the end of 2012 to 30 per cent of households using FTTC, and to a further 10 per cent of households using FTTP. Since then, BT has announced plans to extend coverage to 66 per cent of households by 2015 (still about three-quarters of that being FTTC). This variety of scenarios, along with uncertainty about the order in which NGA roll-out will occur, suggests that a variety of WLA remedies may be needed to meet the competition and investment objectives that we set out;
  - The possibility that BT will stop using its CGA network in some areas. In general, BT plans to deploy its NGA network as an 'overlay', keeping the existing copper network in use. In due course, BT may start to 'switch off' its CGA network, although our current understanding is that this would not begin during the four year forward look period covered in this review. When assessing individual remedies, we consider any potential implications of copper switch-off; and
  - The situations in which BT deploys NGA in new build developments, i.e., where there is no existing CGA network. We support such developments, as they involve NGA investment. However, they do raise some distinct issues when considering WLA remedies.
- Reflect the high current uncertainty about how the market for NGA services will develop, and what will be the best initial and longer-term way of delivering NGA services. Given this uncertainty, we consider that it would be unwise to attempt to anticipate future demand. Rather, keeping options open that cater for changes over time may be preferable, for example in the mix of FTTC and FTTP deployments; and
- Take account of, and not inhibit, potential future models of competition in this market, including those that might flow from technical developments or significant unforeseen demand for NGA services.

## Summary and analysis of consultation responses

- 9.11 Of the 27 respondents, 19 made comments on the framework described above. Of these, nine (including BT) considered our approach to be appropriate, and only three took an essentially different view to us. The rest agreed in broad terms with our approach, but qualified this support either due to concerns that we had not adequately considered some issues, or due to concerns about aspects of the proposals that we then made on specific access remedies. We address detailed concerns about specific remedies where they are discussed in Sections 6 to 8 above.
- 9.12 Three respondents commented on the goal of promoting competition and investment. BT noted that we have in general been pragmatic in appropriately balancing the need to incentivise investment with facilitating competition to benefit end users. O<sub>2</sub>

welcomed the support for investment by all market players and our attempt to replicate the levels of competition enabled by LLU. Virgin Media considered that we should seek to avoid undermining investments that have already been made.

- 9.13 On the last point, our criteria for assessing remedies, as set out above, include supporting CGA-based competition and reproducing CGA levels of competition in an NGA world. Both of these are consistent with supporting existing investments. We note that this issue was raised more specifically in relation to the pricing of VULA, and we respond to that concern in Section 8.
- 9.14 Two respondents commented on timing issues. Virgin Media considered that more emphasis was needed on ensuring that the right remedies are introduced early enough, and on keeping options open (specifically on PIA implementation). Corning and the FTTH Council Europe considered that the absence of immediate requests for access or a lack of identified demand should not be reasons for not putting obligations on BT (with fibre access specifically being mentioned).
- 9.15 In response, we did include the concerns that Virgin Media expresses among our criteria. Our application of those criteria to PIA would therefore seem to be the bigger issue; we cover this in Section 7. On the second issue, we consider that the criteria in our framework are consistent with awaiting concrete demand for specific access products. Whilst we do state that it is important that the right products are available at the appropriate time, this does not imply that BT should incur costs ahead of demand. Rather, we consider that a request under BT's general access obligation, or proactive consideration by us based on new evidence, are appropriate and proportionate ways to address the case for any further remedies.
- 9.16 Three respondents made comments relating to geographic aspects of regulation. Vtesse considered that we had not taken proper account of the barriers to entry in the final third and the need for stronger ex ante remedies there. The CWU stated that in some areas, Virgin Media (and other CPs such as Colt in small areas such as the City of London) has SMP and therefore should be included within the specific access remedies framework. The CWU argued that the same obligations should be placed on Virgin Media or, if not, that we should consider placing voluntary obligations on Virgin Media. The Ofcom Advisory Committee for Wales proposed localised regulation, for those services for which a provider has 25 per cent retail "dominance" in a local area. It suggested that if retail price regulation is not (first) possible, then interconnection (with access to common services and structures) should be available at each point in the value chain, with the dominant provider being allowed a 15 per cent real rate of return.
- 9.17 On Vtesse's point, we have decided that BT has SMP in a single national market (excluding the Hull area), and we do not consider it appropriate to vary the remedies between different geographic areas. Rather, we consider that the right approach is to make available a range of remedies, so that the appropriate one(s) can be used in each area according to local conditions. We recognise that some CPs may be less willing to compete in some areas, but we do not consider that to increase the case for more extensive regulation on BT in such areas. Moreover, we do not consider that it would be appropriate to define in advance where such areas would be located.
- 9.18 On the CWU's concern, we have decided (see Section 4) that BT has SMP in a single national market (excluding the Hull area) and KCOM has SMP in the Hull area. In the absence of further determinations of SMP, within the SMP

framework, no access remedies can therefore be placed upon other providers. Moreover, on the basis that the SMP framework is a logical basis for determining when to impose remedies on CPs, we do not consider there to be a case for seeking to impose 'voluntary obligations' on Virgin Media.

- 9.19 Our finding of a national market (excluding the Hull area) means that we do not consider the Ofcom Advisory Committee for Wales's proposals for localised regulation to be suitable for the WLA market. Given this, we do not consider here the merits of the particular form of localised regulation proposed.
- 9.20 Three respondents commented about co-ordinating these decisions with other regulations. O<sub>2</sub> stated that we should ensure coherence of our remedies decisions with the approach in relation to the BT Undertakings and WBA market review. The FCS and SSE considered that more emphasis was needed on the reseller market (which uses WLR products), in order to consider how to maintain effective competition in markets downstream of the WLA market. SSE suggested that we should take a view on "the whole market" in this market review in order to give a level playing field for all CPs.
- 9.21 In reply to O<sub>2</sub>'s point, we consider that our strategic approach on fixed telecommunications forms the context for our WLA decisions and the other decisions mentioned. However, the decisions in the WLA review must also be taken on a stand-alone basis, consistent with the EU framework and national requirements. There is a relationship with the BT Undertakings, noted below in paragraphs 9.91 to 9.97. The approach taken to regulation of the WBA market, which is downstream of the WLA market, also needs to take account of WLA regulation.
- 9.22 On the FCS and SSE points, resellers of wholesale broadband services and/or wholesale narrowband services operate downstream of this market and are not sufficient to remedy the SMP in the WLA market. Consequently, the position of resellers is in our view more directly relevant to the consideration of regulation in downstream markets than to the specification of remedies in the upstream market for WLA. This approach is consistent with our strategic approach of focusing regulation at the deepest level of infrastructure at which competition is effective and sustainable.

### **Conclusions on the framework for assessing specific access remedies**

- 9.23 In conclusion, we consider that the framework which we have used to consider specific access on BT is appropriate. Most consultation respondents supported it, at least in broad terms, and we consider that we have addressed above the specific concerns raised about certain aspects of the framework. We address separately a number of specific concerns about how we have applied this framework when considering the merits of individual remedies.

### **Assessing the combination of specific access remedies on BT**

- 9.24 In paragraph 6.5, we explained that we would assess the specific access remedies on BT on their own merits (across Sections 6-8) and then set out in this section why we consider our chosen combination of remedies to be justified. We need to consider whether the remedies are justified on a collective as well as an individual basis, because our decision on each one is linked to the approach taken on the others. This analysis follows below.

## Consultation proposals

### Current generation access

- 9.25 In the consultation document, we stated the expectation that during the four year forward look period taken by this market review, the vast majority of services provided over BT's access network will be based on its existing copper network. Some of BT's NGA investment will be in 'new build' areas, serving new homes and other properties. However, in general, BT's NGA network will be an overlay, i.e., it will be run alongside its CGA network rather than replacing it (at least for the foreseeable future). Therefore, whilst much of the discussion on WLA access remedies involves NGA issues, we considered it essential that regulation of CGA continues to be effective.
- 9.26 We stated that LLU had to date been an effective specific access remedy, enabling significant deregulation in the downstream WBA market. Were we to remove the existing LLU remedy, this could lead to a need to re-impose some regulation in the WBA market. We considered that keeping LLU as an effective remedy would enable CPs to continue to compete with BT, and would be likely to lead to the greatest benefit for citizens and consumers. We proposed that this would ensure that CPs would be able to innovate and differentiate their products to the greatest extent technically and economically feasible, ensuring that we retain the existing benefits of LLU-based competition without limiting development of competition and investment in downstream markets.
- 9.27 Therefore, we proposed to maintain LLU regulation. Further, we proposed that the LLU obligation should remain in its existing form (except for some minor clarificatory changes, as explained in Section 9 of the consultation document).
- 9.28 We therefore included a provision in our legal instrument (see Annex 7 of the consultation document) that would have the effect of continuing a 2008 SLG Direction for LLU (until otherwise modified or withdrawn)<sup>125</sup>. That Direction required BT to make amendments in relation to the SLGs that it offered for LLU. The SLGs include requirements for Openreach to pay compensation to OCPs proactively for LLU service failures. We considered that it was important for these SLG requirements to continue, as they give BT incentives to maintain a good quality LLU service.

### A complementary set of NGA specific access remedies

- 9.29 As explained in paragraph 9.5, our primary objective when considering specific access remedies on BT, in relation to NGA, is to promote competition to address the concerns that we identified in our market analysis. In promoting competition, we are also mindful of our duties in relation to investment, as our decisions on NGA remedies have the potential to affect the level of investment in NGA networks over the coming years. We now discuss how we have considered these objectives in relation to potential remedies for NGA.
- 9.30 We stated in the consultation document that we considered it necessary to have specific access remedies to support competition and investment in NGA, as well as retaining the LLU remedy. This is because this would enable BT's competitors to compete effectively by providing a full range of CGA and NGA services in

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<sup>125</sup> *Service level guarantees: incentivising performance*, 20 March 2008, <http://www.ofcom.org.uk/consult/condocs/slq/statement/statement.pdf>

downstream markets. Also, we considered that having this range of NGA remedies available increases the prospects that OCPs would compete based on control of more elements in the value chain. We stated that where BT does not deploy an NGA network, OCPs' ability to compete in the WLA market would continue to be limited by the extent of BT's NGA deployment, unless BT provides specific physical access products that lower barriers to entry into NGA provision for OCPs.

9.31 Further, we considered that if we did not introduce NGA remedies at this point, there would be a detrimental impact on competition and consumers during the process of transition from CGA-based to more NGA-based competition in this market. In the absence of NGA remedies in this period, we considered that BT would have an enhanced competitive advantage.

9.32 We therefore proposed that BT should provide the following NGA-related specific access products in the WLA market:

- Virtual unbundled local access (VULA): where BT upgrades its network (using either FTTC or FTTP technology), it should supply a product that meets certain key requirements specified by us, to provide similar control and innovation benefits to BT's competitors as the physical LLU product. Section 8 discusses these characteristics and our conclusions on the detailed issues that were raised in consultation responses;
- Physical infrastructure access (PIA - including ducts and poles): BT should meet reasonable requests for access; provide information on available capacity; and deliver a RO to a scope and timeframe specified by us. Our detailed conclusions on the PIA remedy are set out in Section 7; and
- Sub-loop unbundling (SLU): BT should continue to offer the current SLU arrangement, whereby a CP provides a stand-alone cabinet. BT should also allow sharing of its own cabinets (where possible and reasonable), which we considered to be covered by the existing SLU obligation. Section 6 contains our detailed conclusions on the SLU remedy.

9.33 One of our reasons why we proposed this mix of NGA remedies is that a variety of NGA deployment scenarios will exist in different geographic areas, including during the next four year period over which we are considering market developments in this review:

- Under BT's current plans, it will deploy NGA architecture covering 40 per cent of UK premises by the end of 2012, about three-quarters being based on FTTC technology and the balance based on FTTP technology. Since the consultation document was published, BT has extended its plans to include coverage of 66 per cent of premises by 2015 (in the same FTTC/FTTP proportions). Where BT deploys NGA, it will be technically feasible to offer a VULA service to OCPs; and
- In areas where BT has not yet deployed NGA, VULA would not be an option to support competition. However, the availability of PIA and SLU would support competition and NGA investment in these areas as well as in the areas where BT deploys its own NGA network and offers VULA. Of course, different access products are likely to suit different geographies, based on various factors including demographics, BT's network architecture and the networks of those OCPs wanting to use elements of BT's access network to deliver NGA services.

- 9.34 In the consultation document, we set out our expectation that VULA would be the primary focus of NGA competition, to supplement the continuing effective LLU remedy, over the next few years. We expected VULA to support innovation in much the same way as LLU. Also, we suggested that by using VULA, OCPs would be able to start providing NGA services at lower risk, as they would not have to invest in their own access infrastructure and as such would not have to incur as significant sunk costs or overcome as significant economies of scale. By using VULA as the basis to compete in the initial phase of NGA roll-out, OCPs would also be able to build their customer base in the supply of NGA services, and thus to provide a stronger basis for investing in the use of physical remedies in future. The consultation document also presented economic analysis that suggested that VULA was likely to generate relatively low static costs of competition compared to other potential remedies. For these reasons, it was likely to be the most effective of the available potential remedies in supporting wide scale competition in downstream markets. Therefore, we proposed that VULA should be available wherever BT deploys its NGA network.
- 9.35 We noted that static costs were not the only relevant factor when assessing potential remedies. It is also necessary to consider the potential dynamic benefits available from giving OCPs more control over how to compete. Moreover, we noted that where BT has not yet deployed NGA, VULA would not exist as an option for promoting competition. The exact geographic plan of BT's NGA deployment was unclear (and remains so). We therefore considered the case for having one or more physical remedies on BT to supplement VULA.
- 9.36 We proposed that physical remedies could increase competition in the WLA market by lowering barriers to entry for OCPs' access network deployments, which could be used to compete with BT's CGA network. At the same time, physical remedies could thereby also support investment in NGA networks. This is consistent with the Commission's NGA Recommendation (in draft form when we published the consultation document), which favours giving an opportunity for these remedies to work.
- 9.37 When considering which physical remedy is most appropriate, our key observation was that the best solution for competition and investment is likely to vary, between different geographies and between OCPs. In some cases, the economics of NGA deployment and the strategic position of an OCP could suggest that deployment using access to ducts and poles might be more suitable, for example where there is usable spare capacity in the local duct network. In other cases, SLU could be an appropriate SMP remedy, such as in areas with large cabinets and a relatively dense population (i.e., relatively short connections between the cabinet and consumers premises).
- 9.38 Figure 9.1 below illustrates how the remedies that we proposed would fit together to deliver the benefits of competition to consumers for CGA and NGA networks in different parts of the country. Figure 9.1 takes account of BT's announced extension of its NGA roll-out plans to the end of 2015.
- 9.39 A further argument that we set out for allowing alternative forms of access remedies is that there are a number of uncertainties that are likely to affect the optimal choice. Firstly, the future demand profile for NGA services is uncertain, and so the best way to compete is not clear. There is also potential for changes in technology (as occurred with LLU), particularly in the early years of NGA, that could change the relative economics of different ways to compete. Also, the timing of the transition to NGA is unclear, so having a choice of access products provides more ways to maintain competition during that transition.

**Figure 9.1 Primary remedies in different locations**

CGA network (copper)	LLU (c. 75% UK)	Downstream remedies (e.g., WBA)
NGA network (fibre)	VULA (c. 66% UK)	PIA and SLU (‘final third’)

- 9.40 In our discussions with CPs before the consultation document, there were some expressions of potential interest in using physical access remedies. This included interest in using the prospective new PIA remedy for NGA network deployment. There was also some interest in using SLU, although an SLU product had been available since 2001 and had not yet attracted significant demand. We also noted that central and local public sector funding could promote those deployments.
- 9.41 We therefore considered that a ‘mixed economy’ of access products should be available to allow for variations in the relevance of each product, and for market uncertainties. Indeed, we considered that BT’s own NGA deployment plans support this mixed approach, as BT is using both FTTP and FTTC deployments. In turn, we considered that this range of SMP remedies should promote better outcomes for consumers in terms of the price and availability of retail services.
- 9.42 We considered this mix of remedies to be proportionate partly because they would be likely to be complementary, with some being suitable in some areas and others in other locations. Also, we considered our overall approach to be proportionate because we were, in our view, proposing relatively limited obligations on BT in relation to the physical remedies, in advance of clear expressions of demand and given the uncertainty about the feasibility of those physical remedies. Our approach was consistent with the ERG’s Common Position on Remedies<sup>126</sup>, the third principle of which suggests that uncertainty about the feasibility of a remedy should be reflected in how vigorously the remedy is pursued. That ERG Common Position also proposes that NRAs should not second-guess the market place, but rather should ‘provide a coherent background against which market developments take place’ (p 60). We considered that our approach to duct, pole and SLU access was consistent with this principle, as our focus was on getting the physical remedies to the position where OCPs have sufficient information to determine whether or not to use them.
- 9.43 We did not propose in the consultation document to mandate a fibre access obligation on BT, or a requirement to install multi-fibre when deploying its NGA network. Our reasons for that approach are set out in Section 6 of this document. However, we did acknowledge that in the longer term, wavelength unbundling technologies may well support an effective remedy for encouraging competition in local access. However, we did not expect the technological developments required for such an SMP remedy to happen within the timeframe considered by this market review.

<sup>126</sup> Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework, ERG (06) 33, May 2006, [http://erg.eu.int/doc/meeting/erg\\_06\\_33\\_remedies\\_common\\_position\\_june\\_06.pdf](http://erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf)

## Summary and analysis of consultation responses

- 9.44 Of the 27 respondents, 16 commented explicitly on our proposed combination of remedies. All but one of these agreed in general to our proposed combination, but most of them expressed concerns about the form or exclusion of individual remedies.
- 9.45 There were a number of positive comments. BT stated that the set of remedies proposed was generally reasonable. Virgin Media agreed that a complementary set of CGA and NGA remedies is required, partly as different ones would suit different areas: VULA would be important in Virgin Media's existing areas, whilst passive remedies would help to extend NGA coverage. O<sub>2</sub> considered that it was right to let the market decide how best to compete, allowing for different market conditions across the country. DRL considered that current market uncertainty supports a range of remedies and that the new ladder of investment would encourage investment and efficient use of private and public sector funding. It considered that this new range of remedies would exploit the availability of public subsidy for NGA in more remote areas, and provide competitive tension when competing for public contracts. The strategic-level response from Vodafone also broadly supports our focus on active rather than passive remedies<sup>127</sup>.
- 9.46 David Hall Systems, however, stated that it would need to understand the deployment characteristics and timescales of the remedies before it could endorse them. It also said that there needs to be flexibility in the proposed set of remedies to deal with changing circumstances.
- 9.47 In response, we consider that we have provided sufficient detail to justify our combination of remedies, given the broad level at which this statement, and the formal regulations, are intended to specify the access products. We also consider that sufficient flexibility in access products exists, through the combination of specific access remedies available across the market and through the general access requirements that allow further products to be requested in future.
- 9.48 There were a number of particular comments about the sufficiency of the remedies in combination. Vtesse argued that we had not paid sufficient attention to remedies in the 'final third'. DRL and Geo stated that the absence of fibre unbundling means that the ladder of investment is incomplete, which will diminish competitive intensity. Geo, additionally, stated that our proposals did not accord with the Commission's recommended set of passives remedies.
- 9.49 We disagree with these points. We have already considered Vtesse's point at paragraph 9.17 above. We also consider that our chosen remedies will provide an appropriate and proportionate range of ways to compete, because they take account of expressed demand, and provide a development path for those seeking to climb the ladder of investment. On the Commission NGA Recommendation, the requirement is to take that into utmost account, not to implement it without assessing what is proportionate. We have considered the NGA Recommendation appropriately for each individual remedy in Sections 6-8.
- 9.50 On a related point, BT stated that the SMP remedies were not sufficient to achieve UK public policy objectives. It considered that the position of Virgin Media and new build providers was under-stated in our approach to market definition and the assessment of market power. We note these points, and we have considered them in Sections 3 and 4 above. However, having found only BT and KCOM to have SMP in

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<sup>127</sup> Submitted by Vodafone, but expressing the views of the independent authors

their respective geographic WLA markets, we can only impose remedies on those providers as a result of a market review. In due course, as the new EU Framework is implemented into UK law, our duties and powers in respect of access to the networks of non-SMP providers may change and a review of access requirements on such providers may be merited.

- 9.51 The FCS and SSE agreed in general with the rationale for a mix of remedies. However, the FCS stated that it was of key importance that services exist for all CP models, including resellers. SSE stated that short-term priority should be given to developing active remedies like Voice over NGA (VoNGA)<sup>128</sup> before time is spent on developing passive remedies. SSE considered it important to avoid shocks to resellers (and their customers) in the transitional period while NGA is being rolled out.
- 9.52 As noted above, resellers of wholesale broadband services and/or wholesale narrowband services operate downstream of the WLA market and their activities are not sufficient to remedy the SMP in the WLA market. In this review, we have focused on the combination of remedies required to remedy the SMP in this market. The position of resellers should certainly be considered in respect of more downstream regulation, but should not in our view drive the prioritisation of different WLA remedies. We would also note that resellers are able to deliver their services through CPs that consume different WLA products.

### **Conclusions on the mix of specific access remedies**

- 9.53 We have noted that since the consultation document was published, BT extended its NGA roll-out plans to 66 per cent of UK households by 2015. We do not consider that this increase changes the need for a mix of remedies, as a third of UK premises remain outside BT's plans. We also note that the precise geography of BT's roll-out, and its sequence, remains unclear. It is also important that the consultation responses have suggested interest in, and actual demand for, each of the specific access remedies that we have proposed.
- 9.54 In conclusion, we consider that the combination of access products that we proposed in the consultation document remains appropriate. Whilst a number of respondents expressed specific concerns about individual remedies, there was general support for the need for a mix of remedies, to cater for differing circumstances. We consider that we have addressed above some other specific concerns about aspects of this mix of remedies.
- 9.55 In Sections 6 to 8 above, we set out how, when deciding on specific access remedies, we have taken utmost account of the NGA Recommendation and the May 2010 BEREC opinion on the draft NGA Recommendation. There is limited reference in the NGA Recommendation to how remedies might be combined, although Recital 3 discusses allowing NRAs to take account of national circumstances and states that "The appropriate array of remedies should reflect a proportionate application of the ladder of investment principle". The BEREC Opinion (notably paragraphs 12 and 15) also stresses the importance of not necessarily implementing an exhaustive set of remedies but, rather, taking into account the specific circumstances of the country in question. We consider that our decision on the combination of specific access remedies on BT is consistent with those approaches.

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<sup>128</sup> Openreach was previously considering developing VoNGA, which was to be a voice product downstream of GEA/open ATA that would include the functionality provided by the voice server. It would essentially have emulated WLR on the FTTP network.

- 9.56 Whilst we support each of the remedies previously proposed, it is important that we set clear priorities where there are resource constraints. We have identified VULA as the most likely remedy to be used in areas where BT rolls out its NGA network, and as this is expected to cover two-thirds of the UK it is apparent that VULA should be a priority.
- 9.57 When considering the relative priority of PIA and SLU, we note that both of them could be used where BT has not yet deployed an NGA network. Also, OCPs might wish to use the two remedies in combination in some areas. As the prospects for using SLU and PIA will differ between locations, we consider that it is beneficial for both remedies to be available. We consider that BT's own plan for a mix of NGA deployment types supports this approach.
- 9.58 However, it is important to recognise that SLU has been available as a service since 2001 and that there has been limited demand for it in that time. We have also consulted OCPs in recent years on their interest in using SLU, and this has suggested that demand remains limited. There do seem to be more prospects now of SLU being used: since the consultation document a detailed request has been submitted for developments to the SLU product and an industry working group has been set up by BT to consider this request. This should provide a forum for securing agreement on improvements to the product specification. We also understand that Openreach is carrying out a review of SLU pricing, and that this will provide a vehicle for responding to issues raised by interested CPs.
- 9.59 Notwithstanding the recent increase in the level of interest in SLU, we consider that PIA has potentially a more significant role in supporting competition and investment in the longer term. This is linked to the fact that PIA has a wider range of potential applications, including supporting FTTH as well as FTTC solutions. In addition, as a new remedy, it will be important to ensure that BT's PIA product is appropriately specified and offered in a timely manner. A considerable amount of effort will inevitably be required over the coming months, from BT, CPs and other interested parties, if the potential benefits of the remedy are to be realised. We expect to play an active part in that process.
- 9.60 Taking all of these factors into account, our view is that, when deciding on the commitment of Ofcom resources over the next 6-12 months, greater priority should be given to VULA and PIA than to SLU. For the same reasons, we consider that the priorities of the OTA should also be focused more on VULA and PIA than on SLU, to the extent that they give rise to conflicting requirements. We can, of course, reconsider this prioritisation if there is clear evidence of a change in the relative demand for these products.
- 9.61 The details of the requirements in relation to each of the specific access remedies on BT are covered in Sections 6 to 8. Those sections include analysis and decisions on key aspects of the remedies, such as their design and pricing. We also note implementation progress and timescales. Also, in Annex 4 we set out our requirements for the contents of the RO for PIA.

## Summary of impacts on stakeholders

### Assessment in consultation document

- 9.62 In the consultation document, we considered that the overall proposed set of general and specific access remedies on BT was the best option for promoting competition, and for supporting investment in NGA infrastructure. Notably, we considered that the

mix of specific access remedies, and their proposed form, would best maintain current levels of competition in downstream markets, and enable competition across the full range of downstream services as NGA services become increasingly important.

- 9.63 We considered that our proposed remedies would lower barriers to entry for OCPs, so that they could choose whether and how to invest in CGA and NGA service provision. Notably, we considered that our proposals for a mix of specific NGA remedies would allow different geographic circumstances to be taken into account that would affect the viability of each proposed remedy. We also considered that this mix of specific access remedies would support market entry by not closing off options in terms of what might prove to be an effective approach.
- 9.64 We considered that the proposed requirements were appropriate and proportionate. BT would be required to develop and maintain products and processes to meet reasonable demand and to enter into contractual relationships with OCPs. These requirements could, therefore, divert BT's resources away from its planned commercial activities. However, BT would be financially compensated when it provides access products, due to the pricing approaches that we have proposed. Thus, when responding to reasonable requests for access, BT would be properly compensated, such that it would not adversely affect its other commercial activities.
- 9.65 In terms of the impact on consumers, we considered that the competition that would be supported in downstream markets would benefit consumers, by providing an increased choice of provider, a wider range of products with improved quality of service and better value for money. We also considered that the mix of specific access remedies that we have proposed would benefit consumers because OCPs' use of SLU or PIA should promote wider geographic competition in, and availability of, NGA services.

## Summary and analysis of consultation responses

- 9.66 There were very few direct comments on the proposed impacts on different stakeholders. The Ofcom Wales Advisory Committee considered that our analysis (together with that in the WBA consultation document) did not reflect, quantify or value the consumer benefits of voice, data or image services. On a related point, it suggested that there should be consultation on the entitlements to such services, commenting that private sector markets are unlikely to deliver against such entitlements. Geo & DRL commented that the exclusion of a fibre access remedy would limit welfare benefits due to a gap in the ladder of investment.
- 9.67 On the first point, we acknowledge that the consultation document analysis was not expressed in a way that assessed in detail, or quantified, the consumer benefits of different services, although we did consider retail market aspects in the course of the product market definition. However, the WLA market concerns 'raw' connectivity, some way upstream of retail products, and the role of WLA remedies is to support competition and investment in such connectivity. Whilst these remedies can be expected to benefit consumers in broad terms, they can be used for a range of different services, some of which (notably those supported by super-fast broadband) may only be developed over the next few years. The pattern of benefits is inevitably uncertain. We therefore consider that attempts to quantify the benefits in terms of existing downstream services would have had limited value, and would not have affected our proposals.

- 9.68 On entitlements to different services, that is a matter outside of the scope of market reviews, the purpose of which is to assess the need for economic regulation of firms with market power. Such issues would come within a universal service obligation assessment.
- 9.69 In terms of the limits to welfare due to a gap in the ladder of investment, we have already set out (in Sections 6 and 7) why we do not consider that BT should be obliged to provide access to dark fibre at the present time, and why our chosen combination of remedies will provide an appropriate ladder of investment.
- 9.70 As well as these specific comments, we have already addressed elsewhere various comments on the form and mix of specific access remedies, and do not consider that those comments change our analysis of the impacts set out in the consultation document. In conclusion, we consider that our analysis of stakeholder impacts remains appropriate.

## Specific remedies on KCOM

### Consultation proposals

- 9.71 We set out in the consultation document that KCOM was not at that point subject to any specific product obligations. We had considered imposing LLU on KCOM in the 2004 WLA market review, but did not consider that to be reasonable or proportionate because there was no evidence of demand. However, as set out in Section 5, KCOM did have a number of general access obligations. These requirements included: providing network access on reasonable request; not discriminating unduly and publishing a RO.
- 9.72 In the consultation document, we stated that a key issue in considering specific remedies on KCOM is that we considered it quite unlikely that OCPs will enter the market in Hull to make use of specific access products that we could mandate. We based this view on the very limited historic demand from competitors to access the Hull market, or indeed to compete further downstream, at the retail level. Our discussions with CPs at that time did not suggest that this unwillingness to compete with KCOM was about to change materially in the early stages of NGA deployment.
- 9.73 We proposed to continue with the approach of not requiring KCOM to develop specific remedies. This was mainly because of the lack of clear evidence of demand for such access products from KCOM. Also, we considered that, were demand to materialise in the Hull Area, it was not clear that the requested products would be the same as in other parts of the UK, given the different demographics. We therefore considered that it would be unwise to impose such remedies in the same form as those on BT. Taking all these factors into account, we considered that imposing no specific access remedies on KCOM was the appropriate and proportionate approach.
- 9.74 However, we noted that we had recently observed a greater general level of interest from a range of OCPs in offering services in the Hull Area. We therefore proposed a new network access requirement for KCOM. We considered that it was justified to require KCOM to create an SOR process, as that may assist the development of new network access in the Hull Area. Our proposal is described in more detail in paragraphs 5.28 - 5.36.
- 9.75 We also stated that even if such access remedies were not demanded, it appeared that consumers in the Hull Area were receiving offers (in terms of pricing and

functionality) that were generally in line with the rest of the UK. We had considered this issue further in the WBA consultation document.

- 9.76 In terms of assessing the impact on different stakeholders in the Hull Area, we therefore considered our approach to be appropriate and proportionate. We stated that we were seeking to promote market entry into the Hull Area, but also acknowledged the limited prospects of such entry. We considered that, in the absence of effective demand, the proposed obligations on KCOM were proportionate. Also, we considered that our approach was consistent with consumers' interests. This was because we were providing opportunities for competition, but not imposing obligations on KCOM, the costs of which might be passed on to consumers with no corresponding competition benefits.

## Summary and analysis of consultation responses

- 9.77 Eleven consultation responses comments on our proposals in relation to KCOM. Nearly all of these agreed with our general approach, in terms of not imposing specific access obligations and in terms of adding a general access obligation in relation to new network access.
- 9.78 KCOM welcomed our proposal to impose only a general access remedy on it, on the basis that this recognised that the specific access remedies proposed for BT may not be appropriate or effective in the Hull market. However, it noted that potential local NGA deployments in the near future in the Hull area could pose a real competitive threat, and that we should therefore keep the impact of such developments under close review. David Hall Systems also stated that a flexible approach was needed, to address any competition issues that may arise.
- 9.79 In reply, we have concluded from our analysis in Sections 3 and 4 that KCOM has a clear position of SMP at this point in time. We acknowledge the point that NGA deployments may affect the position in due course, but there is currently no evidence of deployments that would affect our SMP findings.
- 9.80 Vtesse agreed with our proposed new obligation on KCOM, but considered that it should include the termination of services outside Hull, in what it calls the 'Hull transit market'. We have considered this issue in Section 3 above, where we conclude that such services are not part of our defined WLA market. In this review we cannot impose obligations on KCOM for any services outside its WLA market.
- 9.81 Hull City Council stated that lower regulation in the Hull market had not worked before and is unlikely to work in future. It considered the benchmark to be how remedies would support investment by KCOM and other CPs. It stated that we needed to consistently apply principles to BT and KCOM. It also stated that the effects of KCOM's market power had not been adequately analysed or addressed. It suggested that the proposed remedies may constrain CPs' ability to provide services to the public sector and business sector, with potential impacts on costs, choice and value for money.
- 9.82 One confidential respondent considered that our proposed approach to remedies for KCOM would constrain investment and cause barriers to entry to be higher than necessary. This respondent suggested that some CPs are willing to compete in Hull, but that transparent access to the market is needed. It also stated that we did not consider sufficiently the impact of regulation on NGA investment and the costs to consumers.

- 9.83 We recognise the concerns expressed about low market entry and the potential impact of that. However, we consider that the level of our analysis, and the content of our proposals, were appropriate to the level of expressed interest in competing in the Hull area. Whilst we consider that we have applied the same principles when considering access remedies in Hull, we do not consider that the same outcomes result from that analysis. This is essentially due to the limited degree of interest in competing in the WLA market in Hull.
- 9.84 Since our assessment of remedies in the consultation document, we have again asked major CPs if they are interested in entering the WLA market in Hull. None expressed an interest in doing so at this point. In C&WW's consultation response, it stated that the size of the market, the costs of accessing it and the existence of KCOM as a retailer have not supported a business case for C&WW to compete in Hull. It also suggested that our priority should be removing any barriers to competition in the WBA market, to clarify the demand to compete in the area. We consider that C&WW's comments support our position on WLA regulation at this time. Also, other CPs' consultation responses did not suggest that specific access remedies should be placed on KCOM at this point.
- 9.85 In this context, we consider that it would be disproportionate to require KCOM to invest in developing specific access products, as it seems unlikely at this point that they would be taken up. We consider that the general access remedies on KCOM are sufficient as they will allow any OCPs to request access if they wish to enter the Hull market. However, we have decided to introduce a new requirement on KCOM as a means to assist entry into the Hull market. Under this requirement, KCOM would have to create a Statement of Requirements (SOR) process, which should clarify the process for requesting new access products. We consider that this will provide additional transparency to promote market entry, in a proportionate manner.
- 9.86 We consider that our decision to apply to KCOM only those remedies that might be used is in the best interests of consumers in the Hull area. This is because if costs were imposed on KCOM to develop remedies that were not appropriate, and were not then used, KCOM could recover its costs by passing them on to its customers.
- 9.87 KCOM did not object to our proposal that it implement an SoR process in relation to this market, but requested clarification of when this obligation should take effect, given the lead time to review its existing SoR process for wholesale narrowband services and update documentation as a result. In response to this, we do not consider that it is necessary to set out a specific timetable on the face of the condition. However, we think that it would be reasonable to expect such changes to be implemented and a process published within three months of this statement.
- 9.88 In reaching our decisions on regulating KCOM, we have taken utmost account of the NGA Recommendation and the BEREC opinion of May 2010 on the draft NGA Recommendation. Both documents discuss the access remedies that might be placed on CPs with SMP, but they do not specifically comment on variations in approach between CPs with SMP in different (geographic) WLA markets. Recital 3 of the Recommendation discusses allowing NRAs to take account of national circumstances, and the BEREC Opinion (notably paragraphs 12 and 15) stresses the importance of not necessarily implementing an exhaustive set of remedies but, rather, taking into account the specific circumstances of the country in question. We consider that our decision on the combination of specific access remedies on BT is consistent with those approaches.

## Conclusions

- 9.89 We conclude that our approach towards the regulation of KCOM is appropriate and proportionate. We consider that, until such time as demand materialises, it is proportionate, and consistent with Hull consumers' interests, to rely only on general access obligations on KCOM. However, we have also concluded that a new network access obligation should be placed on KCOM, requiring it to have a SoR process that will increase transparency about how to request new products in the WLA market.
- 9.90 We are aware that consumers in the Hull area have a very limited choice of providers, because of the lack of entry into the market by providers other than KCOM. Potentially, this lack of competition could result in consumers in Hull paying higher prices and receiving less attractive service propositions. However, our review of the retail offers available to consumers in the Hull area shows that whilst consumers in Hull may not have access to the best offers available in some other parts of the UK, they do have access to products that are comparable in terms of price and specification to those available to many consumers in the rest of the UK<sup>129</sup>. Since the consultation document was published, we have also consulted on proposals to allow KCOM to bundle retail broadband, landline and other services, as other CPs do in the rest of the UK. These proposals were intended to give Hull consumers benefits in terms of greater value for money and access to new and innovative services<sup>130</sup>.

## The link to the BT Undertakings

- 9.91 The BT Undertakings are a set of obligations on BT that are designed to deliver Equality of Access between BT and its competitors. Equality of Access is broadly based on two fundamental concepts: Equivalence of Inputs (Eol) and operational separation. On Eol, the Undertakings state that:

*'Equivalence of Inputs' or 'EOI' means that BT provides, in respect of a particular product or service, the same product or service to all Communications Providers (including BT) on the same timescales, terms and conditions (including price and service levels) by means of the same systems and processes, and includes the provision to all Communications Providers (including BT) of the same Commercial Information about such products, services, systems and processes. In particular, it includes the use by BT of such systems and processes in the same way as other Communications Providers and with the same degree of reliability and performance as experienced by other Communications Providers.*

- 9.92 We have issued a variation relating to the terms of BT's roll-out for FTTC (the FTTC variation)<sup>131</sup> and a variation for BT's roll-out of FTTP-based services ("the FTTP variation")<sup>132</sup>. The FTTC variation allows BT's Openreach division to control and operate electronic equipment necessary to provide super-fast broadband services using FTTC. The FTTP variation does the same for the provision of super-fast broadband services using FTTP. The objectives of these variations are to deliver benefits to consumers by supporting early investment in super-fast broadband and, where appropriate, by promoting competition.

<sup>129</sup> See the WBA consultation document for retail price comparison for KCOM services

<sup>130</sup> *Retail bundling in Hull*, 5 August 2010 -

<http://stakeholders.ofcom.org.uk/binaries/consultations/retail-bundling-in-hull/summary/main.pdf>

<sup>131</sup> <http://www.ofcom.org.uk/consult/condocs/fttc/statement/>

<sup>132</sup> See <http://www.ofcom.org.uk/telecoms/btundertakings/exemptionsandvariations/fttp.pdf>

- 9.93 In addition, the FTTC and FTTP variations commit BT to provide fit-for-purpose FTTP and FTTC non-physical wholesale products, and BT is required to provide FTTP and FTTC non-physical wholesale products to itself on the basis of EOI (as defined in the Undertakings). The FTTC variation also required that BT shall conduct a consultation with industry in order to assess the demand for and CPs' views on the design of FTTC non-physical inputs<sup>133</sup>.
- 9.94 These variations recognise that a balance must be struck between the incentives of CPs to invest in these technologies and the requirement for continued effective and sustainable competition. We have sought to encourage investment in NGA while ensuring fit-for-purpose non-physical products are made available as a means for CPs to compete effectively with BT.
- 9.95 The combination of WLA remedies that we are imposing is consistent with the requirements and objectives of the Undertakings, the FTTC variation and the FTTP variation. This combination of remedies balances encouraging investment in super-fast broadband with ensuring that CPs have access to sufficiently flexible non-physical products to allow them to compete, with the benefits being passed on to end users. Furthermore, we are only imposing remedies which are likely to result in effective and sustainable competition by CPs.

### Summary and analysis of consultation responses

- 9.96 Rutland Telecom stated that fundamental changes are needed to the control and operation of BT's infrastructure. For example, it suggested that there should be multiple providers competing at the same level as Openreach, and that BT's FTTC/NGA product be provided by BT Wholesale, not Openreach. Geo also considered that tight vertical integration should be replaced by an open access business model, including for Openreach; the suggestion seemed to be that structural separation of BT was merited.
- 9.97 We note these comments. However, these issues have not been within the scope of this market review. We note, however, that we have considered such issues before in our Strategic review of fixed telecommunications<sup>134</sup>. We also decided more recently, in the FTTC variation and the FTTP variation, on aspects of the regulation of BT's FTTC and FTTP deployments. We keep the implementation of the Undertakings under ongoing review and publish reports periodically on progress.

### Regulation and non-SMP providers

- 9.98 In the consultation document we set out issues relevant to the regulation of CPs other than BT and KCOM, for the purpose of providing guidance on current expectations and potential future regulatory obligations. We address below some comments that we received on these issues.

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<sup>133</sup> SLU is an FTTC physical input. BT must complete this consultation within three months of such time as end users in one million premises are taking services based on a BT non-physical FTTC Product, or at the latest during the course of 2011.

<sup>134</sup> For the final statement of 22 September 2005, see

<http://stakeholders.ofcom.org.uk/binaries/consultations/752417/statement/statement.pdf>

## Consultation document positions

### Approach to new build fibre deployments

- 9.99 In our September 2008 statement on the regulation of new build NGA deployments (“the New Build Statement”)<sup>135</sup> we set out our approach to a number of issues arising from fibre network deployments in new housing developments. Our aim was to provide operators and developers with clarity on the regulatory environment for those developments in which fibre rather than copper networks are deployed at the outset.
- 9.100 We concluded that both non-physical and physical products might have a role to play in ensuring that consumers benefit from a choice of suppliers for communications services. In particular we set out the following expectations:
- In a new build environment, if it is apparent that only one telecommunications access network is viable then we would expect the operator of that network to provide access to it on a fair, reasonable and non-discriminatory basis through fit-for-purpose wholesale products;
  - We would encourage operators to use open standards when developing wholesale access products and to agree the implementation with prospective wholesale customers;
  - We would expect new build developers to install spare duct capacity and use sub-ducting, the adoption of which should ensure that the capacity of the installed duct would be sufficient to support duct sharing in the future, should that prove necessary for effective competition; and
  - In addition, we would expect operators to consider the provision of an Active Line Access (ALA)-based product, which is capable of supporting effective competition between service providers. The characteristics of such a product are discussed further in the next section, and in more detail in the consultation document that preceded our Super-fast Broadband statement.
- 9.101 It should be noted that these are expectations and not formal requirements.
- 9.102 However, where the new build operator has been found to have SMP in the relevant market, in this case BT and KCOM, then any existing regulatory obligations will continue to apply, but where relevant it will be up to the SMP holder to determine how best to implement products which meet these obligation in agreement with prospective wholesale customers.
- 9.103 Where the new build operator has not been found to have SMP, then we would expect the operator of the new build network to provide access to it on a fair, reasonable and non-discriminatory basis through fit-for-purpose wholesale products. However, should this prove ineffective in particular cases, we would be prepared to undertake the relevant market reviews, and to impose appropriate formal SMP obligations in the event of an SMP finding.
- 9.104 Our primary aim, in new build developments, is to ensure that suitable wholesale access is provided in order to support effective downstream competition. In the New Build Statement, as in the consultation document for this market review, we identified

<sup>135</sup> *Next Generation New Build: Delivering super-fast broadband in new build housing developments*  
<http://www.ofcom.org.uk/consult/condocs/newbuild/statement/>

two general types of wholesale access: physical (e.g., duct access) and non-physical (active access).

- 9.105 Given our findings in this market review, that a non-physical access product (e.g., VULA) is likely to be the most cost-effective remedy to support competition, we consider that a new build operator should put more emphasis on ensuring that a fit-for-purpose non-physical product is available at the earliest possible opportunity.

#### Approach to CPs using physical remedies

- 9.106 Where OCPs decide to use BT's SLU or PIA products, they would be in control of a greater proportion of the supply chain in the relevant locations. In these circumstances, it is more relevant to consider whether they should also be subject to regulatory remedies.
- 9.107 These physical remedies allow CPs to deploy NGA networks. Generally we expect CPs to use physical remedies in areas where there is not currently an NGA network. In this situation the CPs NGA network will be competing with BT's existing CGA network. Given that we currently consider that broadband of all speeds (i.e., based on CGA and NGA) are in the same market it is unlikely that the CP will have a dominant position in any market as a result of its NGA deployment. For completeness, if the CP deployed a NGA network in an area where an alternative NGA network existed then the CP's NGA network will be competing with both the other NGA network and BT's existing CGA network. So again it is unlikely that the CP will have a dominant position in any market as a result of its NGA deployment.
- 9.108 However, were the CP to take a significant share of a given market over time or if higher broadband speeds were found to be a separate market, we may need to consider whether the CP has SMP in any market and, if so, which regulations are appropriate to impose on the CP. One of our considerations would be the proportionality of regulating CPs in very small, sub-national markets. We would also consider the timing of such an assessment, which might well take place as part of any future market review. Also, we would consider whether the new entrant CP had met reasonable demands for access to its network. We would expect such access to be provided in a way that is broadly in line with the VULA requirements that we have imposed on BT.

#### Remedies and public funding

- 9.109 The strategic importance of NGA means that various investments may be made with the support of public sector finance, whether on a national or a more local scale. It is therefore worth clarifying the link between SMP remedies and any contractual requirements for network access that are imposed in public sector contracts for NGA provision.
- 9.110 The CPs that might receive public funding can be divided into two types:
- those with SMP status - whom we have concluded (in Section 4) are BT and KCOM; and
  - those without SMP status - either building their own wholly new network, or partially using another network (such as that of a CP with SMP in this market).
- 9.111 Those operators with SMP status in the WLA market have to comply in full with their SMP conditions, regardless of the funding arrangements for developing and

delivering a service. The SMP obligations, in effect, represent a minimum set of requirements on the terms of access to their network that such CPs need to grant. There is no flexibility to interpret these SMP obligations differently between different locations or on the basis of different funding arrangements.

- 9.112 Public bodies may wish to include in their contracts with CPs some requirements for more open access to NGA networks than would be required by SMP conditions. From the perspective of SMP obligations, that is a matter between the public bodies and the CPs concerned. The SMP obligations that we impose are framed in a way that they do not constrain public bodies from requiring *more* open terms of access than we might require through the relevant SMP condition. Our concern is strictly about compliance with the obligations that we have judged to be appropriate and proportionate for addressing SMP.
- 9.113 Where CPs are providing NGA access but do not currently have SMP, there is a prospect that such CPs could be designated in the future as having SMP status. Similarly, we could in future extend the requirements on existing SMP providers. Any such changes could be imposed in a future Ofcom market review. This raises the prospect that contracts between public bodies and CPs would not include the minimum SMP requirements that we decide in future are required. In deciding on SMP remedies, we are required legally to impose what we consider to be appropriate to address that SMP, regardless of existing contractual arrangements. We therefore advise parties to such contracts to ensure that they include appropriate variation clauses to accommodate potential future SMP conditions.
- 9.114 We cannot prejudge in advance the type of access conditions that may be imposed on currently unregulated CPs. However, as an indication we suggest that CPs and public bodies that may be party to such contracts should review the access conditions that we have imposed on BT and KCOM in this market review and consider the potential changes in technology discussed in this section.
- 9.115 In terms of enforcing access obligations on funded CPs, we would consider enforcement action for any breaches of SMP conditions. It is not, however, our role to monitor, or take enforcement action in relation to, CPs' contracts with public providers, regardless of whether or not the CP in question has SMP.
- 9.116 We note that the Commission produces Guidelines on the criteria required for approval of State Aid ("the State Aid guidelines"), which include references to NGA investment<sup>136</sup>. Since their publication, a degree of flexibility appears to have been introduced when applying the State Aid guidelines, aimed at promoting NGA investment<sup>137</sup>. However, the State Aid guidelines suggest that approval for State Aid should be granted only if appropriate forms of physical access, which may include fibre access, are a contractual requirement on the CP concerned. In our assessment of SMP remedies, we explained why we are not currently imposing fibre access as a specific SMP remedy in this market. Our assessment for the purpose of applying SMP remedies is, however, without prejudice to any additional conditions covered by State Aid requirements. It would be up to the potential parties to the contract to make a case to the Commission that the mix and nature of the access remedies available is proportionate in each individual case and sufficient to warrant approval on State

<sup>136</sup> *Community Guidelines for the application of State aid rules in relation to rapid deployment of broadband networks*, 20 September 2009 - <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2009:235:0007:0025:EN:PDF>

<sup>137</sup> <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/10/31&format=HTML&aged=0&language=EN&guiLanguage=en>

Aid grounds. The Commission expects to consult during 2011 on revising the State Aid Guidelines.

- 9.117 Ofcom is currently working with Government to produce updated guidance on publicly-funded broadband schemes and new build investment. We anticipate that this will be published later this year.

## Summary and analysis of consultation responses

- 9.118 A limited number of respondents made comments on access to new build and non-SMP providers. Most of these comments expressed a desire for more open access from non-SMP providers. BT suggested that access to both new build providers and Virgin Media was necessary to meet broader public policy objectives. The Ofcom Advisory Committee for Wales suggested that vertically integrated providers with a UK retail turnover of over £1000m should have to provide “the same interconnect freedom” as dominant CPs. Geo also supported any NGA network allowing multiple service providers to lease ‘open access’ infrastructure (separating infrastructure ownership and downstream services).
- 9.119 SSE stated that some new build CPs are finding it difficult to establish interfaces that allow multiple SPs to provide services to customers attached to the networks concerned, allowing choice and easy switching. It suggested that BT could be required to provide a ‘hosting’ service that allows customers on these networks to be accessed by OCPs via BT’s service management systems.
- 9.120 In response, we would note that in a market review it is not possible to impose access obligations on non-SMP providers. As set out above, it may be that such providers will attain SMP status at some point, and for new build providers we have set out certain expectations. However, we would not support Geo’s position of vertical separation for all NGA networks, because we do not consider that to be an appropriate and proportionate approach for securing competition and investment. In response to SSE’s point, we do not consider that it would be proportionate to mandate a hosting obligation on Openreach to address the (assumed) SMP of other providers, rather than its own. However, we note that there may be commercial incentives for an aggregator to emerge.
- 9.121 Geo suggested that NRAs are required to implement the right conditions for competition and market entry under the State Aid guidelines, as well as under the EU Framework. It also suggested that we should consider the requirements in the State Aid Guidelines when deciding on SMP remedies.
- 9.122 In reply, we note that the SMP framework and the State Aid Guidelines sit alongside each other and operate independently. Further, we are not responsible for the implementation of State Aid decisions. The State Aid guidelines are produced for the Commission to follow, and the body granting the state aid – not Ofcom – has the obligations in terms of compliance. Also, the criteria in the State Aid Guidelines differ to those for SMP remedies, as the proportionality/economic feasibility of access remedies is not considered in the current State Aid Guidelines, whereas NRAs must take account of those factors when determining remedies. The relevance of any existing State Aid-based remedies is therefore limited to the extent that contracting authorities and providers that are party to providing access under State Aid terms should be aware of the existence of the SMP regime and its potential application to their services.

- 9.123 KCOM and DRL noted our comments on the regulation of CPs in isolated geographic areas and the potential differences in access requirements between State Aid rules and SMP obligations. KCOM considered that we should treat small regional NGA developments in a way that is consistent with how it treats KCOM when assessing SMP and considering appropriate regulation. DRL stated that it would expect us to take an appropriate and proportionate approach to SMP and remedies for such deployments (although making no parallel with the regulation of KCOM).
- 9.124 In reply, we consider that the position set out in the consultation document remains appropriate on this issue. We have set out certain expectations of new build providers. For such developments, as for commercial brownfield developments (see paragraphs 9.104-9.106), we would apply our standard analytical approach when assessing SMP and considering regulations, and our decisions will depend on the individual circumstances. We note that our position on the regulation of KCOM has been shaped by the level of demand from CPs to compete in Hull. If circumstances elsewhere differed, that would be taken into account when considering appropriate remedies.

## Conclusions

- 9.125 Following consideration of responses, we conclude that the package of proposals set out in the consultation document is well suited to achieve the objectives of supporting competition and investment. Some of the comments made in responses are not relevant or applicable in the context of a market review. Where they concern issues that are relevant to the remedies imposed on BT and KCOM in this market review, we do not consider that the points raised justify a departure from the proposals set out in the consultation document.

## Summary of decisions on remedies

- 9.126 Our overall conclusions on specific access remedies, to supplement the general access remedies covered in Section 5, are as follows.

### Remedies on BT

- 9.127 We have decided to apply the following specific remedies to BT:

- existing remedies that are continued:
  - requirement to provide Local Loop Unbundling (LLU);
  - requirement to provide Sub Loop Unbundling (SLU);
- new remedies that are added:
  - requirement to provide Virtual Unbundled Local Access (VULA); and
  - requirement to provide Physical Infrastructure Access (PIA).

### Remedies on KCOM

- 9.128 We have decided that no specific remedies should apply to KCOM, mainly because we still consider that there is not clear evidence of demand from OCPs for such access products from KCOM. Also, it is not clear that, should demand materialise, that exactly the same products would be required. Taking these factors into account

we consider that not imposing specific access remedies is the appropriate and proportionate approach. However, as discussed in Section 5 we have re-imposed a requirement on KCOM to provide network access on request, and we have added a requirement on it to develop an SOR process for new network access. Both of these requirements are designed to enable OCPs to request network access from KCOM.

### **Regulation of other CPs**

- 9.129 In this market review, we only have legal powers to apply SMP remedies to providers that are found to have SMP in the WLA market. We have concluded that only BT and KCOM have SMP in this market and therefore we are not applying any specific remedies to other providers.
- 9.130 However, our 'New Build' guidance for those developers and CPs deploying access networks to new housing developments continues to apply.

## Section 10

# Legal tests for specific access remedies

## Introduction

- 10.1 We discuss the need for imposing specific access remedies on BT in Sections 6 to 9, including the reasons why it would be proportionate to impose them. This section summarises why we consider that each individual specific access remedy that we are imposing meets the relevant legal tests specified in the Act. This summary should, however, be read in conjunction with Sections 5 to 9.
- 10.2 We refer in Section 5 to the legal tests in section 88 of the Act in relation to the pricing obligations that we are imposing for these specific access remedies.

## Local Loop Unbundling Services (LLU)

### Aim and effect of regulation

#### Consultation proposals

- 10.3 In the consultation document, we proposed to maintain the obligation on BT specifically to provide LLU services on fair and reasonable terms, conditions, and charges to all OCPs who reasonably request in writing such services. We further proposed changes to the existing LLU obligations under SMP condition FA9 to separate into distinct SMP conditions the obligations on BT to provide network access to MPF or to the non-voice band frequency of MPF (known as 'Shared Access'), on the one hand (i.e., LLU services, now condition FAA9), and access to MPF or Shared Access at an intermediate point prior to the main distribution frame, on the other hand (i.e., SLU services, now condition FAA10). In so doing, we clarified that the main obligations to provide LLU and SLU include, where also so requested, such ancillary services as may be reasonably necessary for the use of those services. We also proposed definitional changes mainly to deal with this restructuring.
- 10.4 As in SMP condition FA9, the proposed condition provides Ofcom with a specific power to issue directions and requires BT to comply with any such directions. The latter compliance requirement is needed as our enforcement powers relate to breaches of conditions and any breach of direction will therefore amount to a breach of the condition itself. We explained in the consultation document that we rely on our statutory powers in section 45(10) of the Act in this regard. Therefore, BT will be required to provide such ancillary services or other network access as Ofcom may from time to time direct to ensure the provision of LLU services. We proposed that we will follow the process in section 49 of the Act in making any such directions.
- 10.5 We also proposed that BT should also be required to include some minimum specific requirements in the RO relevant to LLU services (see SMP condition FAA5.3 (LLU)). We also proposed to give a direction under the proposed condition FAA8 concerning quality of service remedy that would formalise the existing KPI reporting on LLU that BT currently provides through Openreach and the OTA framework.

## Summary and analysis of consultation responses

- 10.6 CPs were supportive of our proposals and sought to continue the existing LLU remedy. LLU was seen to be an effective current generation access remedy in the WLA market that would enable CPs to offer products and services differentiated from those provided by BT, and would ultimately benefit citizens and consumers in many downstream markets.

## Conclusion

- 10.7 LLU is a remedy that supports investment in CGA networks, and provides CPs with network access at a level that enables them to compete effectively with BT and provide their own products and services. To encourage CPs to invest in competing infrastructure the availability of LLU services on cost-oriented terms provides a constraint on BT's to set these charges above cost oriented levels.
- 10.8 Accordingly, having considered our proposals in light of consultation responses on the specific LLU remedy, we have decided that BT should continue to be required to provide LLU on fair and reasonable terms, conditions and charges to all OCPs who reasonably request in writing such services.
- 10.9 As with the other specific access remedies above, LLU has been set as a distinct SMP condition (FAA9). For reasons similar to those remedies, we conclude that, in addition to the main requirement on BT to provide LLU, it includes a requirement to provide such ancillary services as may be reasonably necessary for the use of LLU. In addition, BT should provide such ancillary services or other network access as Ofcom may from time to time direct to ensure the provision of LLU and to require BT to comply with any such directions, again for similar reasons to those discussed above.
- 10.10 We have concluded that BT should also be required to include some minimum specific requirements in the RO relevant to LLU services (see SMP condition FAA5.3 (LLU)), in addition to its other general obligations discussed in Section 5.

## **Legal tests**

- 10.11 We consider that the obligation to provide LLU services, together with such ancillary services as may be reasonably necessary for the use of those services (Condition FAA9), is appropriate and satisfies the other legal tests set out in the Act.
- 10.12 We have considered our duties under section 3 and the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting and securing efficient and sustainable competition and the maximum benefit of customers of communications providers because it will continue to enable OCPs to compete effectively with BT in downstream broadband and narrowband markets with respect to current generation access services. We consider that these services will remain an extremely important element of this market over the forward looking period of this review.
- 10.13 In that way, we consider that the performance of our general duties in section 3 of the Act will also be secured or furthered by or in relation to the LLU remedy, namely to further the interests of citizens in relation to this sector specific regulation and to further the interests of consumers in relevant markets, by promoting competition in this upstream market.

10.14 The condition satisfies the criteria set out in section 47(2) of the Act because it is:

- objectively justifiable, in that it relates to the need to ensure that competition develops ultimately to the benefits of consumers. LLU services are aimed at stimulating competition in the provision of broadband and telephony services and enhancing competition in areas of limited local access competition. Removing the condition could result in BT withdrawing the product or otherwise changing it to the detriment of the existing level of effective downstream competition;
- not unduly discriminatory, as the condition aims to address BT's market power in this market and as the obligation imposed on KCOM to provide network access on reasonable request is sufficient to ensure that KCOM provides LLU services should a reasonable request be made;
- proportionate, in that the requirement is necessary to promote efficient and sustainable competition and the maximum benefit of customers of communications providers, and the means to achieve that aim are the least burdensome on BT, also taking account of the fact that BT already supplies this service; and
- transparent, as it is clear in its intention to require BT to provide LLU services to OCPs and its intended operation should also be aided by our explanations in this document.

10.15 In setting this condition, we have also taken into account the factors set out in section 87(4) of the Act. In particular, the economic viability of OCPs building alternative access networks and the feasibility of BT providing LLU services and we consider the condition should also continue to help ensuring the need to secure effective competition in the long term.

## **Sub-loop Unbundling Services (SLU)**

### **Aim and effect of regulation**

#### Consultation proposals

10.16 In the consultation document, having considered the options (in Section 7 of that document), we proposed to retain the obligation on BT to specifically provide SLU services on fair and reasonable terms, conditions and charges to all OCPs who reasonably request in writing such services.

10.17 We also proposed to separate this SLU obligation into a distinct SMP condition (FAA10), together with other changes similar to those discussed above with regard to LLU. The proposed changes include the provision to Ofcom of a specific power to issue directions, and a requirement on BT to comply with any such directions. The proposed condition did not, however, specify a specific product, thereby allowing CPs to request the product that best suits their needs.

10.18 In contrast to the LLU remedy, we did not propose that BT should be required to include some minimum specific requirements in the RO relevant to SLU. This is because we consider that the existing general requirements are sufficient, given the current stage of SLU's development. However, as with the LLU obligation and other specific access remedies (unless the context suggests otherwise), the general remedies (discussed in Section 6 of the consultation document) would still apply to BT, such as its requirement to produce a RO.

## Summary and analysis of consultation responses

- 10.19 BT was supportive of our SLU remedy as a proportionate response due to uncertain demand in the future, the economically challenging nature of the product, and that it is likely to be used only in limited circumstances.
- 10.20 Other CPs supported our proposals in relation to SLU. CPs requested Ofcom require industrialisation of the SLU products and process. Furthermore, CPs argued charges for SLU products and processes required review. CPs also argued that a stricter application of the cost orientation requirement is required.
- 10.21 In response to issues raised by CPs, our view is that the existing SLU remedy is sufficient. It enables CPs to request changes to BT's SLU product set through a formal process where CPs must provide a clear Statement of Requirements, which BT must then consider. This includes the terms, conditions, and charges that CPs wish to obtain, and BT must consider the economic and practical feasibility of those requirements. Indeed, Digital Region Limited ("DRL") has provided a detailed SoR, indicating that this process can work. Our view at this time is that no further changes are required to the SLU remedy, however we will review this position and may from time to time direct BT to undertake changes in relation to SLU.

## Conclusion

- 10.22 SLU is a remedy that supports OCP investment in network access that enables them to take advantage of the higher speeds SLU is capable of when compared to LLU. Our analysis has indicated that the static cost of competition for SLU is likely to be very high, and therefore it may not strongly encourage competition where there is competing FTTC infrastructure present from another CP. Where there is no other CP providing FTTC services, SLU is a means for CPs to invest in their own infrastructure to provide higher speed services and applications in advance of other CP roll-out. However, the level of demand for these high speed services in the future is uncertain.
- 10.23 The existing requirements are sufficient, given the stage of SLU's development and uncertain demand levels. However, as with the LLU obligation and other specific access remedies (unless the context suggests otherwise), the general remedies discussed in Section 5 would still apply on BT, such as its requirement to produce a RO.
- 10.24 Accordingly, having considered our proposals in light of consultation responses on the specific LLU remedy, we have decided that BT should continue to be required to provide SLU on fair and reasonable terms, conditions and charges to all OCPs who reasonably request in writing such services. The most appropriate place for detailed development of the SLU products and processes at this stage is through a process facilitated by the OTA, and we will continue to monitor developments there.
- 10.25 As with the other specific access remedies above, SLU has been set as a distinct SMP condition (FAA10). For reasons similar to those remedies, we have concluded that, in addition to the main requirement on BT to provide SLU, it includes a requirement to provide such ancillary services as may be reasonably necessary for the use of SLU. In addition, BT should provide such ancillary services or other network access as Ofcom may from time to time direct to ensure the provision of SLU and to require BT to comply with any such directions, again for similar reasons to those discussed above.

## Legal tests

- 10.26 We consider that the obligation to provide SLU services, together with such ancillary services as may be reasonably necessary for the use of those services (Condition FAA10), is appropriate and satisfies the other legal tests set out in the Act.
- 10.27 We have considered our duties under section 3 and the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting and securing efficient and sustainable competition and the maximum benefit of customers of communications providers because it will continue to enable OCPs to compete effectively with BT in downstream narrowband and broadband markets with respect to FTTC-based services. We consider that these services could become an important element of this market over the forward looking period of this review in the event that FTTC-based services are rolled out.
- 10.28 In that way, we consider that the performance of our general duties in section 3 of the Act will also be secured or furthered by or in relation to the SLU remedy, namely to further the interests of citizens in relation to this sector specific regulation and to further the interests of consumers in relevant markets, by promoting competition in this upstream market.
- 10.29 The condition satisfies the criteria set out in section 47(2) of the Act because it is:
- objectively justifiable, in that it relates to the need to ensure that competition develops ultimately to the benefits of consumers. SLU services are aimed at stimulating competition in the provision of broadband and telephony services and enhancing competition in areas of limited local access competition. Removing the condition could result in BT withdrawing the product or otherwise changing it to the detriment of the existing level of downstream competition;
  - not unduly discriminatory, as the condition aims to address BT's market power in this market and as the obligation imposed on KCOM to provide network access on reasonable request is sufficient to ensure that KCOM provides SLU services should a reasonable request be made;
  - proportionate, in that the requirement is necessary to promote efficient and sustainable competition and the maximum benefit of customers of communications providers, and the means to achieve that aim are the least burdensome on BT, also taking account of the fact that BT already supplies this service; and
  - transparent, as it is clear in its intention to require BT to provide SLU services to OCPs and its intended operation should also be aided by our explanations in this document.
- 10.30 In setting this condition, Ofcom has also taken into account the factors set out in section 87(4) of the Act. In particular, the economic viability of OCPs building alternative access networks and the feasibility of BT providing SLU services we consider the condition should also continue to help ensuring the need to secure effective competition in the long term.

## Virtual Unbundled Local Access Services (VULA)

### Aim and effect of regulation

#### Consultation proposals

- 10.31 In the consultation document we proposed to apply a new remedy on BT to provide access to its FTTC and FTTP networks in areas where it has deployed such networks. Access would be a form of non-physical (virtual) access (VULA), which would, as far as possible, replicate many of the features of a physical access remedy, such as LLU. This would enable OCPs to rent data connections over BT's NGA network between local aggregation points and end user premises so they can provide voice and/or data services directly to end users.
- 10.32 VULA would therefore allow OCPs to compete effectively with BT in the provision of NGA services to end users without having to replicate BT's NGA network. VULA also gives OCPs a level of flexibility similar to that of a physical access product, such as LLU, enabling them to innovate and differentiate their services from those provided by BT.
- 10.33 The consultation document proposed that BT should specifically be required to provide VULA on fair and reasonable terms, conditions and charges as soon as reasonably practicable to all OCPs who reasonably request in writing such access.
- 10.34 We proposed that the VULA obligation be set as a distinct SMP condition (FAA11). For reasons similar to LLU and SLU, we also proposed that, in addition to the main requirement on BT to provide VULA, it includes a requirement to provide such ancillary services as may be reasonably necessary for the use of VULA. We further proposed that BT provide such ancillary services or other network access as Ofcom may from time to time direct, again for similar reasons to those discussed for LLU and SLU above.
- 10.35 As regards to the meaning of the VULA, we refer to our more detailed discussion in Section 8 above. For the purposes of SMP condition FAA11, we proposed to define the VULA concept as network access comprising of a virtual circuit between a point of connection at the local serving exchange and a network termination point ("NTP"), which circuit provides such specified capacity as is agreed between BT and the OCP for the OCP's exclusive use. We refer to that draft condition for related definitions of expressions, such as local serving exchange.
- 10.36 In contrast to the LLU and PIA remedies, but similarly to the SLU remedy, we did not propose to require BT to include additional specific information in its VULA RO – additional to the general information set out in FAA5.2. This was because we believed that the existing general requirements were sufficient, given the current status of development of BT's FTTC and FTTP products.
- 10.37 However, in contrast to other proposed specific access remedies, the general obligation on BT not to unduly discriminate in the proposed SMP condition FAA3 would not apply to BT's VULA obligation. We clarified that intention by making it clear in FAA3 that we proposed that Condition FAA11.3 should contain a specific obligation of non-discrimination on BT in relation to VULA.
- 10.38 For VULA, we proposed to take a specific approach to no undue discrimination as discussed in Section 7 of the consultation document and Section 8 above. In particular, we set out our expectation that we would be likely to find BT in breach of it

SMP requirements if it were to provide a non-physical product out of this market to its own downstream divisions without first making this product available to OCPs on the same timescales, terms and conditions (including price and service levels), by means of the same systems and processes and with the same commercial information.

- 10.39 We considered that this approach to no undue discrimination was appropriate, as we expect VULA to be the main basis for competition in NGA-based services for the period covered by this review. We also consider that this approach is proportionate as VULA is a new product and, as such, there will be no need to re-engineer existing products.
- 10.40 The consultation document did not propose setting a price control on BT in respect of its supply of VULA.

### Summary and analysis of consultation responses

- 10.41 The majority of respondents agreed that VULA was, at this time, an appropriate WLA remedy. Although four respondents, Corning, Geo, FTTH Council and Vtesse, disagreed.
- 10.42 Most respondents who commented on the key characteristics for VULA seem to agree with our proposals. One respondent, Sky, suggested that we add a sixth key characteristic for VULA for technology and product evolution and standards. However, respondents made numerous detailed comments in relation to VULA and BT's GEA products, many arguing that we should specify additional product details within the VULA key characteristics. For example, a 'wires-only' product variant and additional control features.
- 10.43 Almost all respondents that commented, with the exception of BT, agreed with our proposal apply a specific form of no undue discrimination in relation to VULA. BT, however, did say that it is in any event committed to providing VULA on the basis of equivalence of input (EoI) in accordance with the BT Undertakings.
- 10.44 BT welcomed our proposed approach to pricing for VULA. However, most other respondents raised concerns about our proposals in this area. A number of respondents felt that we should regulate BT's charges for VULA. Absent regulated charges these respondents, along with some others, felt that there was a risk that BT would introduce inappropriate pricing structures. In particular, they were concerned that BT would set an inappropriately small margin between VULA and downstream product based on VULA, resulting in a margin squeeze. They were also concerned that BT could price variants of VULA in a way that preferred the variants that BT wanted to sell.
- 10.45 In terms of VULA being an appropriate WLA remedy, within our assessment of market definition we considered the vertical market boundary between the WLA and WBA markets and set out our reasons for concluding that, in the context of NGA, it is possible that non-physical products could form part of the WLA market, if they have certain characteristics. When assessing potential remedies we concluded that physical remedies alone, i.e., SLU and PIA, were unlikely to support effective competition in NGA-based services in downstream markets, due to the high cost of deploying multiple NGA networks in parallel and given the current uncertain demand. Based on this we concluded that VULA is an appropriate WLA remedy.
- 10.46 In terms of the key characteristics for VULA we consider that the five characteristics we set out in the consultation document are relevant and adequate to describe the

high-level features that we consider are necessary in order to be consistent with the WLA market definition and to meet our objective of supporting downstream competition. We do not consider that the sixth characteristic proposed by Sky is necessary or appropriate.

- 10.47 In terms of applying a specific form of no undue discrimination in relation to VULA, we continue to consider that this is appropriate and proportionate.
- 10.48 In terms of our approach to pricing for VULA, we continue to consider that, given the early stage of development in NGA services, pricing flexibility is appropriate. Further, we consider that the general requirement on BT to provide VULA and any ancillary services on fair and reasonable terms, conditions and charges will also us to ensure that BT does not introduce inappropriate pricing structures. A full discussion of these issues is given in Section 8.

### Conclusions

- 10.49 On the basis of the above, and having given consideration to the issues raised by stakeholders in response to the proposals for VULA, we conclude that BT be required to provide VULA services on fair and reasonable terms, conditions and charges as soon as reasonably practicable to all OCPs who reasonably request in writing such services.
- 10.50 We consider that this new remedy on BT to provide VULA services will enable OCPs to rent data connections over BT's NGA network between local aggregation points and end user premises so they can provide voice and/or data services directly to end users. Accordingly, VULA will allow OCPs to compete effectively with BT in the provision of NGA services to end users without having to replicate BT's NGA network. VULA also gives OCPs a level of flexibility similar to that of a physical access product, such as LLU, enabling them to innovate and differentiate their services from those provided by BT.
- 10.51 We also conclude that in providing access to VULA in accordance with SMP condition FA11, BT do so in compliance with the specific form of no undue discrimination obligation as set out in SMP condition FA11.3.

### **Legal tests**

- 10.52 We consider that the obligation to provide VULA services, together with such ancillary services as may be reasonably necessary for the use of those services (Condition FAA11), is appropriate and satisfies the other legal tests set out in the Act.
- 10.53 We have considered our duties under section 3 and the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting and securing efficient and sustainable competition for the maximum benefit of retail customers because it will enable OCPs to compete with BT in downstream narrowband and broadband markets with respect to NGA services in those areas where BT rolls out an NGA network. We consider that these services may become an important element of this market over the forward looking period of this review. In relation to the strict interpretation of no undue discrimination for VULA, we also consider that it would achieve those aims by preventing BT from leveraging its market power into downstream markets.
- 10.54 In that way, we consider that the performance of our general duties in section 3 of the Act will also be secured or furthered by or in relation to this VULA remedy, namely to

further the interests of citizens in relation to this sector specific regulation and to further the interests of consumers in relevant markets, by promoting competition in this upstream market. We have also had particular regard to the desirability of encouraging the availability and use of high speed transfer services throughout the UK in proposing this condition.

10.55 The condition satisfies the criteria set out in section 47(2) of the Act because it is:

- objectively justifiable, in that it relates to the need to ensure that competition develops ultimately to the benefits of consumers. VULA services are aimed at stimulating competition in the provision of broadband and telephony services and enhancing competition in areas of limited local access competition. We consider that, without this specific obligation, it could result in BT not offering wholesale access to its NGA network to the detriment of competition that has developed in this market as BT deploys NGA networks. We consider that VULA will become an important new product that we anticipate will become the primary basis of competition for NGA-based high speed services;
- not unduly discriminatory, as the condition aims to address BT's market power in this market and as the obligation imposed on KCOM to provide network access on reasonable request is sufficient to ensure that KCOM provides VULA services should a reasonable request be made;
- proportionate, in that the requirement is necessary to promote efficient and sustainable competition for the maximum benefit of retail customers with the rollout of NGA networks, and the means to achieve that aim are the least burdensome on BT; and
- transparent, as it is clear in its intention to require BT to provide VULA services to OCPs and its intended operation should also be aided by our explanations in this document.

10.56 In setting this condition, we have also taken into account the factors set out in section 87(4) of the Act. In particular, the economic viability of OCPs building alternative access networks and the feasibility of BT providing VULA services and we consider that the condition should also help ensuring the need to secure effective competition in the long term.

## **Physical Infrastructure Access Services (PIA)**

### **Aim and effect of regulation**

#### Consultation proposals

10.57 We proposed that BT should be required to meet reasonable requests for duct and pole access for specified uses on cost-oriented and on fair and reasonable terms conditions and charges as soon as reasonably practical, and to publish a reference offer. We proposed that such an obligation should include a requirement to provide such ancillary services as may be reasonably necessary for the use of PIA. To enable CPs to fully evaluate the suitability of the PIA service for their purposes we also proposed a set of minimum requirements for the reference offer.

10.58 We proposed, however, that this obligation should be limited to certain specified uses. The specified uses proposed were the deployment of broadband access networks serving multiple residential and business customers.

## Summary and analysis of consultation responses

- 10.59 Most of the consultation respondents supported our proposal that BT should be required to offer OCPs access to its local access network physical infrastructure. BT also supported our proposal in its consultation response, having already announced that it was willing to offer access to its ducts and poles. A third of respondents made some quite detailed comments on PIA, which may indicate a good level of interest in using it. Virgin Media said that it had identified significant opportunities for NGA network deployment using PIA, subject to the service and pricing meeting their needs.
- 10.60 The main points raised by respondents about the detailed proposals concerned the geographic scope of the remedy, the permitted uses of the remedy and the implementation timescale.
- 10.61 Only C&WW commented directly about the legal tests for PIA, stating that in our discussion of the legal tests for PIA in Section 9 of the consultation document, we had not discussed the reasons for restricting the use of PIA to the deployment of broadband access networks. C&WW disagreed with our proposal to restrict usage of PIA arguing that allowing other uses such as backhaul and leased lines would be increase the economies of scope for PIA increasing the likelihood of NGA deployment using PIA. Consequently C&WW disagreed with our conclusion that it had taken account of the legal tests in section 87 (4) of the Act, in particular clause (d) “the need to secure effective competition in the long term”.
- 10.62 Regarding C&WW’s comments about the legal tests, we described the proposed usage limitations of PIA in paragraph 9.48 of the consultation document and referred to the more detailed discussion in Section 7 for our reasoning. This was that the purpose of the remedy is to support competition and infrastructure investment in the deployment of both FTTC and FTTP access networks and that we had therefore limited the scope of the remedy to this purpose.
- 10.63 We consider that restricting the scope of the PIA remedy as proposed is consistent with the need to secure effective competition in the long term because in our view extending the scope of PIA to include leased lines would be unlikely to lead to stimulate much additional investment in NGA networks. Also given the risk of adverse impacts on existing remedies in the leased lines market which might have a negative impact on competition, we consider that it would be appropriate for us to assess the impact on the leased lines market before making any extension of the scope of PIA to include leased lines.

## Conclusions

- 10.64 As also discussed in previous sections, the PIA remedy would enable OCPs to use the physical infrastructure of BT’s local access network (mainly ducts, chambers and poles) to deploy NGA networks.
- 10.65 The physical infrastructure in and on which NGA networks are deployed constitutes a large proportion of the overall cost of NGA network deployment. Ofcom therefore considers that the availability of PIA services on cost-oriented terms will significantly reduce the barrier to NGA network deployment by OCPs and would enable more efficient investment in NGA networks. It therefore promotes competition and investment in NGA networks.

- 10.66 PIA would therefore support the deployment of NGA networks by OCPs and would be particularly relevant in areas where BT does not deploy an NGA network and VULA services would not be available.
- 10.67 As also discussed in previous sections, the new remedy requiring BT to provide PIA services will enable OCPs to use the physical infrastructure of BT's local access network (mainly ducts, chambers and poles) to deploy NGA networks.
- 10.68 The physical infrastructure in and on which NGA networks are deployed constitutes a large proportion of the overall cost of NGA network deployment. Ofcom therefore considers that the availability of PIA services on cost-oriented terms will significantly reduce the barrier to NGA network deployment by OCPs and would enable more efficient investment in NGA networks. It therefore promotes competition and investment in NGA networks.
- 10.69 PIA will therefore support the deployment of NGA networks by OCPs and will be particularly relevant in areas where BT does not deploy an NGA network and VULA services would not be available.
- 10.70 Accordingly, having considered our proposals in light of consultation responses, we have decided that BT should be specifically required to provide PIA services on fair and reasonable terms, conditions and charges as soon as reasonably practicable to all OCPs who reasonably request in writing such services.
- 10.71 As with the other specific access remedies above and as proposed in the consultation document, we consider that this PIA obligation should be set as a distinct SMP condition (FAA12). For reasons similar to those remedies, we conclude that, in addition to the main requirement for BT to provide PIA, it includes a requirement to provide such ancillary services as may be reasonably necessary for the use of PIA. We have further specified that BT should provide such ancillary services or other network access as Ofcom may from time to time direct to ensure the provision of PIA and to require BT to comply with any such directions, again for similar reasons to those discussed above.
- 10.72 As explained in Section 7 and Annex 11, and as for the LLU remedy, we consider that BT should also be required to include some minimum specific requirements in the RO relevant to PIA services (see SMP condition FAA5.3 (PIA)), in addition to its other general obligations discussed in Section 5.
- 10.73 We consider that we should maintain our position set out in the consultation document that BT's PIA obligation should be subject to an important limitation. Namely, BT should be required to provide PIA, together with such ancillary services as may be reasonably necessary for the use of that access, if, and only if, such access and services are to be used by OCPs for the purpose of deployment of broadband access networks serving multiple customers. However as discussed in Section 7, in light of consultation responses we have altered the text of the SMP condition to clarify that whilst PIA must be used to serve multiple premises in a particular geographic area it is not a requirement that both business and residential premises are served. We refer to our discussion in Section 7 above for our reasons in this regard.
- 10.74 As regards the geographic definition of PIA, we refer to our more detailed discussion in Section 7. We consider that we should modify the definition proposed in the consultation document in order to widen the areas in which PIA can be used from the copper network exchange areas to the NGA exchange serving areas. For the

purpose of SMP condition FAA12, we have defined the PIA concept as network access comprising predominantly of the provision of space, anchorage, attachment facilities and/or such other facilities as may be reasonably necessary to permit an OCP to occupy parts of BT's physical infrastructure located between NTPs and Local Access Nodes serving those NTPs, sufficient to facilitate the establishment, installation, operation and maintenance of the OCP's electronic communications network at that location. By Local Access Nodes we mean the exchanges at which BT provides NGA networks or has designated for future provision of NGA networks and other BT exchanges that are reasonably equivalent to the BT-nominated buildings in terms of distance from end user premises and level of aggregation. By physical infrastructure, we specify that this includes any conduit, tunnel, subway, pipe, structure, pole or other thing in, on, by or from which an electronic communications network is or may be installed, supported, carried or suspended.

## Legal tests

- 10.75 We consider that the obligation to provide PIA services, together with such ancillary services as may be reasonably necessary for the use of those services (Condition FAA12), is appropriate and satisfies the other legal tests set out in the Act.
- 10.76 We have considered our duties under section 3 and the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting and securing efficient and sustainable competition and the maximum benefit of customers of communications providers by enabling OCPs to compete with BT in downstream narrowband and broadband markets with respect to NGA services. We consider that these services may become an important element of this market over the forward looking period of this review.
- 10.77 In that way, we consider that the performance of our general duties in section 3 of the Act will also be secured or furthered by or in relation to the PIA remedy, namely to further the interests of citizens in relation to this sector specific regulation and to further the interests of consumers in relevant markets, by promoting competition in this upstream market. We have also had particular regard to the desirability of encouraging the availability and use of high speed transfer services throughout the UK in proposing this condition.
- 10.78 The Condition satisfies the criteria set out in section 47(2) of the Act because it is:
- objectively justifiable, in that it relates to the need to ensure that competition develops to the benefits of consumers. PIA services are intended to promote competition and efficient investment in NGA networks. We consider that, without this specific obligation, it could result in BT not offering wholesale access to its access network to the detriment of the competition that has developed in this market;
  - not unduly discriminatory, as the condition aims to address BT's market power in this market and as the obligation imposed on KCOM to provide network access on reasonable request is sufficient to ensure that KCOM provides PIA services should a reasonable request be made;
  - proportionate, in that the requirement is necessary to promote competition and secure efficient investment in NGA networks for the maximum benefit of retail customers, and the means to achieve that aim are the least burdensome on BT; and

- transparent, as it is clear in its intention to require BT to provide PIA to OCPs and its intended operation should also be aided by our explanations in this document.

10.79 In applying this condition, we have also taken into account the factors set out in section 87(4) of the Act. In particular, the feasibility and the technical and economic viability for BT to provide PIA services and we consider the condition should also help ensuring the need to secure effective competition in the long term.

## Section 11

# Next steps

## Introduction

11.1 This section summarises our next steps in relation to this market review, mainly covering the implementation of the new SMP remedies of:

- Physical Infrastructure Access;
- Virtual Unbundled Local Access; and
- Sub-loop unbundling.

## Implementation of WLA remedies

### Physical Infrastructure Access (PIA)

11.2 In Section 7 we discussed implementation timescales for the duct and pole access remedy PIA. BT is required to produce a first version of an RO covering both ducts and poles by 14 January 2011 that meets the minimum specification specified in SMP Condition FAA5. This is about 14 weeks after publication of our statement – slightly longer than the three months that we proposed – to acknowledge that date would otherwise have fallen just after the Christmas holiday period.

11.3 We originally proposed that BT should be required to produce a first reference offer for poles in 6 months because BT considered there are additional complexities associated with pole access that would take longer to address. BT has agreed to bring forward the pole access sections to facilitate industry discussions, however some parts may be less developed than the duct sections and the pole sections may not be suitable for field trials.

11.4 The OTA will then facilitate a three-month industry review of the reference offer in order to refine the service to meet OCPs' needs and to iron out any operational details. The industry review will be accompanied by field trials of PIA to inform the industry discussions. Following the industry review, if required BT will produce a revised reference offer within a further two months. BT would then launch the product, probably with low order volumes initially to allow further testing of the operational processes.

11.5 If required, we will conduct a formal review of BT's charges in order to provide reassurance to industry and to avoid a dispute. Our review would be followed by a consultation on our conclusions, with a direction setting the charges. Also, while preferring BT and OCPs to agree on the details of the RO, if this is not possible we may need to formally consult on a direction to resolve some issues.

11.6 In order to inform the product development activities and the industry discussions, we commissioned a report on the practical and operational issues around shared infrastructure access. The report contains a number of international case studies that examine the issues encountered in other countries and the solutions adopted to

address them. The report 'Operational Models for Shared Duct Access' was published in May 2010 and is available on our website<sup>138</sup>.

### **Virtual Unbundled Local Access (VULA)**

- 11.7 In Section 8 we discussed the objectives of VULA and the key characteristics that we expect VULA to possess. We have also discussed the development of BT's GEA products, which we understand BT intends to provide in order to meet its VULA requirements.
- 11.8 It is clear from the responses, and from general discussion with industry, that further development of BT's GEA products is needed to meet the demands of BT's CP customers. We consider that these developments should be considered and progressed by the industry working groups, with the facilitation of the OTA, in the first instance. We would however note that BT is under a general obligation to provide network access on reasonable request. CPs can therefore formalise their requirements under this requirement and if BT and CPs are unable to agree there is the option for the matter to be submitted to us as a dispute.

### **Sub-loop unbundling (SLU)**

- 11.9 Discussions are currently taking place between BT and other CPs in response to an SoR from DRL, with the OTA performing a facilitating role. We have been encouraged by initial progress within these meetings, and would anticipate that Openreach will continue to make positive progress on SLU through this industry group. While there is not currently a timeframe for resolving all the issues raised by DRL's SoR, we expect BT and interested CPs to maintain momentum and conclude these discussions as soon as reasonably practicable. Alongside considering these product developments, BT is also currently reviewing its SLU prices.
- 11.10 As set out in paragraphs 9.56-9.60 above, whilst we support each of the remedies, it is important that we set clear priorities where there are resource constraints. Whilst there has been a recent increase in the level of interest in SLU, we consider that VULA and PIA should have a higher priority than SLU when deciding on the commitment of Ofcom resources over the next 6-12 months. We can, of course, reconsider this prioritisation if there is clear evidence of a change in the relative demand for these products.

### **The role of the OTA**

- 11.11 The OTA's remit in terms of WLA products has previously covered both LLU and SLU. With BT's knowledge, we have now asked the OTA to extend its remit into all WLA specific access remedies – thereby adding VULA and PIA. The OTA has accepted this extension, and its existing terms of reference have been extended to apply to these two new remedies.
- 11.12 In line with our resource prioritisation between remedies described above, and for the same reasons, we consider that the priorities of the OTA should also be focused more on VULA and PIA than on SLU, to the extent that they give rise to conflicting requirements. The OTA will continue to be involved in developments on LLU.

<sup>138</sup> Operational Models for Shared Duct Access, [http://stakeholders.ofcom.org.uk/binaries/consultations/wla/annexes/operational\\_models.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/wla/annexes/operational_models.pdf)

### **KCOM Statement of Requirements process**

- 11.13 As set out in Sections 5 and 9, we are not requiring KCOM to implement new access products. However, we are imposing on it an additional requirement for New Network Access, which will mean that it has to produce a Statement of Requirements process to set out how CPs should request access products.
- 11.14 We have not imposed a firm deadline in the relevant SMP condition, but we consider that three months is a reasonable timeframe for KCOM to publish this new process in respect of WLA products.

## Annex 1

# Market review process

## Introduction

- A1.1 This annex provides an overview of the market review process to give some additional context and understanding of the matters discussed in the main body of this document and the legal instruments (statutory notifications) published at Annexes 2 and 3.
- A1.2 Market review regulation is technical and complex, including the legislation and the recommendations and guidelines that we need to consider as part of the process. There may be many relevant documents depending on the market and/or issues in question. This overview does not purport to give a full and exhaustive account of all such materials that we have considered in reaching our preliminary views on this market. Key aspects of materials relevant to this market review are, however, discussed in this document.

## Market review concept

- A1.3 The concept of a market review refers to procedures under which we at regular intervals identify relevant markets appropriate to national circumstances, carry out analyses of these markets to determine whether they are effectively competitive and then decide on appropriate remedies (known as SMP obligations or conditions). We explain the concept of SMP (significant market power) below.
- A1.4 In carrying out this work, we act in our capacity as the sector-specific regulator for the UK communications industries, particularly relating to our role as the regulator for telecommunications. Our functions in this regard are to be found in Part 2 of the Communications Act 2003 (the “Act”). We exercise those functions within the framework harmonised across the European Union for the regulation of electronic communications by the Member States (known as the “Common Regulatory Framework” or the “CRF”), as transposed by the Act. The applicable rules<sup>139</sup> are contained in a package of five EC Directives, of which two Directives are immediately relevant for these purposes, namely:
- Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services (the “Framework Directive”); and
  - Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities (the “Access Directive”).
- A1.5 The Directives require that National Regulatory Authorities (“NRAs”) (such as Ofcom) carry out reviews of competition in communications markets to ensure that SMP regulation remains appropriate and proportionate in the light of changing market conditions.
- A1.6 Each market review normally has three stages, namely:

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<sup>139</sup> The Directives have recently been reviewed and amendments were adopted on 19 December 2009. The amendments will need to be transposed into the national legislation by 25 May 2011, and then apply with effect from 26 May 2011.

- the procedure for the identification and definition of the relevant markets (the market definition procedure);
- the procedure for the assessment of competition in each market, in particular whether the relevant market is effectively competitive (the market analysis procedure); and
- the procedure for the assessment of appropriate regulatory obligations (the remedies procedure).

A1.7 These stages are normally carried out together.

## Market definition procedure

A1.8 The Act provides that, before making a market power determination<sup>140</sup>, we must identify the market, which is, in our opinion, the one which, in the circumstances of the UK, is the market in relation to which it is appropriate to consider making such a determination and to analyse that market.

A1.9 The Framework Directive requires that NRAs shall, taking the utmost account of the Recommendation on Relevant Product and Service Markets<sup>141</sup> and SMP Guidelines<sup>142</sup> published by the European Commission, define the relevant markets appropriate to national circumstances, in particular relevant geographic markets within their territory, in accordance with the principles of competition law.

A1.10 The Recommendation identifies a set of product and service markets within the electronic communications sector in which *ex ante* regulation may be warranted. Its purpose is twofold. First, seeking to achieve harmonisation across the single market by ensuring that the same markets will be subject to a market analysis in all Member States. Secondly, providing legal certainty by making market players aware in advance of the markets to be analysed. However, NRAs are able to regulate markets that differ from those identified in the Recommendation where this is justified by national circumstances taking account of the three cumulative criteria referred to in the Recommendation<sup>143</sup> (the “three-criteria test”) and where the European Commission does not raise any objections.

A1.11 The fact that an NRA identifies the product and service markets listed in the Recommendation or identifies other product and service markets that meet the three-criteria test does not mean that regulation is warranted. Market definition is

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<sup>140</sup> The market power determination concept is used in the Act to refer to a determination that a person has SMP in an identified services market.

<sup>141</sup> 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 communication networks and services.

<sup>142</sup> 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).

<sup>143</sup> The Recommendation states that, “[w]hen identifying markets other than those set out in the Annex, national regulatory authorities should ensure that the following three criteria are cumulatively met: (a) the presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature; (b) a market structure which does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry; (c) the insufficiency of competition law alone to adequately address the market failure(s) concerned.”

not an end in itself but is a means of assessing effective competition. The three-criteria test is also different from the SMP assessment because the test's focus is on the general structure and market characteristics.

- A1.12 The relationship between the market definition identified in this review and the ones listed in the Recommendation is discussed in Section 3 of this document.
- A1.13 The SMP Guidelines make clear that market definition is not a mechanical or abstract process. It requires an analysis of any available evidence of past market behaviour and an overall understanding of the mechanics of a given sector. As market analyses have to be forward-looking, the Guidelines state that NRAs should determine whether the market is prospectively competitive, and thus whether any lack of effective competition is durable, by taking into account expected or foreseeable market developments over the course of a reasonable period. They clarify that NRAs enjoy discretionary powers which reflect the complexity of all the relevant factors that must be assessed (economic, factual and legal) when identifying the relevant market and assessing whether an undertaking has SMP.
- A1.14 The SMP Guidelines also describe how competition law methodologies may be used by NRAs in their analyses. In particular, there are two dimensions to the definition of a relevant market: the relevant products to be included in the same market and the geographic extent of the market. Ofcom's approach to market definition follows that used by the UK competition authorities, which is in line with the approaches adopted by the European Commission.
- A1.15 While such methodologies are being used in identifying the *ex ante* markets, they will not necessarily be identical to markets defined in individual competition law cases. This may be the case, especially as the former is based on an overall forward-looking assessment of the structure and the functioning of the market under examination. Accordingly, the economic analysis carried out for the purpose of this review, including the identified markets, is without prejudice to any analysis that may be carried out in relation to any investigation pursuant to the Competition Act 1998 (relating to the application of the Chapter I or II prohibitions or Article 101 or 102 of the EC Treaty) or the Enterprise Act 2002.

## Market analysis procedure

### Effective competition

- A1.16 The Act requires that, at such intervals as we consider appropriate, we carry out market analyses of identified markets for the purpose of making or reviewing market power determinations. In any event, such analyses are to be carried out as soon as reasonably practicable after recommendations are made by the European Commission that affect matters that were taken into account, or could have been taken into account, in the case of our last analysis of that market.
- A1.17 In carrying out a market analysis, the key issue for an NRA is to determine whether the market in question is *effectively competitive*. The 27<sup>th</sup> recital to the Framework Directive clarifies the meaning of that concept. Namely, “[it] is essential that *ex ante* regulatory obligations should only be imposed where there is not effective competition, i.e., in markets where there are one or more undertakings with significant market power, and where national and Community competition law remedies are not sufficient to address the problem”.

- A1.18 The definition of SMP is equivalent to the concept of dominance as defined in competition law. The Framework Directive requires, however, that NRAs must carry out market analysis taking the utmost account of the SMP Guidelines. The latter emphasise that NRAs should undertake a thorough and overall analysis of the economic characteristics of the relevant market before coming to a conclusion as to the existence of significant market power.
- A1.19 In that regard, the SMP Guidelines set out, additionally to market shares, a number of criteria that can be used by NRAs to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers, including (a) overall size of the undertaking; (b) control of infrastructure not easily duplicated; (c) technological advantages or superiority; (d) absence of or low countervailing buying power; (e) easy or privileged access to capital markets/financial; (f) resources; (g) product/services diversification (e.g., bundled products or services); (h) economies of scale; (i) economies of scope; (j) vertical integration; (k) highly developed distribution and sales network; (l) absence of potential competition; and (m) barriers to expansion. A dominant position can derive from a combination of these criteria, which taken separately may not necessarily be determinative.

### **Sufficiency of competition law**

- A1.20 As part of our overall forward-looking analysis, we must also assess whether competition law by itself (without *ex ante* regulation) is sufficient to address the competition problems identified. Aside from the need to address this issue as part of the three-criteria test, we normally also conclude on this matter in dealing with the appropriate remedies which, as explained below, are based on the nature of the specific competition problems we identify. We always consider the option of no *ex ante* regulation, while noting that the SMP Guidelines clarify that, if NRAs designate undertakings as having SMP, they must impose on them one or more regulatory obligations.
- A1.21 In considering this matter, we bear in mind the specific characteristics of communications markets. Generally, the case for *ex ante* regulation in communications markets is based on the existence of market failures, which, by themselves or in combination, mean that competition might not be able to become established, if the regulator relied solely on its *ex post* competition law powers that are established for dealing with more conventional sectors of the economy. Therefore, it is appropriate for *ex ante* regulation to be used to address these market failures and any entry barriers that might otherwise prevent effective competition from becoming established. By imposing *ex ante* regulation that promotes competition, it may be possible to reduce such regulation over time, as markets become more competitive, and instead place greater reliance on *ex post* competition law.
- A1.22 *Ex post* competition law is also unlikely in itself to bring about effective competition, as it prohibits the abuse of dominance rather than the holding of a dominant position. In contrast, *ex ante* regulation is normally needed to promote actively the development of competition. *Ex ante* regulation attempts to reduce the level of market power in a market, thereby encouraging effective competition to become established. This is particularly the case when addressing the effects of network externalities, because the network externality effect generally re-enforces a dominant position and, as noted above, under general competition law there is no prohibition on the holding of a position of dominance in itself. Therefore, it is more

appropriate to address the impact of network externality through *ex ante* obligations.

- A1.23 Additionally, unless we consider otherwise in relation to a specific obligation in this review, we generally take the view that *ex ante* regulation is needed to create legal certainty for the market under review. Linked to that certainty is the fact that the SMP obligations we have proposed are necessary to enable us to intervene in a timely manner. For some other specific obligations, we generally consider that they are needed as competition law would not remedy the particular market failure, or we believe that specific clarity and detail of the obligation is required to achieve a particular result.

## Remedies procedure

### Powers and legal tests

- A1.24 The Framework Directive prescribes what regulatory action NRAs must take depending upon whether or not the market in question has been found effectively competitive. Where a market has been found effectively competitive, NRAs are not allowed to impose SMP obligations and must withdraw such obligations where they already exist. On the other hand, where the market is found not effectively competitive, the NRAs must identify the undertakings with SMP on that market and then impose appropriate obligations.
- A1.25 NRAs have a suite of regulatory tools at their disposal, as reflected in the Act. Specifically, the Access Directive specifies a number of SMP obligations, including transparency, non-discrimination, accounting separation, access to and use of specific network elements and facilities, price control and cost accounting. When imposing a specific obligation, the NRA will need to demonstrate that the obligation in question is based on the nature of the problem identified, proportionate and justified in the light of the policy objectives as set out in Article 8 of the Framework Directive, as implemented by national law.
- A1.26 Specifically, for each and every proposed SMP obligation we explain why it satisfies the test that the obligation is: (a) *objectively justifiable* in relation to the networks, services, facilities, apparatus or directories to which it relates; (b) *not such as to discriminate unduly* against particular persons or against a particular description of persons; (c) *proportionate* to what the condition or modification is intended to achieve; and (d) in relation to what it is intended to achieve, *transparent*.
- A1.27 Additional legal requirements may also need to be satisfied depending on the SMP obligation in question, for example, for price controls where the NRA's market analysis must indicate that the lack of effective competition means that the operator concerned might sustain prices at an excessively high level, or apply a price squeeze, to the detriment of end users. In that instance, NRAs must take into account the investment made by the operator and allow him a reasonable rate of return on adequate capital employed, taking into account the risks involved, as well as ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximise consumer benefits. Where an obligation to provide third parties with network access is considered appropriate, NRAs must take into account factors including the feasibility of the proposed network access, the technical and economic viability of creating networks that would make the network access unnecessary and the investment of the network operator who is required to provide access.

A1.28 To the extent relevant to this review, we demonstrate the application of these requirements to the SMP obligations in question at Sections 5 to 10 of this document. In doing so, we also set our assessment of how, in our opinion, the performance of our general duties under section 3 of the Act is secured or furthered by our regulatory intervention, and that it is in accordance with the six Community requirements in section 4 of the Act. This assessment is also relevant to our assessment of the likely impact of implementing our proposals. A number of specific points should be noted in this regard.

### **Ofcom's general duties – section 3 of the Act**

A1.29 Under the Act, our principal duty in carrying out functions is to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate by promoting competition.

A1.30 In so doing, we are required to secure a number of specific objectives and to have regard to a number of matters set out in section 3 of the Act. As to the prescribed specific statutory objectives in section 3(2), we consider that the objective of securing the availability throughout the UK of a wide range of electronic communications services as particularly relevant to this review.

A1.31 In performing our duties, we are also required to have regard to a range of other considerations, as appear to us to be relevant in the circumstances. In this context, we consider that a number of such considerations are relevant, namely:

- the desirability of promoting competition in relevant markets;
- the desirability of encouraging investment and innovation in relevant markets; and
- the desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom.

A1.32 We have also had regard to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent, and targeted only at cases in which action is needed, as well as the interest of consumers in respect of choice, price, quality of service and value for money.

A1.33 Ofcom has, however, a wide measure of discretion in balancing its statutory duties and objectives. In so doing, we have taken account of all relevant considerations, including responses received during our consultation process, in reaching our conclusions.

### **European Community requirements for regulation – section 4 of the Act**

A1.34 As noted above, our functions exercised in this review fall under the CRF. As such, section 4 of the Act requires us to act in accordance with the six European Community requirements for regulation.

A1.35 In summary, these six requirements are:

- to promote competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;
- to contribute to the development of the European internal market;

- to promote the interests of all persons who are citizens of the European Union;
- to take account of the desirability of Ofcom's carrying out of its functions in a manner which, so far as practicable, does not favour one form of or means of providing electronic communications networks, services or associated facilities over another, i.e., to be technologically neutral;
- to encourage, to such extent as Ofcom considers appropriate for certain prescribed purposes, the provision of network access and service interoperability, namely securing efficient and sustainable competition and the maximum benefit for customers of communications providers;
- to encourage compliance with certain standards in order to facilitate service interoperability and secure freedom of choice for the customers of communications providers.

A1.36 We consider that the first, third, fourth and fifth of those requirements are of particular relevance to the matters under review and that no conflict arises in this regard with those specific objectives in section 3 that we consider are particularly relevant in this context.

### **Impact assessment – section 7 of the Act**

A1.37 The analysis presented in the whole of this document represents an impact assessment, as defined in section 7 of the Act.

A1.38 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which means that generally Ofcom has to carry out impact assessments where its proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of its policy decisions. For further information about Ofcom's approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on the Ofcom website: [http://www.ofcom.org.uk/consult/policy\\_making/guidelines.pdf](http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf)

A1.39 Specifically, pursuant to section 7, an impact assessment must set out how, in our opinion, the performance of our general duties (within the meaning of section 3 of the Act) is secured or furthered by or in relation to what we propose.

A1.40 Ofcom is separately required by statute to assess the potential impact of all our functions, policies, projects and practices on race, disability and gender equality. Equality impact assessments (EIAs) also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers regardless of their background or identity. Unless we otherwise state in this document, it is not apparent to us that the outcome of our review is likely to have any particular impact on race, disability and gender equality. Specifically, we do not envisage the impact of any outcome to be to the detriment of any specific group of society.

A1.41 Nor have we carried out separate EIAs in relation to race or gender equality or equality schemes under the Northern Ireland and Disability Equality Schemes. This

is because we anticipate that our regulatory intervention will affect all industry stakeholders equally and therefore not have a differential impact in relation to people of different gender or ethnicity, on consumers in Northern Ireland or on disabled consumers compared to consumers in general. Similarly, we have not made a distinction between consumers in different parts of the UK or between consumers on low incomes. Again, we believe that our intervention will not have a particular effect on one group of consumers over another.

## **Regulated entity**

- A1.42 The power in the Act to impose an SMP obligation by means of an SMP services condition provides that it is to be applied only to a 'person' whom we have determined to be a 'person' having SMP in a specific market for electronic communications networks, electronic communications services or associated facilities (i.e., the 'services market').
- A1.43 The Framework Directive requires that, where an NRA determines that a relevant market is not effectively competitive, it shall identify 'undertakings' with SMP on that market and impose appropriate specific regulatory obligations. For the purposes of EC competition law, 'undertaking' includes companies within the same corporate group (*Viho v Commission Case C-73/95 P [1996] ECR I-5447*), for example, where a company within that group is not independent in its decision making.
- A1.44 We consider it appropriate to prevent a dominant provider to whom a SMP service condition is applied, which is part of a group of companies, exploiting the principle of corporate separation. The dominant provider should not use another member of its group to carry out activities or to fail to comply with a condition, which would otherwise render the dominant provider in breach of its obligations.
- A1.45 Accordingly, we are seeking to apply the SMP conditions as relevant to BT and KCOM and we have defined each company as including any of its subsidiaries or holding companies, or any subsidiary of such holding companies (as defined by section 1159 of the Companies Act 2006).

## Annex 2

# Legal Instrument

## NOTIFICATION UNDER SECTIONS 48(1) AND 79(4) OF THE COMMUNICATIONS ACT 2003

### Identifying markets, making market power determinations and the setting of SMP services conditions in relation to BT and KCOM under section 45 of the Communications Act 2003

#### Background

1. On 16 December 2004, the Office of Communications (“Ofcom”) published a statement entitled *Review of the wholesale local access market – Identification and analysis of markets, determination of market power and setting of SMP conditions – Explanatory statement and notification*<sup>144</sup> (the “**2004 Notification**”) identifying the services markets of wholesale local access services, making market power determinations and setting SMP services conditions applying to BT and KCOM.
2. On 22 July 2004, Ofcom published a statement entitled *The regulatory financial reporting obligations on BT and Kingston Communications Final statement and notification*<sup>145</sup> (the “**2004 Regulatory Accounting Notification**”) imposing various regulatory financial reporting obligations on BT and KCOM (as amended).
3. On 30 November 2005, Ofcom published a statement entitled *Local loop unbundling setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6*<sup>146</sup> setting and amending further SMP obligations on BT and KCOM. On 20 March 2008, Ofcom published a statement entitled *Service level guarantees: incentivising performance*<sup>147</sup>, giving a Direction to BT requiring it to make amendments in relation to Service Level Guarantees for Local Loop Unbundling Services.
4. On 22 May 2009, Ofcom published a statement entitled *A new pricing framework for Openreach*<sup>148</sup> setting SMP Condition FA3(A), which imposed charge controls on BT in respect of products/services falling within the market identified in the 2004 Notification and withdrew certain SMP obligations (the “**2009 Notification**”).
5. On 23 March 2010, Ofcom published a consultation entitled *Review of the wholesale local access market Consultation on market definition, market power determinations and remedies* on proposals reviewing market definitions, market analyses, and where

<sup>144</sup> *Review of the wholesale local access market*, 16 December 2004

(<http://www.ofcom.org.uk/consult/condocs/rwlam/statement/rwlam161204.pdf>)

<sup>145</sup> *The regulatory financial reporting obligations on BT and Kingston Communications Final statement and notification*, 22 July 2004

([http://www.ofcom.org.uk/consult/condocs/fin\\_reporting/fin\\_report\\_statement/finance\\_report.pdf](http://www.ofcom.org.uk/consult/condocs/fin_reporting/fin_report_statement/finance_report.pdf))

<sup>146</sup> *Local loop unbundling setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6*, 30 November 2005,

[http://www.ofcom.org.uk/consult/condocs/llu/statement/llu\\_statement.pdf](http://www.ofcom.org.uk/consult/condocs/llu/statement/llu_statement.pdf)

<sup>147</sup> *Service level guarantees: incentivising performance*, 20 March 2008,

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

<sup>148</sup> *A new pricing framework for Openreach*, 22 May 2009

(<http://www.ofcom.org.uk/consult/condocs/openreachframework/statement/statement.pdf> and <http://www.ofcom.org.uk/consult/condocs/openreachframework/statement/annexes.pdf>)

appropriate, the setting of SMP services conditions (the “**2010 Consultation**”). The 2010 Consultation proposed markets for wholesale local access services for the UK excluding the Hull Area and the Hull Area, and that BT and KCOM had SMP in those respective markets, and that appropriate SMP conditions should be imposed on each of BT and KCOM.

6. On 1 June 2010 the consultation period for the 2010 consultation closed. Ofcom received responses from communications providers and individuals and comments from the European Commission. Ofcom has carefully considered all responses received.

## **Decisions**

7. Ofcom hereby makes, in accordance with sections 48(1) and 79 of the Act, the following decisions for identifying markets, making market power determinations and the setting of SMP services conditions by reference to such determinations (“SMP service conditions”).

### *Decisions relating to market definition and market power analysis*

8. Ofcom identifies the following markets for the purpose of making market power determinations:
  - (a) wholesale local access services within the United Kingdom, but not including the Hull Area; and
  - (b) wholesale local access services within the Hull Area.
9. Ofcom makes market power determinations that the following persons have significant market power:
  - (a) in relation to the market set out in paragraph 8(a) above, BT; and
  - (b) in relation to the market set out in paragraph 8(b) above, KCOM.
10. The effect of, and Ofcom’s reasons for making, the decisions to identify the markets set out in paragraph 8(a) and 8(b) above and to make the market power determinations set out in paragraph 9(a) and 9(b) above are contained in Sections 3 and 4 of the statement accompanying this Notification.

### *Decisions to set SMP service conditions*

11. Ofcom sets with effect from the date of this Notification SMP conditions on the persons referred to in paragraphs 9(a) and 9(b) above as set out in Schedules 1 and 2, respectively, to this Notification.
12. The effect of, and Ofcom’s reasons for making, the decisions to set those SMP conditions are contained in Sections 5 to 10 of the statement accompanying this Notification.

### *Decisions to modify SMP service conditions*

13. Ofcom makes with effect from the date of this Notification a minor modification to SMP Condition FA3(A) to ensure that it cross-references to the proposed new SMP

condition concerning basis of charges (see paragraph 11 above) in light of the revocation of the existing SMP Condition FA3 (see paragraph 16 below). Accordingly, in paragraph FA3(A).1 of SMP Condition FA3(A) as set out in Schedule 1 to the 2004 Notification, for the reference to Condition FA3, there shall be substituted the reference to Condition FAA4, and Condition FA3(A) shall be read accordingly.

- 14.** Ofcom modifies with effect from the date of this Notification Annex 2 to the 2004 Regulatory Accounting Notification by:
- (a) modifying paragraph 4.a.i. to insert the words “and 18” after “14 to 17a”;
  - (b) modifying the table in Schedule 1 (entitled “Part 1: Wholesale Markets”) to insert a new row at the end of the table, with the first column to read “18. wholesale local access services within the UK, but not including the Hull Area” and, for the second column, to insert the date of the final statement on the proposals relating to that market; and
  - (c) making a minor modification to Schedule 2, amending SMP Condition OA2 in light of our proposed revocation of SMP Condition FA10 (see paragraph 16 below) so that Directions given under Condition FA10.2 are retained, as set out in Schedule 3 to this Notification.
- 15.** The effect of, and Ofcom’s reasons for making, these modifications are contained in Sections 5 to 10 of the statement accompanying this Notification.

#### *Decisions to revoke SMP service conditions*

- 16.** Ofcom revokes with effect from the date of this Notification the following conditions:
- (a) all of the SMP conditions (as modified)<sup>149</sup> set out in Schedule 1 to the 2004 Notification, with the exception of Condition FA3(A); and
  - (b) all of the SMP conditions (as modified)<sup>150</sup> set out in Schedule 2 to the 2004 Notification.
- 17.** The effect of, and Ofcom’s reasons for making, these revocations are contained in Sections 5 to 10 of the statement accompanying this Notification.

#### **Ofcom’s duties and legal tests**

- 18.** In identifying and analysing the markets referred to in this Notification, and in considering whether to make the corresponding decisions, Ofcom has, in accordance with section 79 of the Act, taken due account of all applicable guidelines and recommendations which have been issued or made by the European Commission in pursuance of a Community instrument, and relate to market identification and analysis or the determination of what constitutes significant market power.

<sup>149</sup> The SMP conditions set in the December 2004 review have been amended from time to time. The revocation of the substantive conditions includes any amendment that has subsequently been made to those conditions.

<sup>150</sup> The SMP conditions set in the December 2004 review have been amended from time to time. The revocation of the substantive conditions includes any amendment that has subsequently been made to those conditions.

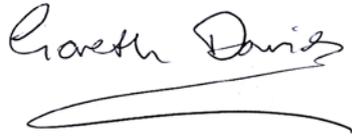
19. Ofcom considers that the SMP conditions referred to above comply with the requirements of sections 45 to 47, 87, 88 and 90 of the Act, as appropriate and relevant to each such SMP condition, and further that the proposed modifications and revocations of the SMP conditions referred to above comply with the requirements of sections 45 to 47, 87 and 88 of the Act as appropriate and relevant to them.
20. In making all of the decisions in this Notification, Ofcom has considered and acted in accordance with section 3 of the Act and the six Community requirements in section 4 of the Act.
21. Copies of this Notification and the accompanying explanatory statement have been sent to the Secretary of State for Business, Innovation and Skills in accordance with section 50(1)(a) and 81(1) of the Act, the European Commission and to the regulatory authorities of every other member State in accordance with sections 50(2) and 81(2) of the Act.

### Interpretation

22. Save for the purposes of paragraph 8 of this Notification and except as otherwise defined in this Notification, words or expressions used shall have the same meaning as they have been ascribed in the Act.
23. In this Notification:
  - (a) **“2004 Notification”** has the meaning given in paragraph 1 above;
  - (b) **“2004 Regulatory Accounting Notification”** has the meaning given in paragraph 2 above;
  - (c) **“2009 Notification”** has the meaning given in paragraph 4 above;
  - (d) **“2010 Consultation”** has the meaning given in paragraph 5 above
  - (e) **“Act”** means the Communications Act 2003 (c. 21)
  - (f) **“BT”** means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;
  - (g) **“Hull Area”** means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications (Hull) plc, (now known as KCOM);
  - (h) **“KCOM”** means KCOM Group plc, whose registered company number is 2150618, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;
  - (i) **“Ofcom”** means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002; and

- (j) “**United Kingdom**” has the meaning given to it in the Interpretation Act 1978 (c. 30).

**24.** The Schedules to this Notification shall form part of this Notification.

A handwritten signature in black ink, appearing to read 'Gareth Davies', with a long, sweeping underline stroke below it.

**GARETH DAVIES**  
Competition Policy Director

A person duly authorised in accordance with paragraph 18 of the Schedule to the Office of Communications Act 2002

7 October 2010

## SCHEDULE 1 – BT CONDITIONS

**The SMP services conditions imposed on BT under sections 45, 87, and 88 of the Communications Act 2003 as a result of the analysis of the market set out in paragraph 8(a) of the Notification in which it is proposed that BT has significant market power (“SMP conditions”)**

### **Part 1: Application, definitions and interpretation relating to the SMP conditions in Part 2**

1. The conditions in Part 2 of this Schedule 1 shall apply to the market identified at paragraph 8(a) of this Notification.
2. In this Schedule:
  - (a) **“Access Charge Change Notice”** has the meaning given to it in Condition FAA6.2;
  - (b) **“Access Contract”** means:
    - (i) a contract for the provision by the Dominant Provider to another person of Network Access to the Dominant Provider’s Electronic Communications Network;
    - (ii) a contract under which Associated Facilities in relation to the Dominant Provider’s Public Electronic Communications Network are made available by the Dominant Provider to another person;
  - (c) **“Act”** means the Communications Act 2003 (c. 21);
  - (d) **“Dominant Provider”** means British Telecommunications plc, whose registered company number is 1800000, and any British Telecommunications plc subsidiary or holding company, or any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;
  - (e) **“Hull Area”** means the area defined as the Licensed Area in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications plc (now known as KCOM);
  - (f) **“MDF Site”** has the meaning given to it in Condition FAA9;
  - (g) **“Metallic Path Facilities”** has the meaning given to it in Condition FAA9;
  - (h) **“Network Component”** means, to the extent they are used in the market identified at paragraph 8(a) of this Notification, the network components specified in any direction given by Ofcom from time to time for the purpose of these Conditions;
  - (i) **“Ofcom”** means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002;
  - (j) **“Reference Offer”** means the terms and conditions on which the Dominant Provider is willing to enter into an Access Contract;
  - (k) **“Third Party”** means either:
    - (i) a person providing a Public Electronic Communications Network; or

(ii) a person providing a Public Electronic Communications Service;

**(l) “Transfer Charge”** means the charge or price that is applied, or deemed to be applied, by the Dominant Provider to itself for the use or provision of an activity or group of activities. For the avoidance of doubt such activities or group of activities include, amongst other things, products and services provided from, to or within the market identified at paragraph 8(a) of this Notification and the use of Network Components in that market;

**(m) “Usage Factor”** means the average usage by any Communications Provider (including the Dominant Provider itself) of each Network Component in using or providing a particular product or service or carrying out a particular activity; and

**(n) “Virtual Unbundled Local Access”** has the meaning given to it in Condition FAA11.

**3.** For the purpose of interpreting the SMP conditions in Part 2:

- (a) except in so far as the context otherwise requires, words or expressions shall have the meaning assigned to them in paragraph 2 of this Part above and otherwise any word or expression shall have the same meaning as it has in the Act;
- (b) the Interpretation Act 1978 (c. 30) shall apply as if each of the SMP conditions in Part 2 were an Act of Parliament; and
- (c) headings and titles shall be disregarded.

## **PART 2: The SMP conditions**

### **Condition FAA1 - Requirement to provide Network Access on reasonable request**

**FAA1.1** Where a Third Party reasonably requests in writing Network Access, the Dominant Provider shall provide that Network Access. The Dominant Provider shall also provide such Network Access as Ofcom may from time to time direct.

**FAA1.2** The provision of Network Access in accordance with paragraph FAA1.1 above shall occur as soon as it is reasonably practicable and shall be provided on fair and reasonable terms, conditions and charges and on such terms, conditions and charges as Ofcom may from time to time direct.

**FAA1.3** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

**FAA1.4** The Direction dated 20 March 2008 concerning service level agreements, as published on the same day at Annex 2 of the statement entitled '*Service level guarantees: incentivising performance*', given by Ofcom under Condition FA1.2 shall continue to have force, until such time it is modified or withdrawn, as if it has been given under Condition FAA1.2 from the date that this Condition enters into force and that Direction shall be read accordingly.

### **Condition FAA2 – Requests for new Network Access**

**FAA2.1** The Dominant Provider shall, for the purposes of transparency, publish reasonable guidelines, in relation to requests for new Network Access made to it. Such guidelines shall detail:

- (a) the form in which such a request should be made;
- (b) the information that the Dominant Provider requires in order to consider a request for new Network Access; and
- (c) the time-scales in which such requests will be handled by the Dominant Provider.

**FAA2.2** These guidelines shall meet the following principles:

- (a) the process should be documented end-to-end;
- (b) the timescales for each stage of the process shall be reasonable;
- (c) the criteria by which requests will be assessed shall be clearly identified; and
- (d) any changes to the guidelines be agreed between the Dominant Provider and industry.

**FAA2.3** The Dominant Provider shall, upon a reasonable request from a Third Party considering making a request for new Network Access, provide that Third Party with information so as to enable that Third Party to make a request for new Network Access. Such information shall be provided within a reasonable period.

**FAA2.4** On receipt of a written request for new Network Access, the Dominant Provider shall deal with the request in accordance with the guidelines described at paragraph FAA2.1 above. A modification of a request for new Network Access which has previously been submitted to the Dominant Provider, and rejected by the Dominant Provider, shall be considered as a new request.

**FAA2.5** The Dominant Provider is required to provide Ofcom with a description of the processes it has put in place to ensure compliance with this Condition. The Dominant Provider shall keep those processes under review to ensure that they remain adequate for that purpose. Where changes to the process are agreed with industry, the Dominant Provider should notify Ofcom of those changes.

### **Condition FAA3 – Requirement not to unduly discriminate**

**FAA3.1** The Dominant Provider shall not unduly discriminate against particular persons or against a particular description of persons, in relation to matters connected with Network Access.

**FAA3.2** In this Condition, the Dominant Provider may be deemed to have shown undue discrimination if it unfairly favours to a material extent an activity carried on by it so as to place at a competitive disadvantage persons competing with the Dominant Provider.

**FAA3.3** This Condition shall not apply to the requirement on the Dominant Provider to provide Virtual Unbundled Local Access under Condition FAA11. For the avoidance of any doubt, Condition FAA11.3 contains a specific obligation of non-discrimination on the Dominant Provider in relation to such provision.

### **Condition FAA4 – Basis of charges**

**FAA4.1** Unless Ofcom directs otherwise from time to time, the Dominant Provider shall secure, and shall be able to demonstrate to the satisfaction of Ofcom, that each and every charge offered, payable or proposed for Network Access covered by Condition FAA1 and/or Conditions FAA9, FAA10 and FAA12 is reasonably derived from the costs of provision based on a forward looking long run incremental cost approach and allowing an appropriate mark up for the recovery of common costs including an appropriate return on capital employed.

**FAA4.2** For the avoidance of any doubt:

- (a) this Condition FAA4 shall not apply to the requirement on the Dominant Provider to provide Virtual Unbundled Local Access under Condition FAA11; and
- (b) except for the charge for MPF Rental, where the charge offered, payable or proposed for Network Access covered by Condition FAA1 and/or Condition FAA9 is for a service which is subject to a charge control under Condition FA3(A), the Dominant Provider shall secure, and shall be able to demonstrate to the satisfaction of Ofcom, that such a charge satisfies the requirements of paragraph FAA4.1 above.

## **Condition FAA5 – Requirement to publish a Reference Offer**

**FAA5.1** Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish a Reference Offer and act in the manner set out below.

**FAA5.2** Subject to paragraph FAA5.10 below, the Dominant Provider shall ensure that a Reference Offer in relation to the provision of Network Access includes at least the following:

- (a)** a description of the Network Access to be provided, including technical characteristics (which shall include information on network configuration where necessary to make effective use of Network Access);
- (b)** the locations of the points of Network Access;
- (c)** the technical standards for Network Access (including any usage restrictions and other security issues);
- (d)** the conditions for access to ancillary, supplementary and advanced services (including operational support systems, information systems or databases for pre-ordering, provisioning, ordering, maintenance and repair requests and billing);
- (e)** any ordering and provisioning procedures;
- (f)** relevant charges, terms of payment and billing procedures;
- (g)** details of interoperability tests;
- (h)** details of traffic and network management;
- (i)** details of maintenance and quality as follows:
  - (i) specific time scales for the acceptance or refusal of a request for supply and for completion, testing and hand-over or delivery of services and facilities, for provision of support services (such as fault handling and repair);
  - (ii) service level commitments, namely the quality standards that each party must meet when performing its contractual obligations;
  - (iii) the amount of compensation payable by one party to another for failure to perform contractual commitments;
  - (iv) a definition and limitation of liability and indemnity; and
  - (v) procedures in the event of alterations being proposed to the service offerings, for example, launch of new services, changes to existing services or change to prices;
- (j)** details of measures to ensure compliance with requirements for network integrity;
- (k)** details of any relevant intellectual property rights;
- (l)** a dispute resolution procedure to be used between the parties;
- (m)** details of duration and renegotiation of agreements;
- (n)** provisions regarding confidentiality of non-public parts of the agreements;

- (o) rules of allocation between the parties when supply is limited (for example, for the purpose of Co-Location or location of masts);
- (p) the standard terms and conditions for the provision of Network Access; and
- (q) the amount applied to:
  - (i) each Network Component used in providing Network Access with the relevant Usage Factors;
  - (ii) the Transfer Charge for each Network Component or combination of Network Components described above; reconciled in each case to the charge payable by a Communications Provider other than the Dominant Provider.

**FAA5.3 (LLU)** Subject to paragraph FAA5.10 below, the Dominant Provider shall ensure that a Reference Offer in relation to the provision of Local Loop Unbundling Services also includes at least the following:

- (a) the location of MDF Sites;
- (b) the area within which Metallic Path Facilities could be made available from each of the MDF Sites listed under (a) above;
- (c) the availability of Co-Location at each of the MDF Sites listed under (a) above;
- (d) equipment characteristics, including any restrictions on equipment for the purposes of Co-Location at each of the MDF Sites listed under (a) above;
- (e) conditions for Site Access at each of the MDF Sites listed under (a) above, including conditions for access for staff of those Third Parties to whom the Dominant Provider provides Local Loop Unbundling Services;
- (f) conditions for the inspection of MDF Sites at which Co-Location is available or at which Co-Location has been refused on grounds of lack of capacity;
- (g) safety standards;
- (h) the relevant charges (or charging formulae) for each feature, function and facility involved in the provision of Local Loop Unbundling Services; and
- (i) anything which may reasonably be regarded as being likely to materially affect the availability of the relevant Local Loop Unbundling Services.

**FAA5.3A (PIA)** Subject to paragraph FAA5.10 below, the Dominant Provider shall ensure that a Reference Offer in relation to the provision of Physical Infrastructure Access also includes at least the following:

- (a) the location of Physical Infrastructure or the method by which Third Parties may obtain information about the location of Physical Infrastructure;
- (b) technical specifications for Physical Infrastructure Access including:

- (i) technical specifications for permitted cables and associated equipment; and
- (ii) cable installation, attachment and recovery methods.
- (c) the methodology for calculating availability of spare capacity in Physical Infrastructure;
- (d) procedures for the provision of information to Third Parties about spare capacity, including arrangements for visual surveys of Physical Infrastructure to determine spare capacity;
- (e) conditions for reserving capacity that shall apply equally to BT and other CPs;
- (f) conditions for the installation and recovery of cables and associated equipment;
- (g) arrangements for relieving congested Physical Infrastructure, including the repair of existing faulty infrastructure and the construction of new Physical Infrastructure;
- (h) a procedure for the Dominant Provider to announce plans reasonably in advance for new construction of Physical Infrastructure such that Third Parties may request BT to install additional capacity for those Third Parties;
- (i) conditions for Third Parties to gain access to the Physical Infrastructure including if appropriate training, certification and authorisation requirements for personnel permitted to access and work in/on Physical Infrastructure;
- (j) the arrangements for maintenance of cables and associated equipment installed by Third Parties and of the Physical Infrastructure, including provision for the temporary occupation of additional infrastructure capacity for the installation of replacement cables;
- (k) conditions for the inspection of the Physical Infrastructure at which access is available or at which access has been refused on grounds of lack of capacity;
- (l) anything which may reasonably be regarded as being likely to materially affect the availability of the relevant Physical Infrastructure Access.

**FAA5.4** To the extent that the Dominant Provider provides to itself Network Access that:

- (a) is the same, similar or equivalent to that provided to any other person; or
- (b) may be used for a purpose that is the same, similar or equivalent to that provided to any other person,

in a manner that differs from that detailed in a Reference Offer in relation to Network Access provided to any other person, the Dominant Provider shall ensure that it publishes a Reference Offer in relation to the Network Access that it provides to itself which includes, where relevant, at least those matters detailed in paragraphs FAA5.2(a)-(q).

**FAA5.5A** The Dominant Provider shall, within one month of the date that this Condition enters into force, publish a Reference Offer in relation to any Network Access that it is providing as at the date that this Condition enters into force.

**FAA5.5B** The Dominant Provider shall by 14 January 2011 publish a Reference Offer for Physical Infrastructure Access.

**FAA5.6** The Dominant Provider shall update and publish the Reference Offer in relation to any amendments or in relation to any further Network Access provided after the date that this Condition enters into force.

**FAA5.7** Publication referred to above shall be effected by:

- (a) placing a copy of the Reference Offer on any relevant website operated or controlled by the Dominant Provider; and
- (b) sending a copy of the Reference Offer to Ofcom.

**FAA5.8** The Dominant Provider shall give Ofcom at least ten days prior written notice of any amendment to the Reference Offer coming into effect, unless such amendment is directed or determined by Ofcom or is required by a notification or enforcement notification issued by Ofcom under sections 94 or 95 of the Act.

**FAA5.9** The Dominant Provider shall send a copy of the current version of the Reference Offer to any person at that person's written request (or such parts which have been requested). The provision of such a copy of the Reference Offer may be subject to a reasonable charge.

**FAA5.10** The Dominant Provider shall make such modifications to the Reference Offer as Ofcom may direct from time to time.

**FAA5.11** The Dominant Provider shall provide Network Access at the charges, terms and conditions in the relevant Reference Offer and shall not depart therefrom either directly or indirectly.

**FAA5.12** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

**FAA5.13** In this Condition:

- (a) references to the expressions "**Co-Location**" and "**Site Access**" are references to those expressions as defined for the purposes of Conditions FAA9, FAA11 and FAA12 as relevant to the Network Access in question in this Condition;
- (b) "**Local Loop Unbundling Services**" has the meaning given to it in Condition FAA9;
- (c) "**Physical Infrastructure**" has the meaning given to it in Condition FAA12; and
- (d) "**Physical Infrastructure Access**" has the meaning given to it in Condition FAA12.

### **Condition FAA6 – Requirement to notify charges, terms and conditions**

**FAA6.1** Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish charges, terms and conditions and act in the manner set out below.

**FAA6.2** Save where otherwise provided in Condition FAA6, the Dominant Provider shall send to Ofcom and to every person with which it has entered into an Access Contract covered by Condition FAA1 and/or Conditions FAA9 to FAA12 a written notice of any amendment to the charges, terms and conditions on which it provides Network Access or in relation to any charges, terms and conditions for new Network Access (an “**Access Charge Change Notice**”) not less than 90 days before any such amendment comes into effect for existing Network Access, or not less than 28 days before any such charges, terms and conditions come into effect for new Network Access provided after the date that this Condition enters into force. This obligation for prior notification will not apply where the new or amended charges or terms and conditions are directed or determined by Ofcom or are required by a notification or enforcement notification issued by Ofcom under sections 94 or 95 of the Act.

**FAA6.3** The Dominant Provider shall ensure that an Access Charge Change Notice includes:

- (a) a description of the Network Access in question;
- (b) a reference to the location in the Dominant Provider’s current Reference Offer of the charges, terms and conditions associated with the provision of that Network Access;
- (c) the date on which or the period for which any amendments to charges, terms and conditions will take effect (the “effective date”);
- (d) the current and proposed new charge and the relevant Usage Factors applied to each Network Component comprised in that Network Access, reconciled in each case with the current or proposed new charge; and
- (e) the information specified in sub paragraph (d) above with respect to that Network Access to which that paragraph applies.

**FAA6.4** The Dominant Provider shall not apply any new charge, term and condition identified in an Access Charge Change Notice before the effective date.

**FAA6.5** To the extent that the Dominant Provider provides to itself Network Access that:

- (a) is the same, similar or equivalent to that provided to any other person; or
- (b) may be used for a purpose that is the same, similar or equivalent to that provided to any other person, in a manner that differs from that detailed in an Access Charge Change Notice in relation to Network Access provided to any other person,

the Dominant Provider shall ensure that it sends to Ofcom an Access Charge Change Notice in relation to the Network Access that it provides to itself which includes, where relevant, at least those matters detailed in paragraphs FAA6.3(a)-(e).

### **Condition FAA7 – Requirement to notify technical information**

**FAA7.1** Save where Ofcom consents otherwise, where the Dominant Provider:

- (a) proposes to provide Network Access covered by Condition FAA1 and/or Conditions FAA9 to FAA12, the terms and conditions for which comprise new:
  - (i) technical characteristics (including information on network configuration where necessary to make effective use of the Network Access);
  - (ii) locations of the points of Network Access; or
  - (iii) technical standards (including any usage restrictions and other security issues), or
- (b) proposes to amend an existing Access Contract covered by Condition FAA1 and/or Conditions FAA9 to FAA12 by modifying the terms and conditions listed in paragraph 1(a)(i) to (iii) on which the Network Access is provided,

the Dominant Provider shall publish a written notice (the “**Notice**”) of the new or amended terms and conditions within a reasonable time period, but not less than 90 days before either the Dominant Provider enters into an Access Contract to provide the new Network Access or the amended terms and conditions of the existing Access Contract come into effect. This obligation for prior notification will not apply where the new or amended charges or terms and conditions are directed or determined by Ofcom or are required by a notification or enforcement notification issued by Ofcom under sections 94 or 95 of the Act. This obligation for prior notification will also not apply in relation to new or amended technical specifications determined by NICC Standards Limited (namely, the private limited company NICC Standards Limited, whose registered company number is 6613589).

**FAA7.2** The Dominant Provider shall ensure that the Notice includes:

- (a) a description of the Network Access in question;
- (b) a reference to the location in the Dominant Provider’s Reference Offer of the relevant terms and conditions; and
- (c) the date on which or the period for which the Dominant Provider may enter into an Access Contract to provide the new Network Access or any amendments to the relevant terms and conditions will take effect (the “effective date”).

**FAA7.3** The Dominant Provider shall not enter into an Access Contract containing the terms and conditions identified in the Notice or apply any new relevant terms and conditions identified in the Notice before the effective date.

**FAA7.4** Publication referred to in paragraph FAA7.1 shall be effected by:

- (a) placing a copy of the Notice on any relevant website operated or controlled by the Dominant Provider;
- (b) sending a copy of the Notice to Ofcom; and
- (c) sending a copy of the Notice to any person at that person’s written request, and where the Notice identifies a modification to existing relevant terms and conditions, to every person with which the Dominant Provider has entered into an Access Contract covered by FAA1 and/or Conditions FAA9 to

FAA12. The provision of such a copy of Notice may be subject to a reasonable charge.

### **Condition FAA8 – Quality of service**

**FAA8.1** The Dominant Provider shall publish all such information for the purposes of securing transparency as to the quality of service in relation to Network Access provided by the Dominant Provider in such manner and form as Ofcom may from time to time direct.

**FAA8.2** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

### **Condition FAA9 – Requirement to provide Local Loop Unbundling Services (LLU)**

**FAA9.1** Where a Third Party reasonably requests in writing Local Loop Unbundling Services, the Dominant Provider shall provide those Services, which shall include, where also so requested by the Third Party, such Ancillary Services as may be reasonably necessary for the use of those Services. The Dominant Provider shall also provide such Ancillary Services or other Network Access as Ofcom may from time to time direct to ensure the provision of Local Loop Unbundling Services.

**FAA9.2** The provision of Local Loop Unbundling Services, together with any Ancillary Services, in accordance with paragraph FAA9.1 shall occur as soon as reasonably practicable and shall be provided on fair and reasonable terms, conditions and charges and on such terms, conditions and charges as Ofcom may direct from time to time.

**FAA9.3** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

**FAA9.4** In this Condition:

**(a)** “**Ancillary Services**” mean an Associated Facility or services associated with an Electronic Communications Network and/or an Electronic Communications Service which enable and/or support the provision of services via that Network and/or Service or have the potential to do so, which include at a minimum (but without limitation) the following:

- (i) power;
- (ii) Co-Location;
- (iii) Co-Mingling;
- (iv) Site Access;
- (v) Internal Tie Circuits;
- (vi) External Tie Circuits.

**(b)** “**Co-Location**” means the provision of space permitting a Third Party to occupy part of an MDF Site reasonably sufficient to permit the use of Local Loop Unbundling Services, and in particular to permit the connection of the Dominant Provider’s Electronic Communications Network with the Electronic Communications Network of a Third Party at that location;

**(c) “Co-Mingling”** means the provision of Co-Location having the following characteristics:

(i) the Third Party’s Electronic Communications Network is situated in an area of the MDF Site which:

(A) is a single undivided space;

(B) after proper performance by the Dominant Provider of its obligation to provide Local Loop Unbundling Services pursuant to Condition FAA10.1, would permit the normal operation of the Third Party’s Electronic Communications Network (or would permit if the Dominant Provider removed any object or substance whether toxic or not, which might reasonably prevent or hinder the occupation of the MDF Site for such use); and

(C) if so requested by the Third Party, is not unreasonably distant from the Dominant Provider’s Electronic Communications Network within the MDF site;

(ii) no permanent physical partition is erected in the space between the Third Party’s Electronic Communications Network and the Dominant Provider’s Electronic Communications Network; and

(iii) the Third Party’s Electronic Communications Network is neither owned nor run by the Dominant Provider or by any person acting on the Dominant Provider’s behalf;

**(d) “External Tie Circuit”** means a link that connects Local Loop Unbundling Services to the Electronic Communications Network of a Third Party at a location outside the MDF Site;

**(e) “Internal Tie Circuit”** means a link, the whole of which is contained within an MDF Site, that connects Local Loop Unbundling Services to the Electronic Communications Network of a Third Party;

**(f) “Local Loop Unbundling Services”** mean Network Access to Metallic Path Facilities or Shared Access;

**(g) “MDF Site”** means the site of an operational building of the Dominant Provider that houses a main distribution frame;

**(h) “Metallic Path Facilities”** means a circuit comprising a pair of twisted metal wires employing electric, magnetic, electro-magnetic, electro-chemical or electro-mechanical energy to convey Signals when connected to an Electronic Communications Network;

**(i) “Shared Access”** means the non-voice band frequency of Metallic Path Facilities;

**(j) “Site Access”** means access (including the right of entry) to the Dominant Provider’s MDF Sites in order to install and operate an Electronic Communications Network to provide Electronic Communications Services over Local Loop Unbundling Services; and

**(k)** references to the expression Electronic Communications Network for the purposes of the expressions Co-Location, Co-Mingling and Site Access in this Condition shall be limited to those matters set out at section 32(1)(b)(i)-(iii) of the Act.

#### **Condition FAA10 – Requirement to provide Sub-Loop Unbundling Services (SLU)**

**FAA10.1** Where a Third Party reasonably requests in writing Sub-Loop Unbundling Services, the Dominant Provider shall provide those Services, which shall include, where also so requested by the Third Party, such Ancillary Services as may be reasonably necessary for the use of those Services. The Dominant Provider shall also provide such Ancillary Services or other Network Access as Ofcom may from time to time direct to ensure the provision of Sub-Loop Unbundling Services.

**FAA10.2** The provision of Sub-Loop Unbundling Services, together with any Ancillary Services, in accordance with paragraph FAA10.1 shall occur as soon as reasonably practicable and shall be provided on fair and reasonable terms, conditions and charges and on such terms, conditions and charges as Ofcom may direct from time to time.

**FAA10.3** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

**FAA10.4** In this Condition:

(a) **“Ancillary Services”** mean an Associated Facility or services associated with an Electronic Communications Network and/or an Electronic Communications Service which enable and/or support the provision of services via that Network and/or Service or have the potential to do so, which include at a minimum (but without limitation) Tie Circuit.

(b) **“Shared Access”** has the meaning given to it in Condition FAA9;

(c) **“Sub-Loop Unbundling Services”** means access to Metallic Path Facilities or Shared Access at an intermediate point prior to the main distribution frame;

(d) **“Tie Circuit”** means a link that connects Sub-Loop Unbundling Services to the Electronic Communications Network of a Third Party; and

(e) references to the expression Electronic Communications Network for the purposes of the expression Ancillary Services in this Condition shall be limited to those matters set out at section 32(1)(b)(i)-(iii) of the Act.

### **Condition FAA11 – Requirement to provide Virtual Unbundled Local Access (VULA)**

**FAA11.1** Where a Third Party reasonably requests in writing Virtual Unbundled Local Access, the Dominant Provider shall provide that Access, which shall include, where also so requested by the Third Party, such Ancillary Services as may be reasonably necessary for the use of that Access. The Dominant Provider shall also provide such Ancillary Services or other Network Access as Ofcom may from time to time direct to ensure the provision of Virtual Unbundled Local Access.

**FAA11.2** The provision of Virtual Unbundled Local Access, together with any Ancillary Services, in accordance with paragraph FAA11.1 shall occur as soon as reasonably practicable and shall be provided on fair and reasonable terms, conditions and charges and on such terms, conditions and charges as Ofcom may direct from time to time.

**FAA11.3** Without prejudice to the generality of the provision in Condition FAA11.2, the provision of Virtual Unbundled Local Access, with or without any Ancillary Services, in accordance with paragraph FAA11.1 shall be provided to a Third Party on an Equivalence of Inputs basis. Where the Dominant Provider provides (or seeks to provide) Virtual Unbundled Local Access, with or without any Ancillary Services, for its own services (including for those of its subsidiaries or partners), the Dominant Provider shall not so provide, unless at the

same time the Dominant Provider provides and/or offers to provide such Access to Third Parties on an Equivalence of Inputs basis.

**FAA11.4** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

**FAA11.5** In this Condition:

**(a) “Ancillary Services”** mean an Associated Facility or services associated with an Electronic Communications Network and/or an Electronic Communications Service which enable and/or support the provision of services via that Network and/or Service or have the potential to do so, which include at a minimum (but without limitation) the following:

- (i) power;
- (ii) Co-Location;
- (iii) Co-Mingling;
- (iv) Site Access;

**(b) “Co-Location”** means the provision of space permitting a Third Party to occupy part of a Local Serving Exchange reasonably sufficient to permit the use of Virtual Unbundled Local Access, and in particular to permit the connection of the Dominant Provider’s Electronic Communications Network with the Electronic Communications Network of a Third Party at that location;

**(c) “Co-Mingling”** means the provision of Co-Location having the following characteristics:

(i) the Third Party’s Electronic Communications Network is situated in an area of the Local Serving Exchange which:

(A) is a single undivided space;

(B) after proper performance by the Dominant Provider of its obligation to provide Virtual Unbundled Local Access pursuant to Condition FAA11.1, would permit the normal operation of the Third Party’s Electronic Communications Network (or would permit if the Dominant Provider removed any object or substance whether toxic or not, which might reasonably prevent or hinder the occupation of the Local Serving Exchange for such use); and

(C) if so requested by the Third Party, is not unreasonably distant from the Dominant Provider’s Electronic Communications Network within the Local Serving Exchange;

(ii) no permanent physical partition is erected in the space between the Third Party’s Electronic Communications Network and the Dominant Provider’s Electronic Communications Network; and

(iii) the Third Party’s Electronic Communications Network is neither owned nor run by the Dominant Provider or by any person acting on the Dominant Provider’s behalf;

**(d) “Commercial Information”** means all information, including information of a commercially confidential nature, relating to the provision of Virtual Unbundled Local Access concerning the following:

- (i) product development;
- (ii) pricing;
- (iii) marketing strategy and intelligence;
- (iv) product launch dates;
- (v) cost;
- (vi) projected sales volumes; and
- (vii) network coverage and capabilities

unless Ofcom consents otherwise from time to time.

**(e) “Equivalence of Inputs”** means, unless Ofcom consents otherwise from time to time, the provision by the Dominant Provider to a Third Party on the same timescales, terms and conditions (including price and service levels) by means of the same systems and processes and with the same Commercial Information as the Dominant Provider provides to its own divisions, subsidiaries or partners operating in markets downstream of the market identified at paragraph 8(a) of this Notification subject only to: (a) trivial differences; and (b) differences relating to: (i) credit vetting procedures, (ii) payment procedures, (iii) matters of national and crime-related security (which for the avoidance of doubt includes for purposes related to the Regulation of Investigatory Powers Act 2000), physical security, security required to protect the operational integrity of the network, (iv) provisions relating to the termination of a contract, or (v) contractual provisions relating to requirements for a safe working environment. For the avoidance of any doubt, unless seeking Ofcom’s consent, the Dominant Provider may not show any other reasons in seeking to objectively justify the provision in a different manner.

**(f) “Local Serving Exchange”** means the site of an operational building of the Dominant Provider, where Interconnection is made available by the Dominant Provider to a Third Party for Network Termination Points served by that site for the provision of Virtual Unbundled Local Access;

**(g) “Network Termination Point”** means the physical point at which a Relevant Subscriber is provided with access to a Public Electronic Communications Network;

**(h) “Point of Connection”** means a point at which the Dominant Provider’s Electronic Communications Network and another person’s Electronic Communications Network are connected;

**(i) “Relevant Subscriber”** means any person who is party to a contract with a provider of Public Electronic Communications Services for the supply of such Services;

**(j) “Site Access”** means access (including the right of entry) to the Dominant Provider’s Local Serving Exchange in order to install and operate an Electronic Communications Network to provide Electronic Communications Services over the Virtual Unbundled Local Access;

**(k) “Virtual Unbundled Local Access”** means Network Access comprising of a virtual circuit between a Point of Connection at the Local Serving Exchange and a Network Termination Point, which circuit provides such specified capacity as is agreed between the Dominant Provider and the Third Party for the Third Party’s exclusive use; and

**(l)** references to the expression Electronic Communications Network for the purposes of the expressions Co-Location, Co-Mingling and Site Access in this Condition shall be limited to those matters set out at section 32(1)(b)(i)-(iii) of the Act.

### **Condition FAA12 – Requirement to provide Physical Infrastructure Access (PIA)**

**FAA12.1** Where a Third Party reasonably requests in writing access to Physical Infrastructure Access, the Dominant Provider shall provide that Access if, and only if, such Access is to be used by the Third Party for the purpose of deployment of broadband access networks serving multiple premises. Such Access shall include, where also so requested by the Third Party, such Ancillary Services as may be reasonably necessary for the use of that Access, The Dominant Provider shall also provide such Ancillary Services or other Network Access as Ofcom may from time to time direct to ensure the provision of Physical Infrastructure Access.

**FAA12.2** The provision of Physical Infrastructure Access, together with any Ancillary Services, in accordance with paragraph FAA12.1 shall occur as soon as reasonably practicable and shall be provided on fair and reasonable terms, conditions and charges and on such terms, conditions and charges as Ofcom may direct from time to time.

**FAA12.3** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

**FAA12.4** In this Condition:

**(a) “Ancillary Services”** mean an Associated Facility or services associated with an Electronic Communications Network and/or an Electronic Communications Service which enable and/or support the provision of services via that Network and/or Service or have the potential to do so, which include at a minimum (but without limitation) the following:

- (i) power;
- (ii) Co-Location;
- (iii) Co-Mingling;
- (iv) Site Access;

**(b) “Co-Location”** means the provision of space permitting a Third Party to occupy part of an MDF Site reasonably sufficient to permit the use of Physical Infrastructure Access;

**(c) “Co-Mingling”** means the provision of Co-Location having the following characteristics:

- (i) the Third Party’s Electronic Communications Network is situated in an area of the MDF Site which:

(A) is a single undivided space;

(B) after proper performance by the Dominant Provider of its obligation to provide Physical Infrastructure Access pursuant to Condition FAA12.1, would permit the normal operation of the Third Party's Electronic Communications Network (or would permit if the Dominant Provider removed any object or substance whether toxic or not, which might reasonably prevent or hinder the occupation of the MDF Site for such use); and

(C) if so requested by the Third Party, is not unreasonably distant from the Dominant Provider's Electronic Communications Network within the MDF site;

(ii) no permanent physical partition is erected in the space between the Third Party's Electronic Communications Network and the Dominant Provider's Electronic Communications Network; and

(iii) the Third Party's Electronic Communications Network is neither owned nor run by the Dominant Provider or by any person acting on the Dominant Provider's behalf;

**(d) "Local Access Node"** means either:

- (i) An MDF Site; or
- (ii) An ODF Site; or
- (ii) An operational building designated by the Dominant Provider for use as an ODF site in future; or
- (iv) An operational building of the Dominant Provider which is reasonably equivalent to one of the above in terms of the distance between the operational building and the Network Termination Points and in terms of the number of Network Termination Points served;

**(e) "Network Termination Point"** has the meaning given to it in Condition FAA11;

**(f) "ODF Site"** means the site of an operational building of the Dominant Provider housing an optical distribution frame for optical fibre access networks.

**(g) "Physical Infrastructure Access"** means Network Access comprising predominantly of the provision of space, anchorage, attachment facilities and/or such other facilities as may be reasonably necessary to permit a Third Party to occupy parts of the Dominant Provider's Physical Infrastructure located between Network Termination Points and Local Access Nodes serving those Network Termination Points, sufficient to facilitate the establishment, installation, operation and maintenance of the Electronic Communications Network of a Third Party at that location;

**(h) "Physical Infrastructure"** includes any conduit, tunnel, subway, pipe, structure, pole or other thing in, on, by or from which an Electronic Communications Network is or may be installed, supported, carried or suspended;

**(i) "Site Access"** means access (including the right of entry) to the Dominant Provider's MDF Sites in order for a Third Party to install and operate an Electronic Communications Network to provide Electronic Communications Services; and

**(j)** references to the expression Electronic Communications Network for the purposes of the expressions Co-Location, Co-Mingling and Site Access in this Condition shall be limited to those matters set out at section 32(1)(b)(i)-(iii) of the Act.

## SCHEDULE 2 – KCOM CONDITIONS

**The SMP services conditions imposed on KCOM under sections 45, 87, and 88 of the Communications Act 2003 as a result of the analysis of the market set out in paragraph 8(b) of the Notification in which it is proposed that KCOM has significant market power (“SMP conditions”)**

### **Part 1: Application, definition and interpretation of the conditions in Part 2**

1. The conditions in Part 2 of this Schedule shall apply to the market identified at paragraph 8(b) of this Notification.
2. In this Schedule:
  - (a) **“Access Charge Change Notice”** has the meaning given to it in Condition FAA6.2;
  - (b) **“Access Contract”** means
    - (i) a contract for the provision by the Dominant Provider to another person of Network Access to the Dominant Provider’s Electronic Communications Network;
    - (ii) a contract under which Associated Facilities in relation to the Dominant Provider’s Public Electronic Communications Network are made available by the Dominant Provider to another person
  - (c) **“Act”** means the Communications Act 2003;
  - (d) **“Dominant Provider”** means KCOM Group plc, whose registered company number is 2150618, and any subsidiary or holding company, or any subsidiary of that holding company, all as defined by Section 1159 of the Companies Act 2006;
  - (e) **“Hull Area”** means the area defined as the Licensed Area in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications plc (now known as KCOM Group plc);
  - (f) **“Network Component”** means, to the extent they are used in the market identified at paragraph 8(b) of this Notification, the network components specified in any direction given by Ofcom from time to time for the purpose of these Conditions;
  - (g) **“Ofcom”** means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002;
  - (h) **“Reference Offer”** means the terms and conditions on which the Dominant Provider is willing to enter into an Access Contract;
  - (i) **“Third Party”** means either:
    - (i) a person providing a Public Electronic Communications Network; or
    - (ii) a person providing a Public Electronic Communications Service;

**(j) “Transfer Charge”** means the charge or price that is applied, or deemed to be applied, by the Dominant Provider to itself for the use or provision of an activity or group of activities. For the avoidance of doubt such activities or group of activities include, amongst other things, products and services provided from, to or within the market identified in paragraph 8(b) of this Notification and the use of Network Components in that market; and

**(k) “Usage Factor”** means the average usage by any Communications Provider (including the Dominant Provider itself) of each Network Component in using or providing a particular product or service or carrying out a particular activity.

**3.** For the purpose of interpreting the SMP conditions in Part 2:

- (a)** except in so far as the context otherwise requires, words or expressions shall have the meaning assigned to them in paragraph 2 of this Part above and otherwise any word or expression shall have the same meaning as it has in the Act;
- (b)** the Interpretation Act 1978 (c. 30) shall apply as if each of the SMP conditions in Part 2 were an Act of Parliament; and
- (c)** headings and titles shall be disregarded.

## **Part 2: The conditions**

### **Condition FBB1 - Requirement to provide Network Access on reasonable request**

**FBB1.1** Where a Third Party reasonably requests in writing Network Access, the Dominant Provider shall provide that Network Access. The Dominant Provider shall also provide such Network Access as Ofcom may from time to time direct.

**FBB1.2** The provision of Network Access in accordance with paragraph FBB1.1 shall occur as soon as reasonably practicable and shall be provided on fair and reasonable terms, conditions and charges and on such terms, conditions and charges as Ofcom may from time to time direct.

**FBB1.3** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

### **Condition FBB2 – Requests for new Network Access**

**FBB2.1** The Dominant Provider shall, for the purposes of transparency, publish reasonable guidelines, in relation to requests for new Network Access made to it. Such guidelines shall detail:

- (a) the form in which such a request should be made;
- (b) the information that the Dominant Provider requires in order to consider a request for new Network Access; and
- (c) the time-scales in which such requests will be handled by the Dominant Provider.

**FBB2.2** These guidelines shall meet the following principles:

- (a) the process should be documented end-to-end;
- (b) the timescales for each stage of the process shall be reasonable;
- (c) the criteria by which requests will be assessed shall be clearly identified; and
- (d) any changes to the guidelines be agreed between the Dominant Provider and industry.

**FBB2.3** The Dominant Provider shall, upon a reasonable request from a Third Party considering making a request for new Network Access, provide that Third Party with information so as to enable that Third Party to make a request for new Network Access. Such information shall be provided within a reasonable period.

**FBB2.4** On receipt of a written request for new Network Access, the Dominant Provider shall deal with the request in accordance with the guidelines described at paragraph FBB2.1 above. A modification of a request for new Network Access which has previously been submitted to the Dominant Provider, and rejected by the Dominant Provider, shall be considered as a new request.

**FBB2.5** The Dominant Provider is required to provide Ofcom with a description of the processes it has put in place to ensure compliance with this Condition FBB2. The Dominant Provider shall keep those processes under review to ensure that they remain adequate for

that purpose. Where changes to the process are agreed with industry, the Dominant should notify Ofcom of those changes.

### **Condition FBB3 - Requirement not to unduly discriminate**

**FBB3.1** The Dominant Provider shall not unduly discriminate against particular persons or against a particular description of persons, in relation to matters connected with Network Access.

**FBB3.2** In this Condition, the Dominant Provider may be deemed to have shown undue discrimination if it unfairly favours to a material extent an activity carried on by it so as to place at a competitive disadvantage persons competing with the Dominant Provider.

### **Condition FBB4 - Basis of charges**

**FBB4.1** Unless Ofcom directs otherwise from time to time, the Dominant Provider shall secure, and shall be able to demonstrate to the satisfaction of Ofcom, that each and every charge offered, payable or proposed for Network Access covered by Condition FBB1 is reasonably derived from the costs of provision based on a forward looking long run incremental cost approach and allowing an appropriate mark up for the recovery of common costs including an appropriate return on capital employed.

**FBB4.2** The Dominant Provider shall comply with any direction Ofcom may from time to time direct under this Condition.

### **Condition FBB5 - Requirement to publish a Reference Offer**

**FBB5.1** Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish a Reference Offer and act in the manner set out below.

**FBB5.2** Subject to paragraph FBB5.9 below, the Dominant Provider shall ensure that a Reference Offer in relation to the provision of Network Access includes at least the following:

- (a) a description of the Network Access to be provided, including technical characteristics (which shall include information on network configuration where necessary to make effective use of Network Access);
- (b) the locations of the points of Network Access;
- (c) the technical standards for Network Access (including any usage restrictions and other security issues);
- (d) the conditions for access to ancillary, supplementary and advanced services (including operational support systems, information systems or databases for pre-ordering, provisioning, ordering, maintenance and repair requests and billing);
- (e) any ordering and provisioning procedures;
- (f) relevant charges, terms of payment and billing procedures;
- (g) details of interoperability tests;
- (h) details of traffic and network management;

- (i) details of maintenance and quality as follows;
    - (i) specific time scales for the acceptance or refusal of a request for supply and for completion, testing and hand-over or delivery of services and facilities, for provision of support services (such as fault handling and repair);
    - (ii) service level commitments, namely the quality standards that each party must meet when performing its contractual obligations;
    - (iii) the amount of compensation payable by one party to another for failure to perform contractual commitments;
  - (i) a definition and limitation of liability and indemnity; and
  - (ii) procedures in the event of alterations being proposed to the service offerings, for example, launch of new services, changes to existing services or change to prices;
  - (j) details of measures to ensure compliance with requirements for network integrity;
  - (k) details of any relevant intellectual property rights;
  - (l) a dispute resolution procedure to be used between the parties;
  - (m) details of duration and renegotiation of agreements;
  - (n) provisions regarding confidentiality of non-public parts of the agreements;
  - (o) rules of allocation between the parties when supply is limited (for example, for the purpose of Co-Location or location of masts);
  - (p) the standard terms and conditions for the provision of Network Access; and
  - (q) the amount applied to:
    - (i) each Network Component used in providing Network Access with the relevant Usage Factors;
    - (ii) the Transfer Charge for each Network Component or combination of Network Components described above;
- reconciled in each case to the charge payable by a Communications Provider other than the Dominant Provider.

**FBB5.3** To the extent that the Dominant Provider provides to itself Network Access that:

- (a) is the same, similar or equivalent to that provided to any other person; or
- (b) may be used for a purpose that is the same, similar or equivalent to that provided to any other person,

in a manner that differs from that detailed in a Reference Offer in relation to Network Access provided to any other person, the Dominant Provider shall ensure that it publishes a Reference Offer in relation to the Network Access that it provides to itself which includes, where relevant, at least those matters detailed in paragraphs FBB4.2(a)-(q).

**FBB5.4** The Dominant Provider shall, within one month of the date that this Condition enters into force, publish a Reference Offer in relation to any Network Access that it is providing as at the date that this Condition enters into force.

**FBB5.5** The Dominant Provider shall update and publish the Reference Offer in relation to any amendments or in relation to any further Network Access provided after the date that this Condition enters into force.

**FBB5.6** Publication referred to above shall be effected by:

- (a) placing a copy of the Reference Offer on any relevant website operated or controlled by the Dominant Provider; and
- (b) sending a copy of the Reference Offer to Ofcom.

**FBB5.7** The Dominant Provider shall give Ofcom at least ten days prior written notice of any amendment to the Reference Offer coming into effect, unless such amendment is directed or determined by Ofcom or is required by a notification or enforcement notification issued by Ofcom under sections 94 or 95 of the Act.

**FBB5.8** The Dominant Provider shall send a copy of the current version of the Reference Offer to any person at that person's written request (or such parts which have been requested). The provision of such a copy of the Reference Offer may be subject to a reasonable charge.

**FBB5.9** The Dominant Provider shall make such modifications to the Reference Offer as Ofcom may direct from time to time.

**FBB5.10** The Dominant Provider shall provide Network Access at the charges, terms and conditions in the relevant Reference Offer and shall not depart therefrom either directly or indirectly.

**FBB5.11** The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition.

### **Condition FBB6 - Requirement to notify charges and terms and conditions**

**FBB6.1** Except in so far as Ofcom may otherwise consent in writing, the Dominant Provider shall publish charges, terms and conditions and act in the manner set out below.

**FBB6.2** Save where otherwise provided in Condition FBB6, the Dominant Provider shall send to Ofcom and to every person with which it has entered into an Access Contract covered by Condition FBB1 a written notice of any amendment to the charges, terms and conditions on which it provides Network Access or in relation to any charges for new Network Access (an "**Access Charge Change Notice**") not less than 90 days before any such amendment comes into effect for Network Access being provided on the date that this Condition enters into force, or not less than 28 days before any such amendment comes into effect for new Network Access provided after the date that this Condition enters into force. The obligation for prior notification will not apply where the new or amended charges or

terms and conditions are directed or determined by Ofcom or are required by a notification or enforcement notification issued by Ofcom under sections 94 or 95 of the Act.

**FBB6.3** The Dominant Provider shall ensure that an Access Charge Change Notice includes:

- (a) a description of the Network Access in question;
- (b) a reference to the location in the Dominant Provider's current Reference Offer of the terms and conditions associated with the provision of that Network Access;
- (c) the date on which or the period for which any amendments to charges, terms and conditions will take effect (the "effective date");
- (d) the current and proposed new charge and the relevant Usage Factors applied to each Network Component comprised in that Network Access, reconciled in each case with the current or proposed new charge; and
- (e) the information specified in sub paragraph (d) above with respect to that Network Access to which that paragraph applies.

**FBB6.4** The Dominant Provider shall not apply any new charge, term and condition identified in an Access Charge Change Notice before the effective date.

**FBB6.5** To the extent that the Dominant Provider provides to itself Network Access that:

- (a) is the same, similar or equivalent to that provided to any other person; or
- (b) may be used for a purpose that is the same, similar or equivalent to that provided to any other person,

in a manner that differs from that detailed in an Access Charge Change Notice in relation to Network Access provided to any other person, the Dominant Provider shall ensure that it sends to Ofcom an Access Charge Change Notice in relation to the Network Access that it provides to itself which includes, where relevant, at least those matters detailed in paragraphs FBB6.3(a)-(e).

### **Condition FBB7 – Requirement to notify technical information**

**FBB7.1** Save where Ofcom consents otherwise, where the Dominant Provider:

- (a) proposes to provide Network Access covered by Condition FBB1, the terms and conditions for which comprise new:
  - (i) technical characteristics (including information on network configuration where necessary to make effective use of the Network Access);
  - (ii) locations of the points of Network Access; or
  - (iii) technical standards (including any usage restrictions and other security issues), or

(b) proposes to amend an existing Access Contract covered by Condition FB1 by modifying the terms and conditions listed in paragraph FB6.1(a)(i) to (iii) on which the Network Access is provided,

the Dominant Provider shall publish a written notice (the “**Notice**”) of the new or amended terms and conditions within a reasonable time period, but not less than 90 days before either the Dominant Provider enters into an Access Contract to provide the new Network Access or the amended terms and conditions of the existing Access Contract come into effect. This obligation for prior notification will not apply where the new or amended charges or terms and conditions are directed or determined by Ofcom or are required by a notification or enforcement notification issued by Ofcom under sections 94 or 95 of the Act. This obligation for prior notification will also not apply in relation to new or amended technical specifications determined by the NICC Standards Limited (namely, the private limited company NICC Standards Limited, whose registered company number is 6613589).

**FBB7.2** The Dominant Provider shall ensure that the Notice includes:

- (a) a description of the Network Access in question;
- (b) a reference to the location in the Dominant Provider’s Reference Offer of the relevant terms and conditions; and
- (c) the date on which or the period for which the Dominant Provider may enter into an Access Contract to provide the new Network Access or any amendments to the relevant terms and conditions will take effect (the “effective date”).

**FBB7.3** The Dominant Provider shall not enter into an Access Contract containing the terms and conditions identified in the Notice or apply any new relevant terms and conditions identified in the Notice before the effective date.

**FBB7.4** Publication referred to in paragraph FBB7.1 shall be effected by:

- (a) placing a copy of the Notice on any relevant website operated or controlled by the Dominant Provider;
- (b) sending a copy of the Notice to Ofcom; and
- (c) sending a copy of the Notice to any person at that person’s written request, and where the Notice identifies a modification to existing relevant terms and conditions, to every person with which the Dominant Provider has entered into an Access Contract covered by Condition FBB1. The provision of such a copy of Notice may be subject to a reasonable charge.

### Schedule 3

#### Modification to SMP Condition OA2

1. SMP Condition OA2 shall be modified by inserting the following new paragraph OA2.X at the end of Condition OA2 in Schedule 2 to the 2004 Regulatory Accounting Notification –

OA2.X The following Directions (as modified) given under Condition FA10.2 shall continue to have force under this Condition as if they were given under Condition OA2, and shall be read accordingly:

- a) The Direction published at Schedule 2 to the 2004 Regulatory Accounting Notification, as modified by:
  - i) the Direction published at Annex 1 of the statement entitled *Changes to BT's regulatory financial reporting framework, dated 31 August 2005* (the "2005 Regulatory Accounting Notification");
  - ii) the Direction published at Annex 1 of the statement entitled *Changes to BT's regulatory financial reporting and audit requirements, dated 16 August 2006* (the "2006 Regulatory Accounting Notification"); and
  - iii) the Direction published at Annex 3 of the statement entitled *Changes to BT's 2007/08 regulatory financial statements, dated 26 June 2008* (the "2008 Regulatory Accounting Notification"),

which relates to BT's obligations under SMP service Condition FA10, in that it specifies the network components which apply to the wholesale cost accounting and accounting separation obligations in relation to BT's activities within the market identified in the 2004 Notification;

- b) the Direction published at Schedule 4 to the 2004 Regulatory Accounting Notification, as modified by:
  - i) the Direction published at Annex 2 to the 2005 Regulatory Accounting Notification;
  - ii) the Direction published at Annex 3 to the 2006 Regulatory Accounting Notification;
  - iii) the Direction published at Annex 4 of the statement entitled *BT's regulatory financial reporting requirements dated 30 May 2007* (the "2007 Regulatory Accounting Notification");
  - iv) at Annex 4 to the 2008 Regulatory Accounting Notification, ; and
  - v) at Annex 4 of the statement entitled *Changes to BT and KCOM's regulatory financial reporting – 2008/09 update, dated 15 June 2009* (the "2009 Regulatory Accounting Notification"),

which relates to BT's obligations under SMP services condition FA10, in that it sets out requirements for the preparation, audit and delivery of regulatory financial statements in respect of wholesale cost accounting, accounting separation and retail cost accounting (the "FA10 Preparation, audit and delivery Direction (as amended)"); and

- c) the Direction published at Schedule 5 to the 2004 Regulatory Accounting Notification, as modified by:
  - i) the Direction published at Annex 3 to the 2005 Regulatory Accounting Notification;

- ii) the Direction published at Annex 4 to the 2006 Regulatory Accounting Notification;
- iii) the Direction published at Annex 5 to the 2007 Regulatory Accounting Notification;
- iv) the Direction published at Annex 5 to the 2008 Regulatory Accounting Notification; and
- v) the Direction published at Annex 5 to the 2009 Regulatory Accounting Notification,

which relate to BT's obligations under SMP services condition FA10, in that it sets out the form and content to be applied by BT in preparing certain regulatory financial statements required by virtue of condition FA10.5 and the FA10 Preparation, audit and delivery Direction (as amended).

## Annex 3

# Market definition methodology

## Introduction

A3.1 There are two dimensions to the definition of a relevant market: products to be included in the same market and the geographic extent of the market. As such it is often necessary to define the relevant product market before exploring the geographic dimension of the market. Our approach to market definition follows the methodology taken in the 2004 WLA market review, the WBA market in 2008 (“the 2008 WBA market review”)<sup>151</sup> and the 2010 WBA market review is consistent with those used by UK<sup>152</sup> as well as European and US competition authorities.

## Commission’s Recommendation on Markets and SMP Guidance

A3.2 In 2002, the Commission issued its Guidelines on Market Analysis and the Assessment of Significant Market Power under the Community Regulatory Framework for Electronic Communications Networks and Services<sup>153</sup> (“the SMP Guidelines”).

A3.3 In 2003, the Commission issued its *Recommendation on relevant product and services markets*<sup>154</sup> identifying product and service markets within the electronic communication sector in which *ex ante* regulation may be warranted. The Commission replaced that recommendation in December 2007 with the current Recommendation on Markets, which (among other things) reduced the number of markets on the list<sup>155</sup>. The Recommendation on markets is accompanied by an Explanatory Memorandum (EM)<sup>156</sup>.

A3.4 The WLA market is listed at point 4 of the Annex to the Recommendation on Markets as follows:

*“Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location.”*

A3.5 The Recommendation on Markets also lists the WBA market at point 5 of the Annex as follows:

<sup>151</sup> Ofcom, *Review of the wholesale broadband access markets*, May 2008.

<http://www.ofcom.org.uk/consult/condocs/wbamr07/statement/>

<sup>152</sup> Office of Fair Trading, *Market Definition – Understanding Competition Law*, OFT 403, December 2004. [http://www.of.gov.uk/shared\\_of/business\\_leaflets/ca98\\_guidelines/of403.pdf](http://www.of.gov.uk/shared_of/business_leaflets/ca98_guidelines/of403.pdf)

<sup>153</sup> Commission Recommendation 2002/C165/03, OJ C165, 11.7.2002, p.6

<sup>154</sup> Commission Recommendation of 11 February 2003 2003/311/EC, OJ L114, 8.5.2003, p.45.

<sup>155</sup> Commission Recommendation of 17 December 2007 2007/879/EC, OJ L344, 28.12.2007, p.65:

[http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l\\_344/l\\_34420071228en00650069.pdf](http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_344/l_34420071228en00650069.pdf)

([http://ec.europa.eu/information\\_society/policy/ecom/doc/library/proposals/sec2007\\_1483\\_final.pdf](http://ec.europa.eu/information_society/policy/ecom/doc/library/proposals/sec2007_1483_final.pdf))

<sup>156</sup> The accompanying Explanatory Note to the Recommendation on Markets, *Commission Staff Working Document, Explanatory Note, Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services (Second edition)*

[http://ec.europa.eu/information\\_society/policy/ecom/doc/library/proposals/sec2007\\_1483\\_final.pdf](http://ec.europa.eu/information_society/policy/ecom/doc/library/proposals/sec2007_1483_final.pdf)

*“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.”*

A3.6 Our approach to market definition, as set out below, is consistent with the approach set out in the Recommendation on Markets and the SMP Guidelines, taking into account in particular:

- Recital (4) of the Recommendation on Markets, which clearly states that the starting point for market definition is the definition of retail markets from a forward-looking perspective, taking into account demand- and supply-side substitutability. The wholesale market is identified based on this retail market. This approach is repeated in section 2.1 of the EM, which also states that, because any market analysis is forward-looking, markets are to be defined prospectively taking account of expected or foreseeable developments (technological and/or economic) over a reasonable horizon linked to the timing of the next market review;
- Section 2.1 of the EM, which states that market definition is “*not an end in itself, but a means of assessing effective competition for the purposes of ex ante regulation*”. We adopted an approach by which this consideration is at the centre of our analysis. The purpose of market definition is to illuminate the situation with regard to competitive pressures. For example, our approach to supply side substitution explicitly identifies as the key issue the question of whether additional competitive constraints on pricing are brought to bear by additional suppliers entering the market. So, the key issue is not the market definition for its own sake, but an identification of the extent and strength of competitive pressures; and
- Section 4 of the EM, which states that wholesale markets should be examined in a way that is independent of the infrastructure being used, as well as in accordance with the principles of competition law. Again this approach is key to our analysis. We assess the extent to which switching among services by CPs constrains prices, irrespective of the infrastructure used by the providers of those services.

A3.7 In formulating our proposals, we have taken utmost account of the Recommendation on Markets (together with the EM) and the SMP Guidelines. Where appropriate, we have also taken utmost account of the NGA Recommendation. We consider that the market definitions which we propose below are consistent with the approach set out in those documents.

## General approach to market definition

A3.8 As noted above, the EM makes clear that the market definition exercise of the market analysis “*is not an end in itself*”, but is a means to an end. Market definition aids the assessment of whether end users of a product are protected by effective competition and so whether there is a requirement for the imposition of ex ante regulation. It is in this light that we have conducted the market definition in this review.

A3.9 There are two dimensions to the definition of the relevant market: the relevant products to be included within the market and the geographical extent of that

market. Market boundaries are determined by identifying constraints on the price-setting behaviour of firms. There are a number of competitive constraints to consider:

- Demand-side and supply-side substitution;
- Common pricing constraints; and
- Homogeneous competitive conditions.

### **Demand-side and supply-side substitution**

- A3.10 To identify constraints on firms' price-setting behaviour, two of the main competitive constraints to consider are:
- how far it is possible for customers to substitute to other products or services for those in question (demand-side substitution); and
  - how far suppliers could switch, or increase, production to supply the relevant products or services (supply-side substitution) following a price increase.
- A3.11 The hypothetical monopolist test ("HMT") is a useful tool to identify close demand-side and supply-side substitutes. A product is considered to constitute a separate market if a hypothetical monopoly supplier could impose a small but significant, non-transitory price increase ("SSNIP") above the competitive level without losing sales to such a degree as to make this unprofitable. If such a price rise would be unprofitable the market definition should be expanded to include the substitute products. Both the SMP Guidelines and the OFT Guidelines on Market Definition<sup>157</sup> indicate that a price five to ten per cent above competitive levels would be regarded as 'small but significant'.
- A3.12 The demand-side and supply-side substitution must take place within a relatively short time period in order to be able to impose some effective competitive constraint on the hypothetical monopolist. The OFT Guidelines suggest a time period of up to 12 months as a rule of thumb, although this may be shorter for example, in industries where transactions are made very frequently.
- A3.13 In applying the HMT, it is standard to begin with a fairly narrow view of the relevant market and then expand that market to include effective substitutes.
- A3.14 Demand-side substitution to one product is most likely to be a constraint on the price of another where the two products fulfil similar functions. They do not however have to be precisely the same: the question is whether there would be sufficient switching to act as a constraint on prices. For example, it may be appropriate to regard a number of broadly similar products which differ in price and quality as part of a single market. The relevant question is whether the price of higher quality variants is constrained to the competitive level by the lower quality product/service and vice versa.

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<sup>157</sup> OFT, *ibid*

- A3.15 Extending this reasoning, it follows that the product market definition may broaden to include a wide range of price/quality offerings based on a “chain of substitution”<sup>158</sup> between intermediate products/services within this range.
- A3.16 Supply-side substitution possibilities are examined to assess whether other potential market players provide any additional constraints on the pricing behaviour of the hypothetical monopolist which have not been captured by the demand-side analysis. For this to be relevant, suppliers must not be currently providing the product/service in question but must be able to enter the market quickly and at low cost by virtue of their existing position in the supply of other products or areas. This means that the supplier would already own all the assets (e.g., production, distribution and marketing) needed to produce the product/service in question.
- A3.17 Suppliers who are already present in the provision of demand-side substitutes, by definition, are already in the market and the threat of entry does not provide additional competitive constraint on the hypothetical monopolist. Nonetheless, the impact of expansion by such suppliers can be taken into account in the assessment of market power.

### Common pricing constraints

- A3.18 Another factor that is sometimes an additional consideration in setting market boundaries is whether there exist common pricing constraints across customers, services or geographic areas (i.e., areas in which a firm voluntarily offers its services at a geographically uniform price). This is recognised at paragraph 3.10 of the OFT Guidelines on Market Definition which states:

*“...Although it might in theory be profitable for a hypothetical monopolist to raise price in the focal area, perhaps because substitutes are unavailable, the existence of a price constraint may make such a price rise unprofitable, because it would require that prices are also raised in other areas where substitutes are present. Price constraints may thus lead to the relevant market being widened beyond the focal area...”*

- A3.19 The ERG’s Common Position, published in 2008<sup>159</sup> also notes that:

*“A national uniform price of an operator with national coverage might also have the effect that competitive pressure in some areas will be felt on a national level with the result that there are no significant geographic differences in prices. In these cases it can reasonably be assumed that a detailed geographic analysis would not lead to a different result than the analysis of a single national market and therefore no detailed geographic analysis (or data collection) is required”.*

- A3.20 Where common pricing constraints exist, the geographic areas in which they apply could be included within the same relevant market even if demand-side and supply-side substitutes are not present. Failure to consider the existence of a common pricing constraint could lead to unduly narrow markets being defined.

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<sup>158</sup> As described in OFT, “Market definition. Understanding competition law”, December 2004, and the Commission Notice on the definition of relevant market for the purposes of Community competition law, Official Journal C 372 , 09/12/1997 P. 0005 - 0013

<sup>159</sup> [http://erg.ec.europa.eu/doc/publications/erg\\_08\\_20\\_final\\_cp\\_geog\\_aspects\\_081016.pdf](http://erg.ec.europa.eu/doc/publications/erg_08_20_final_cp_geog_aspects_081016.pdf)

## Homogeneous competitive conditions

A3.21 Our approach also takes into account the SMP Guidelines. In particular paragraph 56 which states that:

*“According to established case-law, the relevant geographic market comprises an area in which the undertakings concerned are involved in the supply and demand of the relevant products or services, in which area the conditions of competition are similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different. The definition of the geographic market does not require the conditions of competition between traders or providers of services to be perfectly homogeneous. It is sufficient that they are similar or sufficiently homogeneous, and accordingly, only those areas in which the conditions of competition are ‘heterogeneous’ may not be considered to constitute a uniform market.”*

A3.22 Hence, where there are geographic areas where competitive conditions are sufficiently homogeneous the definition of the relevant geographic market will include all of those areas within one market, even if they are not linked by demand- or supply-side substitution.

## Geographic market

A3.23 As set out in paragraph A3.8, when defining the geographic scope of a market it is important to bear in mind that market definition is a means to an end and not an end in itself. The purpose of conducting a market definition exercise is to identify the relevant products and geographic area in which to undertake an analysis of competitive conditions for the purpose of determining whether ex ante regulation is required or not. This is the basis on which we have conducted our analysis.

A3.24 The principles of demand-side and supply-side substitution and the SSNIP test that aims to identify them can in principle also be used to define the geographic scope of the relevant market. However, rather than considering alternative products, the analysis assesses the effect on demand for the relevant product if there is a relative price change in a narrow geographic area. If products in the relevant product market in other areas are sufficient substitutes, such as to render the price rise unprofitable, then the geographic scope of the relevant market is widened to include these additional areas. Similar principles apply in relation to supply-side substitution. The presence of common pricing constraints across geographic areas is also relevant for the purposes of defining the geographic scope of a market.

A3.25 In carrying out this market review, we have taken into account the 2008 ERG Common Position set out above.

A3.26 In terms of the WLA product market, like many wholesale market definition exercises under the European Framework, we are seeking to define the geographic scope of a notional market. That is to say that under the modified Greenfield approach where we need to abstract from SMP-derived regulation imposed at the level or downstream of the market being reviewed, there is unlikely to be a standard wholesale product offered to the open market comparable to that which exists under current regulation. In the event of voluntary supply of WLA to third parties this would likely be a result of bespoke bargaining.

- A3.27 In such a scenario, where there is no standard wholesale product offered to the open market, competition would generally only take place at the retail level between vertically integrated operators, in this case specifically BT, which is present throughout the UK (excluding the Hull area) and the cable operator Virgin Media, which is present in around 46 percent of the UK (by delivery point).
- A3.28 Because the wholesale market is notional in our analysis and competition can only be assumed to take place at the retail level, the consideration of constraints has to be derived from the retail level. This means that by construct when we consider constraints at the wholesale level, we are considering a hypothetical situation, which means it is not possible to be incontrovertibly definitive in our conclusions. Nevertheless, a careful consideration of the incentives facing the relevant firms does provide insights into their likely behaviour absent SMP regulation.
- A3.29 The approach adopted in this review of the WLA market is as follows. First we considered the implications of the SSNIP test.
- A3.30 In terms of demand-side substitution, the question is whether a sufficient number of downstream customers would move location (house, business premise, etc.) in response to a SSNIP at the wholesale level, such as to make the SSNIP unprofitable.
- A3.31 Given that the cost associated with moving location is likely to be significantly higher than the cost associated with a WLA SSNIP, it is reasonable to conclude that geographic demand-side substitution is either a very weak or non-existent constraint. This approach would therefore lead to the definition of very narrow markets from the demand-side, which are unlikely to be practical to analyse or be representative of competitive constraints that exist. We therefore conclude that in this case demand-side substitution is not relevant to assessing the geographic market definition.
- A3.32 On the supply-side the question being asked is whether a supplier of local access who is operating in one geographic area would start supplying in another geographic area if this other area was exposed to a SSNIP by a hypothetical monopolist, to the extent that it would render the SSNIP unprofitable. If the SSNIP would be unprofitable then these geographic areas should be grouped together for the purpose of defining the relevant market.
- A3.33 In communications markets geographic supply-side substitution is generally considered to be a weak or non-existent constraint due to the high cost and long lead times associated with deploying new network infrastructure. This is especially the case for local access networks where there are no upstream remedies which might act to lower the associated costs.
- A3.34 Therefore, similar to demand-side substitution, supply-side substitution is limited by the need for an operator in a different geographic area to invest in new infrastructure. In the case of local access networks this would involve significant sunk costs so it is very unlikely that there would be supply-side substitution from one geographic area to another in response to a price rise by a hypothetical monopolist. This approach again would lead to the definition of very narrow markets which are unlikely to be practical to analyse or be representative of competitive constraints that exist. For these reasons, we have not used a SSNIP test approach to define geographic markets in WLA.

A3.35 Instead we defined a single geographic market where a common pricing constraint exists (or is likely to exist). As we define a common pricing constraint, it is also not necessary in this case to carry out a detailed analysis to identify areas of competitive homogeneity. However, we also briefly consider the extent of variations in competitive conditions.

### Modified Greenfield approach

A3.36 The Commission's framework for market reviews requires the adoption of a 'modified Greenfield approach'<sup>160</sup>. This means that existing SMP remedies that apply to the market under consideration, or to downstream markets, should be set aside. That is, the analysis should be conducted under a hypothetical scenario where the relevant existing SMP regulation does not exist. As WLA is the most upstream input, for the purposes of this market review this approach requires that the impact of all SMP regulation in fixed line communications is disregarded.

A3.37 In the 2004 WLA market review, this task was straightforward as LLU had yet to emerge as a significant force and broadband had not taken off. Since then, however, developments in both these areas mean that the exercise involves a much more hypothetical scenario. In order to conduct an SMP analysis certain conclusions need to be made about the effects of removing SMP legislation. As discussed further below, the analysis presented here is conducted on the basis that in the absence of SMP remedies:

- No new competing access networks, for example based on fixed wireless access, would be constructed;
- Virgin Media would not expand its network footprint; and
- LLU would not be offered voluntarily. Absent LLU-based entry, Virgin Media could have responded by making some limited gains in its WLA share at the expense of BT,

A3.38 In addition we consider that the market would mainly entail BT and Virgin Media competing at the retail level, thereby providing indirect constraints on any wholesale supply. Absent a requirement to provide wholesale services, it may well be the case that BT would continue to do so owing to the ability of other firms to add value at the retail level, for example from the strength of their brand or a greater ability to provide bundled services. Virgin Media may also find this in its best interests. However, we would not expect to see the same volumes as under regulated access and the main focus of competitive pressure in the WLA market would be at the retail level.

### Benchmark price

A3.39 For the purposes of the SSNIP analysis and market definition, the appropriate benchmark price is the competitive price to which the hypothetical price increment is applied. If the benchmark price is above the competitive price level, then this may result in an over-estimation of the scope for substitution, resulting in an excessively broad market definition and vice versa<sup>161</sup>.

<sup>160</sup> See Section 2.5 of the EM.

<sup>161</sup> The 'cellophane fallacy', named after the US case *US v El Du Pont Nemours & Co*, 351 U.S. 377 (1956), is used to describe the fallacy of identifying competitive constraints where prevailing prices

- A3.40 The Commission states in the SMP Guidelines that the “*working assumption will be that current prevailing prices are set at competitive levels. If, however, a service or product is offered at a regulated, cost-based price, then such price is presumed, in the absence of indications to the contrary, to be set at what would otherwise be a competitive level...*”<sup>162</sup>.
- A3.41 In 2005, Openreach was established to provide services to competing providers of telecommunications services on an equivalent basis. These services included LLU, which includes fully unbundled lines (metallic path facility, or “MPF”) and shared unbundled lines (shared MPF, or “SMPF”). Following the 2004 WLA market review, we set the charge ceiling for BT’s fully unbundled rental charges in November 2005<sup>163</sup>. This was updated in May 2009 with new price caps effective to the end of March 2011<sup>164</sup>.
- A3.42 As these prices have been established on the basis of costs, we can reasonably assume that such prices can be used as benchmark prices in the market definition assessment.

## Relationship between wholesale and retail markets

- A3.43 The analysis of retail market definitions is logically prior to the definition of wholesale markets. This is because demand for WLA is derived from demand for access at the retail level, i.e., the level of demand for the upstream input depends on the demand for the retail services which it supports. The principle that market power in the supply of a wholesale product may be constrained by competition in a related downstream market (by operators using a different wholesale input) is well-established. Failure to consider retail level constraints could lead to incorrect conclusions regarding market power and inappropriate remedies at the wholesale level.
- A3.44 If the upstream input accounts for a sufficiently large proportion of the downstream price, the range of available substitutes at the downstream (retail) level will inform the likely range of substitutes for the upstream (wholesale) service. This is because a rise in the price of a wholesale service which is passed through to the associated retail service will cause retail customers to switch retail products, so reducing demand for the wholesale input.

## Relevance of existing regulation

- A3.45 When defining downstream markets for the purpose of assessing SMP upstream, it is necessary to assume that upstream regulation is absent in the market under consideration, as illustrated in Step 1 of Figure 3.1. This is consistent with the ‘modified Greenfield’ approach that is a key part of our market definition

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are already above the competitive level. Even a monopolist reaches a point where further price increases become unprofitable and where competitive constraints come into action that would not have applied at competitive price levels. If this is not taken into account, the erroneous conclusion could be reached that a monopolist who has successfully exercised market power by raising price is subject to competitive constraints since, starting from monopoly price levels, it would be constrained from implementing further price increases.

<sup>162</sup> Paragraph 42

<sup>163</sup> Ofcom, “*Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6*”, 30 November 2005.

<http://www.ofcom.org.uk/consult/condocs/llu/>

<sup>164</sup> Ofcom, “*A new pricing framework for Openreach*”, 22 May 2009.

<http://www.ofcom.org.uk/consult/condocs/openreachframework/statement/>

methodology (see Annex 3) Where there is SMP in the WLA market it may not be eliminated by regulation, but that regulation does control the ability to exploit in the downstream market the SMP that exists in the upstream market.

- A3.46 We have therefore considered demand-side and supply-side substitution possibilities at the retail level only if they are economically viable in the absence of SMP regulation in the market being considered. This approach is consistent with the EM.

## Annex 4

# PIA reference offer requirements

## Introduction

- A4.1 As discussed in Sections 7 and 9, we have concluded that BT is required to produce a RO for its PIA service. To ensure that the RO is fit-for-purpose we have specified a set of minimum requirements for the RO. In this annex, we set out those requirements.
- A4.2 As our starting point, we have reviewed the list of requirements for existing ROs that is already specified in SMP Condition FAA5.
- A4.3 With the exception of condition FAA5.3 which applies only to LLU, and the new requirements for PIA in FAA5.3A, all of the clauses in Condition FAA5 apply to all Network Access. We therefore considered whether these requirements would be appropriate for PIA and whether any additional conditions would be appropriate.

## Standard reference offer features

- A4.4 Condition FAA5.2 specifies a set of standard features for ROs that apply to all existing Network Access services. We consider that these features would also be present in a well designed RO for PIA and therefore consider that FAA4.2 applies to PIA in its current form.

## Service level commitments and compensation payments

- A4.5 SLAs form part of commercial contracts and set out a supplier's commitment to provide services to an agreed quality, e.g., within a specified period. The associated SLGs specify the level of compensation that the customer would be entitled to should the service not be provided at the quality specified in the SLA, e.g., if delivery of the service was late. Together they are therefore essential elements of any commercial contract as they provide the supplier with an incentive to deliver service to a pre-defined and, potentially, pre-agreed level of performance or compensate their customer accordingly.
- A4.6 SLAs and SLGs are already specified as a standard requirement for the existing WLA market remedies and we consider it would be appropriate for these obligations to apply to the PIA obligation as well.
- A4.7 Since the current requirements were specified, we have undertaken further work on SLAs and SLGs. We therefore also consider that the compensation payments payable for failures to meet the SLGs should be in accordance with the general principles set out in our March 2008 Statement entitled *Service Level Guarantees: Incentivising Performance*<sup>165</sup>. In particular, we consider that the arrangements should:
- when agreed service levels are not met, make provision for compensation to be made based on a pre-estimate of an average CP's loss;

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<sup>165</sup> <http://www.ofcom.org.uk/consult/condocs/slg/statement/>

- ensure that CPs are entitled to make a claim for additional loss;
- pay compensation on a per event basis;
- ensure that compensation payments are made proactively; and
- efficient cost recovery should be permitted.

## PIA specific features

A4.8 Based on our studies of other duct sharing services we consider that in addition to the standard requirements listed above, BT's RO should include at minimum the following:

- An infrastructure information process – enabling CPs to obtain information such as diagrams, maps and other information showing the location of BT access network physical infrastructure;
- A description of the permitted uses of the physical infrastructure;
- Technical specifications for infrastructure access including:
  - technical specifications for cables and associated equipment;
  - cable installation, attachment and recovery methods;
- the methodology for calculating availability of spare capacity;
- procedures for the provision of information to CPs about spare capacity including arrangements for visual surveys of physical infrastructure to determine spare capacity;
- processes for capacity reservation with a requirement that they should apply equally to BT and OCPs;
- Processes for the installation and recovery of cables and associated equipment;
- arrangements for relieving congested physical infrastructure, including the repair of existing faulty infrastructure and the construction of new physical infrastructure;
- arrangements for co-investment in new infrastructure, including a process for announcement by BT of new infrastructure projects and arrangements for CPs to request provision of additional capacity;
- conditions for CPs to access to BT physical infrastructure including if appropriate training, certification and authorisation requirements for personnel permitted to access and work in/on infrastructure;
- Maintenance arrangements – a process to facilitate maintenance of cables after installation, including provision for the temporary occupation of additional infrastructure capacity for the installation of replacement cables; and

- In the interests of transparency, conditions for the inspection of infrastructure at which access is available or at which access has been refused on grounds of lack of capacity.

### **Publication and notification requirements**

A4.9 Conditions FAA5.4 to FAA5.10 specify requirements for publication of ROs and also for notifications of changes etc. We consider that these standard requirements should also apply to PIA.

## Annex 5

# Glossary

**Access Network:** The part of the network that connects directly to customers from the local telephone exchange.

**ADSL (Asymmetric Digital Subscriber Line):** a digital technology that allows the local loop to send a large quantity of data in one direction and a lesser quantity in the other.

**Aggregation Point (AP):** a point in the network (such as a local serving exchange) connected to the access network allowing a CP to multiple end user premises.

**Analogue Telephony Adaptor (ATA):** a device that provides a conventional analogue telephone interface to an Internet Protocol communications network.

**Backhaul:** Connection from the first access node (for example the local exchange or street cabinet) to the core network.

**Broadband:** a service or connection which is capable of supporting always-on services which provide the end user with high data transfer speeds.

**Co-location:** the provision of space at a BT MDF site that enables a competing provider to locate equipment within that MDF site in order to connect to the dominant provider and purchase LLU services. For the avoidance of doubt, co-location includes co-mingling.

**Co-mingling:** a type of co-location where a competing provider's equipment is located in the same area as the dominant provider could or does house its own equipment, without a permanent barrier between them.

**Communications provider (CP):** a person who provides an Electronic Communications Network or provides an Electronic Communications Service.

**Core Network:** The backbone of a communications network, which carries different services such as voice or data around the country.

**Current Generation Access (CGA):** a copper-based access network that can support a maximum download speed of 24 Mbit/s.

**Customer Premises Equipment (CPE):** any terminal and associated equipment that is connected to an electronic communications service at customers' premises. Equipment is often provided and connected by consumers and includes for example, telephones, answering machines, and modems.

**Digital:** the binary coded representation of a waveform, as opposed to analogue, which is the direct representation of a waveform.

**DOCSIS (Data Over Cable Service Interface Specification):** The international standards for sending data over a cable network.

**DSL (Digital Subscriber Line):** a family of technologies generically referred to as DSL, or xDSL, capable of transforming ordinary local loops into high-speed digital lines, capable of supporting advanced services such as fast Internet access and video-on-demand. ADSL

(Asymmetric Digital Subscriber Line), HDSL (High bit rate Digital Subscriber Line) and VDSL (Very high bit rate Digital Subscriber Line) are all variants of xDSL.

**DSLAM (Digital Subscriber Loop Access Multiplexer):** apparatus used to terminate DSL enabled local loops, which comprises a bank of DSL modems and a multiplexer which combines many local loops into one data path.

**Ducts:** Underground pipes which hold copper and fibre lines.

**Duct Access:** When service providers other than the owners of telecommunications ducts can access existing pipes to deliver connections to end customers. In practice, communications providers can pull their own cables through the existing pipes without needing to dig new trenches and lay new ducting.

**External tie cable:** the provision of links that connect the local loop to the equipment of a competing provider outside a MDF site.

**European Regulators Group (ERG):** A former group of national regulators within Europe, of which Ofcom was a member.

**Equivalence of Inputs (EOI):** a principle that BT will provide the same input products and services 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 to CPs on an equivalent basis to itself (including BT's own downstream divisions).

**Fibre-to-the-Cabinet (FTTC):** An access network structure in which the optical fibre extends from the exchange to a flexibility point in the BT access network known as a cabinet. The street cabinet is usually located only a few hundred metres from the subscriber's premises. The remaining part of the access network from the cabinet to the customer is usually copper wire but could use another technology, such as wireless.

**Fibre-to-the-Premises (FTTP):** An access network structure in which the optical fibre network runs from the local exchange to the end user's house or business premise. The optical fibre may be point-to-point – there is one dedicated fibre connection for each home – or may use a shared infrastructure such as a GPON. Sometimes also referred to as Fibre To The Home (FTTH).

**Generic Ethernet Access (GEA):** BT's wholesale non-physical product providing CPs with access to higher speed broadband products

**Gigabit Passive Optical Network (GPON):** A shared fibre network architecture that can be used for NGA.

**Hull Area:** the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications (Hull) plc.

**Integrated services digital network (ISDN):** a set of communications standards for digital transmission of voice, video, data, and other network services over the traditional circuits of the PSTN.

**Internal tie cable:** the provision of links that connect the local loop to the equipment of a competing provider within an MDF site.

**KCOM:** KCOM Group plc, formerly known as Kingston Communications plc.

**KPIs (key performance indicators):** statistics used to measure performance, such as the time to provide services and repair faults

**Local loop:** the access network connection between the customer's premises and the local serving exchange, usually comprised of two copper wires twisted together.

**Local loop unbundling (LLU):** a process by which a dominant provider's local loops are physically disconnected from its network and connected to competing provider's networks. This enables operators other than the incumbent to use the local loop to provide services directly to customers.

**Local Serving Exchange (LSE):** A building which houses electronic equipment that connects telephone calls. Backhaul links from a CP are terminated here to connect internet access links to end user premises.

**Main distribution frame (MDF)/unbundled local loop:** the equipment where local loops terminate and cross connection to competing providers' equipment can be made by flexible jumpers.

**Metallic Path Facilities (MPF):** the provision of access to the copper wires from the customer premises to a BT MDF that covers the full available frequency range, including both narrowband and broadband channels, allowing a competing provider to provide the customer with both voice and/or data services over such copper wires.

**Modem:** abbreviation of modulate-demodulate, a device that converts a digital signal into analogue for transmission purposes. It also receives analogue transmissions and converts them back to digital.

**Narrowband:** a service or connection that provides a maximum speed of up to 64 kbit/s per circuit (and therefore up to 128 kbit/s in the case of ISDN2). Narrowband modems generally offer a maximum rate of 56 kbit/s.

**Next Generation Access:** New or upgraded access networks that will allow substantial improvements in broadband speeds and quality of service compared to today's services. This can be based on a number of technologies including cable, fixed wireless and mobile. Most often used to refer to networks using fibre optic technology.

**Network Termination Equipment (NTE):** a terminal device installed at a consumer's premises that provides access to an electronic communications network. Typically the device will have one or more sockets into which consumers can connect CPE.

**Non-physical Access:** Wholesale access to the network infrastructure through electronic equipment.

**Office of the Telecommunications Adjudicator (OTA):** an independent body that facilitates discussion between CPs on operational issues related to new and existing telecoms products and services.

**Open ATA:** a requirement that includes control over CPE for interconnecting CPs, allowing greater flexibility in the provision of downstream products and services.

**Passive Optical Network (PON):** is where a single fibre from the exchange is shared by several end users by means of a passive optical splitter which is deployed somewhere between the local serving exchange and the end users premises.

**Physical Access:** Wholesale access products based on direct access to the physical infrastructure of the network (e.g., copper, fibre, duct), without the need to connect to electronic equipment.

**Physical Infrastructure Access (PIA):** a proposed obligation under which BT would be required to allow OCPs to deploy NGA networks in the physical infrastructure of its access network.

**Primary Connection Point (PCP):** street cabinet (or equivalent facility) located between the end user's premises and BT's local serving exchanges, which serves as an intermediary point of aggregation for BT's copper network.

**PSTN:** Public Switched Telephone Network

**Reference offer (RO):** provides a set of minimum conditions for an SMP operator to develop products or services for the use of OCPs.

**Shared metallic path facility (SMPF)/shared access:** 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.

**Site access:** the provision of access to BT's MDF sites in order for a competing provider to install and operate equipment within those MDF sites;

**SMP:** The Significant Market Power test is set out in European Directives. It is used by National Regulatory Authorities (NRAs) such as Ofcom to identify those communications providers who must meet additional obligations under the relevant Directive.

**Splitter:** A piece of equipment which splits a single access connection into multiple connections.

**Service Level Agreements (SLA):** form part of commercial contracts and set out a supplier's commitment to provide services to an agreed quality, e.g., within a specified period.

**Service Level Guarantees (SLG):** specify the level of compensation that the customer would be entitled to should the service not be provided at the quality specified in the SLA

**Sub-loop unbundling (SLU):** Like local loop unbundling (LLU), except that communications providers interconnect at a point between the exchange and the end user, usually at the cabinet.

**Statement of Requirements (SOR):** is a requirement that allows CPs to make a request to the SMP operator for the provision of a service. It requires the SMP operator to publish reasonable guidelines on requesting a new product, the provide information for the purpose of making a request for a new product, and design a process for dealing with requests for new products.

**Virtual Unbundled Local Access (VULA):** it provides a connection from the nearest 'local' aggregation point to the customer premise.

**Wholesale Broadband Access (WBA):** is between the WLA market and retail market for provision of fixed telecommunications services to end users.

**Wholesale Line Rental (WLR):** is the fixed telecommunications voice service delivered over the PSTN that CPs provide to end users at the retail level.

**Wholesale Local Access (WLA):** covers fixed telecommunications infrastructure, specifically the physical connection between end users' premises and a local exchange.