Business Connectivity Market Review

Preliminary consultation on passive remedies

Consultation

Publication date: 5 November 2014

Closing Date for Responses: 5 January 2015

About this document

This document concerns the regulation of leased lines, which are high-performance transmission services often delivered over optical fibre. They are used as components of communications services for businesses and of mobile and fixed broadband services for all users.

We currently impose regulations on how BT provides leased lines in certain markets because we have found that it holds significant market power.

We are now conducting a review of competition in the supply of leased line services in the UK. As part of the review, we are required to consider the full range of available options that could support our regulatory objectives of effective and sustainable competition, innovation, efficient investment and widespread availability of telecoms services.

In this document we discuss a form of regulation which we have not imposed on BT's provision of leased lines, known as passive remedies. Regulations of this form would require BT to let its competitors use its physical infrastructure, such as ducts, poles and/or unlit ('dark') optical fibres, to provide their own leased line services.

In order to consider the full breadth of possibilities before making proposals, we need to be in a position to be able to develop options which both exclude and include passive remedies. The purpose of this consultation is to seek stakeholders' comments to help us do this. In particular we are seeking comments on the following areas:

- the framework for assessing the role of passive remedies in our review;
- the potential costs and benefits of passive remedies at a broad level; and
- high-level aspects of the design and scope of any passive access product.

Our assessment of competition is still at an early stage. Consequently we are not yet in a position to determine what regulations, if any, we should propose. We plan to publish our proposals for the market review in the spring of 2015.

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Section 1

Executive summary

Introduction

1.1 We are currently conducting a review of competition in the supply of leased lines services in the UK (the Business Connectivity Market Review, or BCMR). Leased lines are high-performance transmission services usually delivered over optical fibre. They are essential components of communications services for business end-users and of fixed and mobile broadband services for all end-users.

1.2 In our last review of these services, which we completed in March 2013, we found that BT has significant market power (SMP) in several of the markets defined in that review. Accordingly, we imposed regulatory obligations on BT, including a charge control, that apply until March 2016. The obligations are designed to promote effective and sustainable competition in downstream markets by requiring BT to provide fully functional leased lines services to communications providers (CPs) on a wholesale basis. This form of regulatory obligation is known as an 'active' remedy.

1.3 In our current review, we are considering what regulations, if any, to impose from April 2016. As part of this review we are considering whether a form of regulatory obligation known as a 'passive' remedy could play a role in addressing any competition issues in the event that we find that BT has SMP in these markets.

1.4 A passive remedy, if imposed, would require BT to provide access to elements of its network infrastructure so that CPs could use them to provide their own leased line services. The term 'passive remedy' describes a range of possible products with different characteristics, and includes:

- access to ducts and poles – which would enable CPs to deploy their own fibre as well as electronic equipment; and
- dark fibre - which would give CPs access to unlit optical fibre between two fixed locations, enabling them to install their own electronic equipment.

1.5 We published a Call for Inputs (CFI) [1] in April 2014, in which we sought initial comments on a range of topics, including passive remedies. The responses indicated that a number of stakeholders are interested in passive remedies.

The purpose of this consultation

1.6 Our analysis of the leased lines markets is still at an early stage, and we plan to publish our full proposals for market definition, SMP assessment and remedies in the spring of 2015. We intend to conclude the BCMR and impose any remedies, if appropriate, by April 2016.

1.7 We will consider the full range of available options that could support our objectives, which include: effective and sustainable competition, innovation, efficient investment and widespread availability of telecoms services.

[1] http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity-market-review/summary/Business-Connectivity-Market-Review.pdf

1.8 In order to consider the full breadth of possibilities before making proposals, we need to develop options which both exclude and include passive remedies. That will allow us to compare the ability of those options to address any competition problems identified in the market review. The purpose of this consultation is to seek further input from stakeholders to help us do this. Our considerations related to passive remedies are currently in the following areas:

- the framework for assessing the role of passive remedies in the BCMR;
- the potential costs and benefits of passive remedies at a broad level; and
- high-level aspects of the design and scope of any passive access product, including pricing issues.

1.9 We emphasise that the purpose of this consultation is to inform our assessment of passive remedy options. We have not decided whether to propose passive remedies, nor should this consultation be taken as an indication that we are likely to propose them.

The potential effects of passive remedies and how we intend to assess them

Framework for analysis

1.10 We are carrying out the BCMR under the UK implementation of the EU regulatory framework for telecommunications. Accordingly, if and where we find SMP, we will assess what remedies we should impose, whether passive, active or both, in light of the nature of the competition problems we identify in the relevant markets.

1.11 In accordance with that framework, factors that are likely to be particularly relevant to our consideration of any passive remedies include:

- economic efficiency, including incentives to invest and innovate;
- effective competition among CPs;
- distributional effects on consumers;
- commercial and regulatory consequences; and
- the widespread availability of services throughout the United Kingdom.

1.12 We recognise that there may be trade-offs between these considerations, as pursuit of one may compromise the pursuit of the others. Therefore, we will have to balance these different considerations when developing any options for remedies, including those which may include passive remedies.

1.13 We recognise that passive remedies have potential applications and effects beyond the leased lines markets, and may also have effects over the long term. Therefore, this consultation sets out our thinking on the potential broader effects of passive remedies across different possible markets, and recognises that it is important, as part of the BCMR, to consider the strategic implications of passive remedies beyond the three year period inherent in the market review cycle.

We are seeking stakeholders' views on our initial consideration of the potential benefits of passive remedies

1.14 Passive remedies would give competitors control over more elements of the network than active remedies, potentially providing CPs with more flexibility than they have now to make investment decisions and innovation choices independently of BT. In our assessment of the case for passive remedies we expect to give particular weight to potential uses of passive products that could lead to improvements in efficiency. At the same time, we are likely to attach less value to potential uses targeted at exploiting the extent to which differences in charges between BT's passive and active products exceed differences in their corresponding incremental costs.

1.15 Passive remedies may offer CPs more scope for innovation and more direct control over upgrades and reconfiguration of services than they have now with active remedies. This means that CPs would be more able to differentiate the services they offer in terms of service quality or technology deployed (e.g. CPs could offer different service levels; and any mobile network operator might be able to choose independently whether and when to implement a cloud-based radio access network to support enhanced mobile data services).

1.16 Passive remedies could make more elements of the value chain contestable, which may generate efficiency improvements, and lead to lower costs and prices over time. For example CPs may be able to aggregate capacity more efficiently.

1.17 Passive remedies could also lead to the withdrawal of downstream regulation over time, reducing the overall regulatory burden. Where passive remedies lead to sufficiently vigorous competition, there would be less need to impose active remedies. However, active and passive remedies would probably have to co-exist for some time, and any withdrawal of downstream remedies is likely to become possible only over a relatively long term, because passive remedies are likely to take some time to become established. The feasibility and timescale of any withdrawal is also likely to vary by geography.

We are also seeking stakeholders' views on the adverse potential impacts and risks we have identified so far

1.18 BT could seek to increase some of its charges if we impose passive remedies. This possibility stems from the relatively significant contribution which BT's sales of high-bandwidth wholesale leased lines currently make to recovery of its common costs, defined as those costs which do not vary in response to changes in the volume of any one product. In setting controls on BT's charges we generally ensure that BT has a fair opportunity to recover its efficiently incurred costs, including common costs. If we were to impose passive remedies, we would take care not to undermine that opportunity. Therefore, if BT's revenues from high-bandwidth wholesale leased lines were to reduce as a result of our imposition of passive remedies, its charges for other services may need to rise. The overall impact on the pattern of BT's charges would depend on the design and scope of any passive remedies we may impose. The impacts of any increases may not be confined to leased lines prices, and could potentially include prices of wholesale services used to support voice and broadband services sold primarily to residential consumers.

1.19 In addition, any new remedy we may impose could affect BT's and other CPs' current incentives to invest. We will consider the extent of existing passive infrastructure investment by BT and other CPs, as well as the potential impact of passive remedies on their incentives to invest in the future.

The scope and design of any potential passive remedies

1.20 In considering options which may include passive remedies we are also looking at a range of issues relating to their scope and design:

a) ***Dark fibre and/or duct access:*** Respondents to the CFI identified dark fibre and duct access as the most important forms of passive remedy. While preferences between the two depended on the intended use, most respondents' interest was focused on dark fibre (particularly for mobile and fixed backhaul). Both dark fibre and duct access would give CPs control of the electronic equipment associated with leased lines services. As this is where the most significant opportunities for innovation are likely to reside, our initial view is that they offer similar scope for innovation benefits overall. At the same time, dark fibre seems to involve less duplication of fixed costs. We will consider further the relative merits of duct access and dark fibre, and whether either or both remedies should be imposed.

b) ***Product and geographic scope of passive remedies:*** Our assessment of the competition problems in the markets we define for wholesale leased lines, in terms of both product characteristics and geography, will inform our consideration of the appropriate scope of any remedies, including any regulated passive products. In addition, the balance of benefits and costs we assess in relation to passive remedies might vary according to location and/or use. One possible outcome is that any passive remedies may be restricted to certain geographic areas and/or uses. As part of our assessment we will consider the impact of such restrictions on the practical use of passives by CPs and the scale of benefits.

c) ***Non-discrimination obligations***: We would need to consider how to ensure that CPs can compete on a level playing field in providing services which use passive inputs. Our initial view is that while it is likely to be appropriate to require that BT should provide any regulated passive product on the strict non-discriminatory basis of Equivalence of Inputs (EOI), it is unlikely to be appropriate to require BT to consume that regulated product in providing its existing services.

d) ***New construction***: A further design consideration for any potential passive remedy is the arrangements that would apply when new infrastructure is required. For example, where there is congestion and no spare capacity available, new infrastructure would need to be built. We consider that the current arrangements in place for active leased lines are likely to provide a good starting point for considering the arrangements that might apply in the case of passive access, were we to impose such a remedy. We plan to consider this further as we proceed with our analysis.

e) ***Pricing methodology and options:*** If we propose to implement passive remedies, the approach we choose to pricing is likely to be important in determining the extent of eventual adoption and, therefore, also in mitigating any risks which their introduction would entail. In considering how any regulated passive product might be priced, we would need to identify whether general remedies (such as "fair and reasonable" access and no undue discrimination obligations) would be sufficient, or alternatively whether we should impose a charge control. If we were concerned about the efficiency or distributional effects of potential changes to the existing pattern of BT's common cost recovery, we could seek to regulate prices in a manner that mitigated such effects.

Next Steps

1.21 We invite comments on the initial views set out in this document by 5 January 2015. Responses should be in writing (either through our website or by email or post – see Annex 1).

1.22 As noted above, we plan to publish a further consultation in the spring of 2015 setting out in full, our proposals concerning market definition, SMP findings and remedies. This will include our consideration of passive remedies.

Section 2

Introduction

The Business Connectivity Market Review

2.1 We are currently conducting our Business Connectivity Market Review (BCMR) in which we examine competition in the supply of leased lines services in the UK. Our decision at the end of the review will determine the regulation that will apply for the period between 1 April 2016 and 31 March 2019.

2.2 Leased lines provide dedicated transmission capacity between fixed locations, and are essential components of information and communications technology (ICT) services used by businesses. In our previous review, completed in 2013 (BCMR 2013)[2], we estimated that the market at the wholesale level is worth more than £2bn per annum in the UK.[3] Leased lines are high-performance uncontended data transmission services and tend to be used by larger businesses. Small and medium-sized businesses more often use contended data transmission services, provided using broadband access and superfast broadband access. We examine competition in the supply of the infrastructure underlying contended transmission services in separate reviews.[4]

2.3 Many organisations, both in the private and public sectors, use leased lines to support a wide variety of ICT applications, such as access to the internet, private voice and data networks, backup and disaster recovery, remote monitoring and telemetry applications. Leased lines are also used by CPs as components of consumer communication services, and hence play a significant role in determining the speed and cost of those services. For example, mobile network operators (MNOs) use large volumes of leased lines to carry mobile voice and data services between their radio base stations and switching centres; and providers of fixed broadband services use substantial volumes of leased lines to carry their customers' traffic between BT's local exchanges and their networks.

Active and passive remedies

2.4 The regulatory obligations we imposed in the BCMR 2013, require BT to provide leased lines services (i.e. fully functional leased line services which include electronic equipment) to CPs on a wholesale basis. We refer to these as active remedies.

[2] Ofcom, Business Connectivity Market Review, 28 March 2013. http://stakeholders.ofcom.org.uk/consultations/business-connectivity-mr/

[3] Based on our analysis in the last market review, BT was by far the largest wholesale supplier of leased lines in the UK. Our estimate at the time was that BT had a share of 82% of volumes. The majority of CPs remained reliant on BT's network in providing services to their customers.

[4] See our Statement on fixed Access Market Reviews (FAMR)- http://stakeholders.ofcom.org.uk/binaries/telecoms/ga/fixed-access-market-reviews-2014/statement-june-2014/volume1.pdf and our Statement on the wholesale broadband access markets - http://stakeholders.ofcom.org.uk/binaries/consultations/review-wba-markets/statement/WBA-Statement.pdf

2.5 As part of our current review we are considering whether a form of regulatory obligation known as a 'passive remedy' could play a role in addressing any competition issues in the event that we find that BT has SMP in these markets.[5]

2.6 A passive remedy would require BT to provide access to elements of its network infrastructure such as ducts or fibres so that CPs could construct their own services. We use the term 'passive remedy' because, in contrast to active remedies, BT does not need to install or operate electronic equipment in providing such access.

2.7 We consider two main types of passive access in this consultation:[6]

- Duct access – which would give CPs access to ducts and poles enabling them to deploy their own fibre as well as electronic equipment. This is effectively the most upstream access remedy;

- Dark fibre - which would give CPs access to unlit optical fibre between two fixed locations, enabling them to install their own electronic equipment. Dark fibre is therefore downstream of duct access, but upstream of the current suite of active remedies.

2.8 Earlier this year we published a Call for Inputs (CFI)[7] in which, amongst other things, we stated that "[a]s part of this review we plan to consider again whether, on the presumption we make findings of SMP on the part of BT again, there is a case for passive remedies in wholesale leased lines markets."[8] To this effect, we set out a number of areas we planned to investigate, and a number of questions, to which we invited responses. The CFI responses indicated that a number of stakeholders were interested in passive remedies. We have taken their responses into account in this consultation document.

2.9 In light of this interest we are considering the case for passive remedies as part of our current review. Our considerations include looking at the effects which passive remedies could have beyond the scope of leased lines markets and over the longer term (i.e. looking beyond March 2019).

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[5] The focus of this consultation is a consideration of passive access in relation to BT. However, the same analysis would apply to any operator we may find to have SMP. We note in this context that in the BCMR 2013, we concluded that KCOM has SMP in the Hull area. However to date no stakeholder expressed interest in passive remedies in Hull.

[6] We note that wavelength unbundling, where the light in a fibre optic cable is split into separate wavelengths which can then be used by different CPs, may also be classed as a form of passive access. Wavelength unbundling could deliver similar benefits to dark fibre, but while possible, it remains technically complex and its use in leased lines markets is currently limited. Therefore our initial view is that wavelength unbundling would be unlikely to be technically feasible as a remedy during the period of the current market review. We also note that in the CFI published in April 2014, we sought stakeholders' views on the types of passive remedy that might be technically feasible and suitable for leased lines. In response, the majority of stakeholders identified dark fibre and duct access as suitable for leased lines. UKCTA noted that its members have yet to express any clear views on wavelength unbundling, and was unclear what the costs and benefits might be when compared with dark fibre. Therefore, we do not consider wavelength unbundling further in this consultation. Nevertheless, if stakeholders wish to include in their responses any comments about the feasibility, costs and benefits of any potential remedies based on wavelength unbundling, we will take these into account.

[7] http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity-market-review/summary/Business-Connectivity-Market-Review.pdf

[8] See paragraph 1.32 of the CFI.

It is important to understand key elements of the underlying economics of leased lines and the implications of passive remedies

The cost structure of leased lines

2.10 In order to understand the choices facing Ofcom in establishing remedies in the BCMR it is necessary to understand the cost structure of leased lines. The main elements of cost involved in the provision of leased lines are the capital costs of trenches and ducts, optical fibre, electronic equipment, land and buildings, along with some specific and general operating costs. Many of these cost elements, most notably the costs of duct, are shared with other services using the network, such as voice and consumer broadband services.

2.11 We refer to most of the relevant cost categories as common costs, because they are driven by factors other than the number and bandwidth of the leased lines circuits provided. The cost of providing additional bandwidth is low in relation to the overall cost of the infrastructure supporting the service. So when a circuit is already in place, the incremental[9] cost of additional bandwidth is very low. Similarly, the cost of providing an additional circuit between two points is relatively modest if the infrastructure required (such as duct and fibre) already reaches those points.

2.12 Therefore our assessment of the pricing of any remedies is likely to focus particularly on issues of common cost recovery. In a firm which incurs common costs in delivering a range of services, pricing to just recover the incremental costs of a service is not sustainable as not all costs would be recovered and the firm would make a loss. When regulating the charges of BT's wholesale services one important principle that we generally seek to follow is to provide BT with an opportunity to recover its efficiently incurred costs, including common costs. Therefore if we were to introduce passive remedies, we would need to be careful to ensure that their introduction did not undermine this opportunity.

The pricing of bandwidth

2.13 BT's regulated leased lines tariff is established by a two stage process. First, costs are allocated to leased lines and other services via BT's regulatory accounting system which is scrutinised by Ofcom at the start of each charge control review. Second, based on these figures, combined with forecasts of changes over the next control period, BT is then subject to overall price caps for leased lines services. Ofcom does not set prices for individual leased line services.

2.14 The current tariff structure for leased lines generally involves higher bandwidth services making a greater contribution to the recovery of common costs than lower bandwidth services when measured on a per circuit basis. The 'bandwidth gradient'

[9] We define 'incremental costs' as costs of producing a specified additional product, service or share of output (i.e. the specified 'increment'). In many cases, the relevant increment may be the entire output of a particular service or group of services. The incremental costs of a service are then those costs which are directly caused by the provision of that service in addition to the other services which the firm also produces. Another way of expressing this is that the incremental costs of a service are the difference between the total costs in a situation where the service is provided and the costs in another situation where the service is not provided.

(i.e. the change in price charged when moving to a higher capacity circuit) exceeds the gradient of the incremental cost in relation to bandwidth.[10]

2.15 The implication of the bandwidth gradient is that some services will be more attractive than others as a target for competitors. If passive access is made available to competitors at a price which reflects a share of the average costs of duct (and/or fibre), a competitor using that access would be expected to target the services with the greatest contribution to common costs because it will be more profitable to recover a (relatively) fixed access charge from services where the available margin is greatest.

2.16 In response, it is likely that BT would need to rebalance its tariffs in the way that would best meet the challenge of the competitor using passive access targeting high value customers.

Intensity of network usage

2.17 A second important feature of BT's leased line pricing is that prices are generally geographically averaged,[11] meaning that equivalent circuits are sold for equivalent prices, regardless of location. Against this, there are marked differences in the intensity of usage of the network by geographical area.

2.18 It is usually the case with telecommunications networks that some parts of the infrastructure support many circuits and very high bandwidths, while others are utilised comparatively lightly. As prices of leased lines need to be above incremental cost to recover common costs, areas with a high volume of take-up will generate a higher contribution to common cost recovery. Thus, profitability will tend to vary by area when prices are set on a geographically uniform basis.

2.19 This geographic concentration of value leads to a situation where a competitor using a passive access product priced on the basis of a share of geographically averaged cost will have the opportunity to target the provision of services in locations with above average utilisation.

Implication for passive remedies

2.20 The combination of profitability of leased lines varying by geographic area and by bandwidth leads to a situation where a competitor paying a fixed (or at least bandwidth and location invariant) passive access price will have the opportunity to target the provision of particular services and/or particular locations. This may mean that instead of competition on the merits, competition would be the consequence of exploiting differences in the pricing structures of products downstream and passive access products upstream.

2.21 We will need to consider these issues carefully when assessing the likely impact of passive remedies on the leased lines market, were they to be introduced in the next

[10] Note however that the additional charge for additional increments of bandwidth are generally substantially less than proportional to the amount of additional bandwidth purchased. This means that while higher bandwidth circuits contribute more to common costs than lower bandwidth circuits, users nonetheless receive a significant volume discount (i.e. there is a significant reduction in the average price per unit of bandwidth).

[11] There are some exceptions to this, for example in the West, East and Central London Area (the 'WECLA').

BCMR. We also need to consider what policy measures might be available to mitigate any potentially undesirable side-effects.

Infrastructure competition

2.22 Current market prices will have already been shaped to some extent by the existence of competitors using their own infrastructure. Indeed, as might be expected, fixed network entry via self-build has been primarily in areas with high density of demand and/or focused on high-value customers and products.

2.23 A number of competitors have built their own passive network infrastructure, for example Virgin Media, Colt, Vodafone, Verizon and Level 3. However, none of these CPs have nationwide coverage like BT and, even in geographic areas where they are present, their network reach is not as extensive as BT's.

2.24 If passive access provides a lower-cost or lower-risk route to market than self-build, this will change the future returns on past self-build decisions and (other things equal) reduce the incentives for self-build in areas where CPs (other than BT) are not yet present. We will need to take this into account when considering the costs and benefits of introducing passive remedies.

Scope and purpose of this consultation

2.25 Our analysis of the leased lines markets is still at an early stage, and we plan to publish our full proposals for market definition, SMP and remedies in the spring of 2015. We intend to impose any new remedies from April 2016.

2.26 In order to consider the full breadth of possibilities before making proposals, we need to develop options which both exclude and include passive remedies. That will allow us to compare the ability of those options to address any competition problems identified in the market review. Therefore, the purpose of this consultation is to give stakeholders an opportunity to contribute to our ongoing analysis of passive remedies so that we can, if appropriate, present more fully developed proposals in our main consultation.

2.27 The remainder of this consultation considers the following:

- our framework for the assessment of passive remedies (Section 3);
- the benefits that passive remedies might provide (Section 4);
- the impacts and risks of passive remedies (Section 5); and
- more specific consideration of costs and benefits by reference to scope and design of remedies such as: the types of passive remedy that could be implemented, and what non-discrimination obligations might apply (Section 6); and how pricing might be approached (Section 7).

2.28 Responses to this consultation will further inform our consideration of whether we should impose passive remedies as part of this review and, if so, which passive access remedies would be most appropriate.

2.29 We emphasise that the purpose of this consultation is to inform our assessment of passive remedy options. We have not decided whether to propose passive remedies, nor should this consultation be taken as an indication that we are likely to propose passive remedies.

Section 3

Our framework for analysis

3.1 We have a statutory duty to review competition in certain communications markets periodically, in accordance with the EU regulatory framework. This framework breaks down market reviews, such as this BCMR, into three stages:

- We identify and define the relevant markets appropriate to the national circumstances in the UK, under the regulatory framework harmonised across the EU.
- We assess whether any of the markets are effectively competitive, which involves assessing whether any operator has significant market power (SMP) in any of the relevant markets.
- Where there has been a finding of SMP, we assess the appropriate remedies to impose based on the nature of the competition problem identified in the relevant markets. Where we determine that a market is effectively competitive, we remove regulation that currently applies to that market.

3.2 Our assessment of the merits of passive remedies will be carried out in accordance with this EU regulatory framework, and subject to our statutory duties. A key step in assessing the case for introducing any passive remedy will be identifying any competition problems in relevant markets arising from a finding of SMP, and determining the extent to which any potential passive remedy would address those competition problems.

3.3 There are a number of factors that we will need to take into account when deciding whether a passive remedy may be appropriate to address any identified competition problems. This consultation is intended to identify, and inform our thinking on these factors. These are likely to include:

- Economic efficiency – this assessment includes the consideration of the following:
  - Allocative efficiency – i.e. whether prices reflect forward looking (marginal or incremental) costs;
  - Productive efficiency – i.e. whether BT and access seekers face incentives to minimise costs and efficient buy/build signals;
  - Dynamic efficiency – i.e. whether there is scope for increases in output from existing resources as techniques of production are improved and/or new services are developed, as a result of successful investment and innovation. An important factor in driving incentives to invest and innovate is that firms have the opportunity to recover investments, including investments which once made are sunk. This is why consideration of passive remedies should consider the opportunity to recover efficiently incurred costs, including costs which might be sunk and/or common across many services;
- Competitive impacts – the extent to which the remedy facilitates effective competition among CPs. This includes the effect on competition at different

points in the value chain, and the point(s) at which we would expect intervention to secure greater competition.

- Distributional effects on consumers – an assessment of which consumers might be better off, and which worse off, as a result of adopting passive remedies. Indeed, passive remedies have potential effects and applications beyond the leased lines markets which are the primary focus of the BCMR. For example, we would need to take into account any costs that could fall on consumers of services in other markets.

- Commercial and regulatory consequences – It is also relevant to consider the practical implications of adopting a particular option such as, for example, the burden of regulation or whether there is a less intrusive way of achieving the same or similar outcome.

- The availability of services throughout the United Kingdom – To what extent the option ensures that CPs continue to provide leased lines services throughout the UK?

3.4 We recognise that there may be trade-offs between these considerations, as pursuit of one may compromise the pursuit of other(s). For instance, it is often the case that there is a trade-off between static (particularly productive) and dynamic efficiencies (but this is by no means the only example). In this context, we note that self-build potentially provides the greatest scope for dynamic benefits since CPs will have the opportunity to control more of the value chain, but also the greatest level of fixed-cost duplication which may result in productive inefficiencies. In comparison, passive remedies may provide an opportunity for CPs to deliver some of the dynamic benefits with lower levels of infrastructure duplication; and active remedies may offer fewer dynamic benefits but also less infrastructure duplication. Therefore as part of our overall assessment, we will need to balance the different factors set out in the paragraph above when developing the different options for passive remedies, and note that some may be more important than others in this assessment.

3.5 In considering different remedies and developing our proposals, we anticipate that we will need to compare packages of remedies consisting solely of active remedies with packages of remedies consisting of both active and passive remedies. We will also need to compare different types of passive remedy. For reasons set out below and in Section 4, it is unlikely that we will propose packages of remedies consisting solely of passive remedies.

We have also identified some other wider considerations and principles that are relevant to our framework

3.6 At this stage of the process, there is a range of wider considerations and principles that we consider to be of particular relevance to assessing the case for passive remedies. These are covered at various points throughout the consultation, but we have also summarised them here for reference:

- Passive remedies would not be available immediately and may take some time to introduce. It is likely that any passive remedy would need to co-exist with active remedies over the short- to medium-term.

- If introduced, passives remedies may take some time to become established. Therefore we will need to take a long-term view on the ability of passive remedies

to secure effective competition, looking beyond the three year market review period.

- Over the longer term, it may not be desirable to regulate at multiple points in the value chain indefinitely. Eventually we may want to focus on the single remedy that proves to be the most effective and sustainable.

- Creating an opportunity for arbitrage based on the use of passive remedies may not be desirable, but some level of arbitrage could be acceptable where we believe passive remedies could deliver increased benefits to end-users overall.

- As with active remedies, we would seek to establish a level playing field for competition based on passive remedies through appropriate non-discrimination measures.

- The case for any potential passive remedy will need to be assessed in light of wider regulatory interventions, such as the relevant legal provisions contained in the EU Civil Infrastructure Directive (see below).

Our framework includes considering the implications of the Civil Infrastructure Directive

3.7 We will also need to consider the implications of the EU Civil Infrastructure Directive (CID) for the BCMR, including the impact, if any, on our analysis of passive remedies.

3.8 The CID aims to "facilitate and incentivise the roll-out of high-speed electronic communications networks by promoting the joint use of existing physical infrastructure and by enabling a more efficient deployment of new physical infrastructure so that such networks can be rolled out at lower cost".[12] These provisions are distinct from the EU regulatory framework for electronic communications under which we carry out our market reviews, such as the current BCMR. In this respect, the CID is not designed to address the specific competition problems that we may identify in carrying out our market review arising from any finding of SMP and which we will have a duty to address through the imposition of appropriate SMP remedies.

3.9 In summary, the CID will introduce a requirement for all public communications networks operators and utility network operators to meet all reasonable requests[13] for access to their infrastructure from public communications networks operators (e.g. fixed and wireless broadband providers, including CPs such as BT, Colt, Virgin, EE, Telefónica O2 and Vodafone) made with a view to deploying high speed electronic communications networks.[14]

3.10 The CID could therefore lead to the introduction of a form of passive access that may in some respects be similar to the passive remedies we are considering in the BCMR. We note, however, that the definition of civil infrastructure in the CID does not extend to dark fibre.[15] Unlike the SMP framework where any obligation to provide network access would be limited to any operator(s) found to have SMP and would be

[12] Article 1(1).
[13] Under fair and reasonable terms and conditions, including price (Article 3(2)).
[14] Article 3(2).
[15] Article 2(2).

limited by the product and geographic scope of the market(s) in which it is applied, the CID allows reasonable requests for access on a nationwide basis to all public communications and utility network operators' infrastructure.

3.11 Domestic measures implementing the rights and obligations set out in the CID will apply during, and beyond, the forward-looking period over which our BCMR is conducted (we assume that the CID will be transposed into UK law by the summer of 2016). Therefore, we consider that the existence of the CID is relevant to our assessment of passive remedies because it will provide a different means through which CPs can seek access to physical infrastructure, albeit on a basis which may differ substantially from any passive remedy under consideration as part of the BCMR.

Question 1: Do you agree with our preliminary framework for considering the case for passive remedies?

Section 4

Benefits of passive remedies

Introduction

4.1 This section sets out our initial consideration of the broad categories of potential benefits of passive remedies based on the CFI responses[16] and our own analysis.

4.2 We will be conducting a forward looking assessment of the benefits, impacts and risks, which carries an inherent degree of uncertainty. This uncertainty is greater for benefits, costs and risks that may arise beyond this market review period.

4.3 We would welcome information from stakeholders on their practical experience of the benefits arising from the direct use of passive infrastructure, either in the UK or in other countries where they operate. In particular, we would be interested in understanding how this influenced their business, as well as competition and consumers in the relevant markets.

Broad categories of potential long-term benefits

4.4 Competition based on passive remedies would expose more parts of the value chain to CPs' control than active remedies and make more elements of the network contestable and controllable by competitors to the SMP operator. By giving greater control of the underlying infrastructure to other CPs and so reducing the extent of reliance on co-operation of the underlying network owner, this could in theory increase the competitive pressure on costs, increase the scope and opportunity for innovation in networks and services, and allow CPs to differentiate the services offered to end users compared with competition based on active remedies.

4.5 In responding to the CFI, stakeholders expressed a range of views about how they consider passive remedies could support competition. Some argued that the ability to access or lease ducts and poles as well as dark fibre for the purposes of business connectivity is likely to provide substantial long term benefits for consumers in the UK.[17]

4.6 We have identified three broad categories of benefits that passive remedies could provide:

- dynamic efficiency in the form of greater scope for innovation and improvements in service quality;
- productive efficiency in the form of lower costs and prices over time as more of the cost stack is exposed to competitive pressure; and
- the potential to withdraw or relax some downstream regulation.

[16] We published the non-confidential responses to the CFI here - http://stakeholders.ofcom.org.uk/consultations/business-connectivity-market-review/?showResponses=true

[17] For example, see combined non-confidential response from EE, Three and MBNL, page 9.

Dynamic efficiency in the form of greater scope for innovation and improvements in service quality

4.7 In this section we consider the scope for passive remedies to give CPs the ability to do something very different from BT (i.e. deploy a different technology or network design) or do something very similar in technical terms, but to differentiate in other ways (e.g. offer improved service levels).

Stakeholder views

4.8 Those CFI respondents in favour of passive remedies considered that they would provide CPs with more control of the underlying infrastructure, offering a greater potential for innovation compared to active remedies. Respondents noted that with active remedies, BT controls the pace of innovation. CPs are dependent on BT introducing new products/features or for it to grant requests from CPs. There were concerns about the BT's process for CP requests (the Statement of Requirements process or SoR Process). Some respondents considered that requests are not handled in a timely manner and are unreasonably refused by BT.

4.9 A further concern was that all new product/service developments introduced by BT are made available to all CPs simultaneously, making it difficult for CPs to compete and differentiate their services through innovation.

4.10 CFI respondents identified various areas where passive remedies could facilitate innovation by allowing CPs to supply their own electronic equipment. These included:

- The ability for CPs to progress technology developments at their own pace and progress innovations of value to them and not to BT, such as technology solutions for MNOs.
- The potential to use passive remedies to create different network topologies as a move away from active products would reduce reliance upon interconnection and replication of BT's network architecture. Colt argued that duct and pole access could provide the flexibility to deploy different architectures, such as fibre ring networks in metro areas.[18]
- Improvements in service quality: the ability to offer improved delivery and service upgrades and different approaches to fault detection and repair.

Our initial view

<u>Product and service innovation</u>

4.11 Compared with active remedies passive remedies could give CPs greater flexibility to provide service upgrades and prioritise the developments they choose for their customers. While current regulations enable CPs to request additional products or capabilities, this may not always provide the flexibility CPs or end customers would want.

4.12 In some cases incentives either between the infrastructure provider (BT) and other CPs, or between CPs may not be aligned. In a competitive market, CPs could

[18] See Colt non-confidential response to the CFI, page 33.

compete with each other to introduce new technologies to gain increased or new sources of revenue and a competitive edge. In doing so they would bear the costs, risks and rewards of their investments, without needing to agree the route to market with a dominant upstream provider.

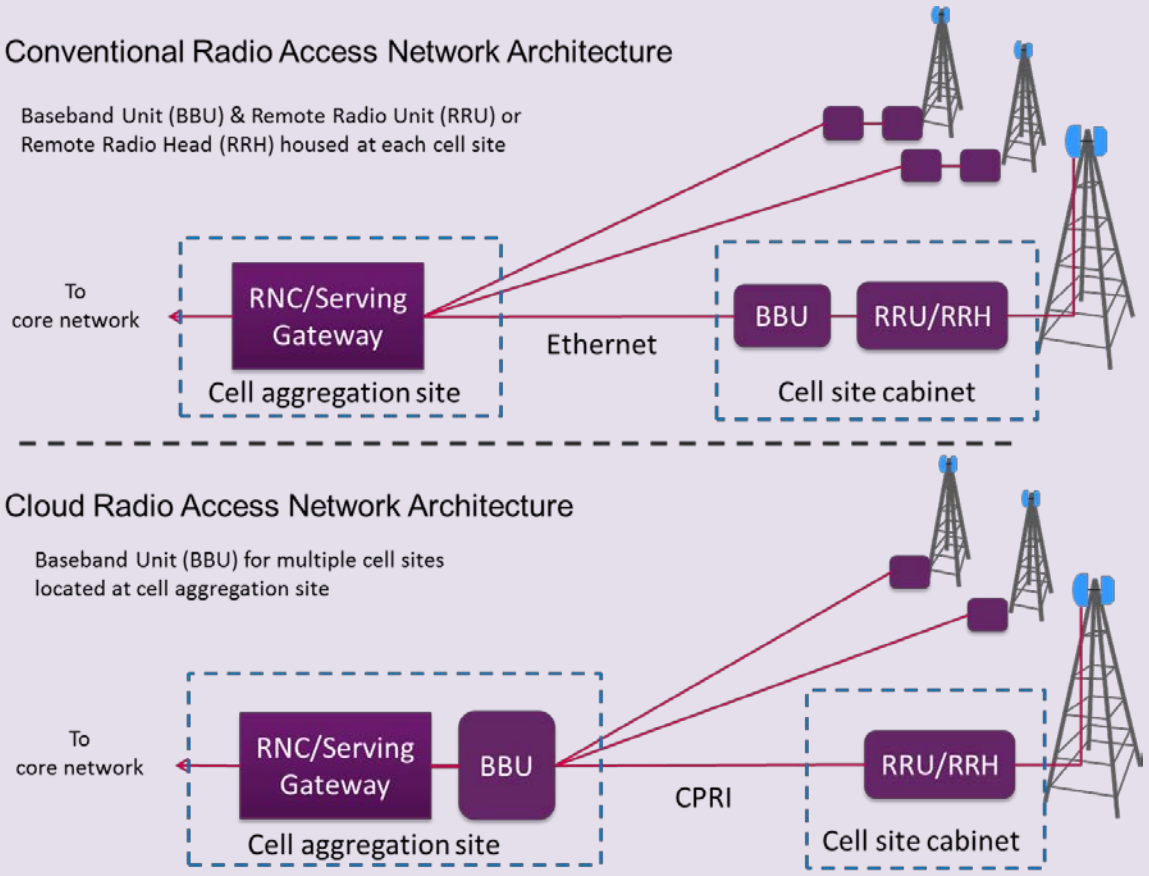
4.13 It could be argued therefore that introducing passive access might 'unlock' increased innovation in the active layer, by allowing any downstream CP the opportunity to take on the risk and reward of investment through ownership of the active layer.

4.14 Our initial view is that passive remedies could allow CPs to be more responsive to end users' needs as they would have greater ability to progress at their own pace, for example in relation to upgrades and service reconfiguration, and this could potentially increase incentives to invest in innovation. Based on the CFI responses, we consider that the majority of the potential innovation benefits appear to be related to changes/configurations or upgrades to electronic network equipment.

4.15 Recent developments in Cloud Radio Access Networks (C-RAN) provide an example of an emerging application that arguably could be deployed more quickly if CPs had access to passive remedies (see Figure 1 below). While this technology may or may not be adopted, it provides an example of the way that passive remedies would provide CPs the option to invest in and deploy different technologies. In particular, as discussed in Figure 1, C-RAN is not compatible with Ethernet so a CP wishing to use it with active remedies would need to request BT to develop a new wholesale product. With passive remedies, individual CPs could make their own decision about whether to deploy a technology such as C-RAN and when to deploy it, independently of the views and development timescales of BT.

Figure 1: Cloud Radio Access Networks

Over the next few years mobile operators are expected to upgrade their networks with LTE-Advanced technologies. One option for these upgrades is a technology known as Cloud Radio Access Network (C-RAN).



C-RAN's supporters argue that it could offer significant cost reductions for mobile network operators compared with traditional architectures by centralising signal processing and reducing the amount of equipment that needs to be housed at base station sites. It could also enable network improvements that international standards bodies are working towards by allowing smarter coordination of signals across mobile base stations to improve capacity and uniformity of coverage.

C-RAN uses a specialised interface for backhaul known as Common Public Radio Interface (CPRI), which cannot currently be provided over Ethernet. Most early deployments of C-RAN have been associated with dark fibre, driven by the requirement for much higher backhaul bandwidths and more tightly controlled latency compared to traditional access network architectures.

Innovations in network design

4.16 Passive remedies could give CPs the flexibility to configure their networks in a different way to BT. For example, Colt stated that a duct access remedy would allow the deployment of local fibre rings, instead of following BT's traditional tree and branch network architecture. Colt claimed that configuring its network in this way could deliver efficiency (because it allows more customers to be accessed from any given trench or cable length) as well as resilience benefits.[19]

[19] See Colt non-confidential response to the CFI, page 33.

4.17 We recognise that there could be potential benefits from CPs having more control over the design and configuration of their networks, mainly associated with having a structure and architecture that more closely matches their own requirements. Such benefits may include the ability to operate their networks more efficiently or deliver higher levels of reliability and resilience.

4.18 However, the scale and significance of any benefits are likely to be dependent on the practical challenges associated with deviating from BT's current network architecture, as well as the detailed implementation approach for any passive remedy (e.g. in relation to access points to BT's infrastructure).

Improvements in service quality

4.19 CFI respondents considered that passive remedies would give them greater control over quality of service. Our initial view is that passive remedies would give CPs greater control of some aspects of quality, for example controlling when and how to upgrade and/or reconfigure services. CPs could offer differentiation within service levels around improved levels of customer service, improved resilience and/or faster repair times.

4.20 However, as some respondents acknowledged, they would still be dependent on BT for the provision and repair of the passive components and would not therefore have full control over service quality.

4.21 Our initial view is that passive remedies would not effectively address all of the current concerns about BT's quality of service in relation to the provision of new leased line services. Our initial analysis indicates that these problems relate mainly to the difficulties that BT encounters in the provision of the underlying fibre circuits that support its active wholesale services rather than provisioning and commissioning of the active equipment. Thus to the extent that these issues persist, they would also be likely to be present with a dark fibre remedy.

4.22 A duct access remedy would give CPs greater scope to offer better provisioning quality of service to the extent they are able to manage the provision of the fibre circuits better than BT. However, even with duct access, some of the factors that affect Openreach's quality of service would also affect CPs. These factors include street works restrictions, way leaves and duct construction lead-times.

Productive efficiency in the form of lower costs and prices

Stakeholder views

4.23 Those CFI respondents in favour of passive access argued that the availability of passive remedies could also stimulate competition by lowering barriers to entry for competitors investing in alternative infrastructure to BT and facilitate more effective competition throughout the value chain. Several stakeholders argued that passive remedies would allow CPs to extend their geographic reach and increase competition in areas of the country where currently there are a limited number of options. In contrast, however, BT doubted that passive remedies would extend the geographic reach of competition but rather enhance competition in areas where competition already exists.

4.24 CFI respondents said that increased competition would in turn put pressure on Openreach to reduce its costs, which could feed into price reductions and more effective competition. Some MNOs argued that passive remedies would encourage

more competition with BT Wholesale (BTW) in the provision of a cost effective, nationwide end-to-end mobile backhaul product, by reducing costs and lowering barriers to entry in that network segment.[20]

4.25 CFI respondents also mentioned other possible productive efficiency benefits such as:

- making the aggregation of capacity more efficient;
- avoiding duplication of elements for network monitoring under active remedies;[21] and
- a pricing structure which better reflects an efficient level of costs.

Our initial view

4.26 We consider that there are two key issues to consider in relation to productive efficiency and price reductions resulting from passive remedies. The first relates to the prospect of genuine competition on the merits, and the benefits this may have in the form of lower costs (and therefore ultimately, prices). The second relates to potential arbitrage opportunities created by the interaction of passive access products with the current active pricing structure, which may result in price reductions for some downstream services relative to today but which are not necessarily driven by cost-efficiencies. Here we focus on the former, while we discuss the implications of the arbitrage opportunities in Sections 5 and 7.

4.27 We note that some stakeholders have argued that passive remedies could reduce the barriers to entry for those competitors investing in alternative infrastructure to BT, leading to an increase in the geographic reach of competition (relative to the position if these CPs had to self-build entirely). However, this is not unique to passive remedies, as active remedies also lower barriers to entry relative to self-build.

4.28 That said, competition based on passive remedies would make more elements of the network contestable for competitors to BT compared with active remedies. This may allow competitors to take advantage of opportunities to make additional efficiencies over BT, for example in relation to equipment used or making the aggregation of capacity more efficient according to their own individual network requirements. It may also allow them to take advantage of additional efficiencies over what can be achieved under the active regime, such as alternative aggregation of capacity and avoiding potential duplication of network monitoring elements (as argued by respondents to the CFI). Therefore to the extent that this increased competition within the value chain leads to increased productive efficiency gains, passive remedies could drive lower downstream prices than might occur with active remedies alone.

4.29 While competition is in general a more effective driver for efficiency than regulation, we note that the existing active remedy regime involves price-cap regulation coupled with glide paths, which provides incentives to minimise costs over time. When the charge control is reset, it will then start from projections of cost starting from a lower cost base.

[20] See EE, Three and MBNL joint non-confidential response, page 9.
[21] This is because under the current arrangements there are typically two sets of equipment for the purpose of network monitoring, one installed by Openreach and one by CPs.

4.30 We note that some CPs have argued that passive remedies could lead to a downstream pricing structure which is more reflective of the incremental cost of additional bandwidth. However, any change to the existing pricing structure as a result of passive remedies may result in a more general rebalancing of prices (as discussed further in Section 5), and we would need to take into account the impacts of price increases that might occur elsewhere as a result before reaching a conclusion.

4.31 In particular, as with any business with common costs, pricing all services at incremental cost would leave some costs not being recovered, and so a mark-up over incremental cost is required. In the existing LLCC, we have provided BT with a degree of flexibility over the mark-up on (and therefore prices of) individual services within the overall basket constraint. As discussed further in Section 5, this is in recognition of the potential benefits of flexibility in cost recovery (note, we have also imposed sub-caps where we have identified that BT's incentives to price efficiently may be distorted). At this stage, we do not have any evidence to suggest that the current pricing structure for leased lines (and therefore the bandwidth gradient) which has resulted from this flexibility is inefficient. In any event, were an alternative pattern of cost recovery (and resulting pricing structure) judged to be more 'efficient' than the current structure, this could also potentially be achieved within an active price control.

4.32 Finally, we recognise that the extent to which the potential benefits from lower costs and prices could be realised is likely to depend on the terms of regulated access to the passive product (for example, pricing, and geographic availability). We discuss some of these considerations in Sections 6 and 7.

Potential to withdraw or relax downstream regulation

Stakeholder views

4.33 Some CFI respondents argued that the introduction of passive remedies could lead to the withdrawal of downstream regulation over time, reducing the overall regulatory burden. Some cited local loop unbundling (LLU) as an example of how the introduction of a passive product led to the withdrawal of downstream regulation.

Our initial view

4.34 In principle, our preference would be not to regulate concurrently at multiple levels of the value chain indefinitely. Theoretically, the availability of passive inputs should allow CPs to replicate BT's downstream services. If passive remedies allow CPs to replicate BT's wholesale leased line services effectively and lead to sufficiently strong competition, there may be less (or no) need to impose regulation of active remedies downstream.

4.35 In light of the above, it is important to consider the extent to which at some point in the future it would be possible not to rely on regulation at the active level. In this context we note that the active remedies are well established and CPs currently depend on BT's regulated wholesale services in all locations in which BT has SMP in the relevant markets, for all applications, including mobile backhaul. While CFI respondents expressed significant interest in passive remedies, it is very difficult to judge the extent of demand as this would be very much driven by the terms and conditions of access, including product design, scope of use and price.

4.36 A passive remedy would take some time to implement. In addition, BT, CPs and end-users of leased lines would need time to adjust to any changes brought about by the introduction of passive remedies, including migrating themselves or end customers from current products.

4.37 In our view if passive remedies were introduced, they would likely need to co-exist alongside active remedies at least on a short- to medium-term basis and that any opportunities to rely less on active regulation, for example in certain geographies or product markets, would only emerge beyond that period.

4.38 Regulating both active and passive products would effectively add to existing regulation.

4.39 As to parallels drawn with the introduction of LLU by CFI respondents, we note that the existing set of LLU services was developed and refined by BT and industry over a number of years, involving significant time and investment. As the broadband and voice markets developed and competition from LLU became established in many geographic areas, it has enabled a significant degree of deregulation in the downstream Wholesale Broadband Access (WBA) market.[22]

4.40 However, in contrast to LLU, which was introduced to primarily support the development of consumer broadband services from a relatively low base, the current situation in the leased lines markets is different. Therefore, we need to be mindful that any evolution from the current regulatory regime to one where competition based on passive remedies is sustainable and effective may take a considerably longer period than in the case of LLU. It is also possible that CPs may continue to rely on active remedies for some products or areas in the long-term if effective competition based on passive access fails to emerge.

Question 2: Do you agree with our preliminary views on the potential benefits of passive remedies? Please provide evidence to support your view.

[22] http://stakeholders.ofcom.org.uk/binaries/telecoms/ga/fixed-access-market-reviews-2014/statement-june-2014/volume1.pdf

Section 5

Impacts and risks of passive remedies

Introduction

5.1 This section sets out our initial consideration of the broad categories of potential impacts and risks associated with the introduction of passive remedies based on the CFI responses and our own analysis. These include the potential impact on:

- dynamic efficiency, including investment incentives for BT and other CPs; and
- allocative efficiency and distributional impacts arising from the implications for common cost recovery and rebalancing of prices.

Dynamic efficiency, including investment incentives

Stakeholder views

5.2 In response to the CFI, several stakeholders commented on the potential impact of passive remedies on investment incentives in relation to:

- the investments made under the current regulatory regime that may be stranded by a change to a different regime;
- the risk that passive remedies may undermine CPs' incentives to invest in their own infrastructure; and
- the risk that passive remedies may generate 'inefficient' investment.

5.3 BT considered that the introduction of passive access products could lead to 'cherry picking' whereby CPs would use passive remedies to only offer more lucrative services, such as high-bandwidth leased lines for businesses or mobile backhaul. It believed that this would undermine its ability to price discriminate across different bandwidths, and this would adversely impact on dynamic efficiency through distorting investment incentives for all CPs.

5.4 In relation to BT's investment incentives, BT said that a passive remedy would violate Ofcom's "fair bet" principle by expropriating BT's spare capacity currently available for future growth. [23]

5.5 As the spare capacity within BT's network was built to account for future demand, passive remedies, if imposed, would allow other operators to use this, in particular where demand is high. BT stated that this would mean its investments would not be able to accommodate future growth and where there is less demand BT would have

[23] See BT non-confidential response to the CFI, page 19, 24-25. The 'fair bet' principle seeks to provide BT with an opportunity to recover its efficiently incurred costs. This gives BT the scope to invest with a forward-looking view of demand and bear the benefits or costs of that investment, depending on whether its predictions underestimate or overestimate growth opportunities, in order to maintain investment incentives.

to bear the cost of the resulting excess capacity.[24] In BT's view this would increase allocative inefficiency and distort investment incentives.

5.6 Several other CFI respondents stressed that if passive remedies were designed and priced appropriately, this should not undermine genuine network investment as this would limit potential inefficient investment arising from differences between passive and active prices.

Our initial view

5.7 We recognise that introducing any new remedy (including passive remedies) could potentially lead to investments made under the current regulatory regime being stranded, and may also undermine CPs' incentives to invest in their own infrastructure. For example, regulatory instability over time that significantly undermined previous investments may have a negative impact on future investment decisions. However, that is not to say that we should (or indeed would have to) retain the status quo indefinitely. Rather, to the extent this were the case, we would want to be mindful of how we introduced passive remedies so as not to unduly distort future investment incentives. In addition, we note that similar considerations arise when considering how to implement any access remedy, so we do not see this potential concern as being particularly unique to the question of whether or how we might impose passive access remedies. Rather, it is an area we may need to consider as part of our overall analysis.

5.8 In relation to the risk that passive remedies may generate 'inefficient' investment, we consider that it would depend on the specific efficiency considerations. In particular, as set out in Section 3, we consider that there is often likely to be a trade-off between the different types of economic efficiency, and so without further analysis it is not possible to state whether passive remedies would be 'efficient' or 'inefficient'. In fact, the overall impact may well vary depending on the focus of the analysis (e.g. where in the value chain we are assessing, geographic variations, etc.). For example, the co-existence of passive and active remedies could result in inefficient investment signals between different levels of the value chain, with the incentives to enter using active and/or passive remedies potentially being distorted if the relative prices are not set appropriately[25]:

- if the passive remedy price is 'too high' relative to the active price, this could disincentivise take-up of passive remedies (potentially forgoing dynamic benefits);
- if the passive price is 'too low', this could over incentivise take-up of passive remedies (potentially leading to productive inefficiencies, due to duplication of fixed assets).

5.9 In terms of BT's incentives to invest, it is not clear to us that passive remedies would "violate" the fair bet principle as suggested by BT. This is because, as discussed further in Section 7, we could seek to approach any pricing of passive remedies (and also the pricing of active remedies, if considered appropriate) in a way which allowed BT the opportunity to recover its efficiently incurred costs. On this basis, it is not clear why a CP using spare capacity and paying a passive access charge which satisfies

[24] See BT con-confidential response to the CFI, paragraph 100, page 24.
[25] We discuss what might be an appropriate approach in Section 7.

this principle (within the wider regulatory regime) would necessarily undermine BT's opportunity to recover its efficiently incurred costs.

Allocative efficiency and distributional impacts arising from the implications for common cost recovery and rebalancing of prices

Stakeholder views

5.10 BT argued that the risk of cherry picking would undermine the ability to price discriminate across different bandwidths, which could likely shrink the overall market and reduce net welfare.[26]

5.11 Several respondents to the CFI recognised that passive remedies could potentially lead to BT reallocating its common costs between services and a changed pattern of common cost recovery but argued that BT could respond to this by rebalancing the prices of active services.

Our initial view

5.12 In a large multi-service telecommunications network, there are many cost elements which are shared across a variety of different wholesale and retail services (as discussed in Section 2 in relation to leased lines).

5.13 When setting a charge control for regulated services, we typically aim to ensure that BT's charges for the regulated services reflect BT's incremental costs of provision of that service, plus a mark-up for common costs and its cost of capital. In order to estimate the costs for the regulated services, we start with the service costs reported in BT's Regulatory Financial Statements (RFS). These service costs are reported on a fully allocated cost (FAC) basis, which essentially include both the incremental costs of a service as well as a contribution to common costs.

5.14 Within the existing BCMR charge controls imposed on active leased line services, we provide some flexibility for BT in how it recovers its costs. That is, we do not require BT to set the price of each service at the FAC of each service. Instead, Ofcom typically sets a charge control for a broader basket of services such that it expects BT's charges for the overall basket to be at FAC, including a return on capital, by the end of the charge control. BT then sets the charges for individual services within this broader constraint on the overall basket of services. This is because we recognise that there can be benefits in allowing some flexibility in cost recovery e.g. higher mark-ups on some services than others to provide efficient migration signals or to respond to demand conditions. In the BCMR 2013, we noted that simply setting all charges equal to FAC may result in a lower level of output than with a more flexible charging structure.[27] However, we also recognised that BT may have incentives to exploit this flexibility to distort competition, and imposed sub-caps to limit its flexibility in areas where we identified that it has an incentive to change the pricing structure to favour its downstream operations.

5.15 As discussed in Section 2, the consequence of this flexibility is that some services (particularly higher bandwidth Ethernet circuits) contribute more to common cost recovery on a per circuit basis than others, as a consequence of the 'bandwidth gradient'. In the 2013 BCMR, we did not identify any strategic incentives on

[26] See BT con-confidential response to the CFI, paragraph 72, page 19.
[27] BCMR 2013, paragraph 18.11.

Openreach to price the different bandwidth products in an unduly discriminatory and/or anti-competitive way. We also noted that the bandwidth gradient could be an efficient way to recover common costs. We therefore considered it appropriate to allow Openreach flexibility to determine the most appropriate structure of prices, subject to meeting the charge control conditions.[28]

5.16 Where passive access is introduced in markets with an established set of active wholesale products, such as wholesale leased lines, there is likely to be an effect on the pattern of common cost recovery. We first discuss the implications for common cost recovery within the BCMR markets, before then discussing the potential implications for other BT services.

Potential implications within the BCMR markets

5.17 We consider that the introduction of passive remedies alongside active remedies could potentially create opportunities for CPs to undercut BT's prices on some of the higher margin services. Therefore a passive remedy introduced at a nationally averaged price is likely to result in product (i.e. bandwidth) and geographic arbitrage opportunities (this is discussed in greater detail in Section 7) as well as genuine competition on the merits.

5.18 In any event, where passive remedies are used to compete with BT, BT may see a reduction in volumes of its active products with a loss of associated contribution to common costs (we note that the impact on volumes and resulting scale of common cost contribution lost will be affected by a range of factors, including the scope of any passive remedy[29] and the approach to pricing for passive access). This could therefore potentially undermine BT's ability to recover its common costs unless other prices were adjusted.

5.19 In Figure 2 below we set out illustrative examples of the potential common costs that may be affected were passive remedies to be introduced. These estimates are based on BT's published 2013 and 2014 RFS results. Note that some of these would be offset by revenue from sale of passive access, the scale of which will depend on its pricing.

[28] BCMR 2013, Annex 12, paragraph 165-181.

[29] For example, if there are any geographic limitations to the use of passive access (as discussed in Section 6), this will likely have the effect of reducing the extent of use of the passive remedy itself and therefore reduce the substitution of existing active circuits.

Figure 2: Illustrative example of the potential impact of passive remedies on common cost recovery

BT's RFS for 2012/13 report BT's fully allocated costs (FAC) and distributed long run incremental costs (DLRIC) by regulated product.[30] Multiplying the difference between FAC and DLRIC by the published circuit volumes produces the estimates of common costs shown in the table below (to the nearest £5m).[31]

Leased Line services	Indicative common cost contribution
TI Services	£95 M
AI Services – 10MB/s and 100MB/s	£165 M
AI Services – 1 GB/s	£55 M
MI services	£15 M
Total	£330 M

In order to scale the potential quantum of common costs affected by the introduction of passive access, we provide two illustrative scenarios, one "relatively low impact" scenario and one "relatively high impact" scenario. These should not be seen as an attempt at precise quantification, nor as the very highest or very lowest possible range of outcomes:

Scenario 1: Relatively low impact: If BT lost 100% of MI circuits, 100% of 1GB/s AI circuits only, the potential common costs affected by the loss of these circuits could be of the order of £70m in 2012/13.

Scenario 2 Relatively high impact: If BT lost 100% of MI circuits, 100% of 1GB/s AI circuits and 50% of 10 MB/s and 100 MB/s circuits, then the potential common costs affected by the loss of these circuits could be of the order of £155m in 2012/13.

These scenarios provide a snapshot illustration of the potential scale of the effect on common cost recovery based on volumes and cost information in 2012/13. In a number of respects the impact could be much less than shown, although the assumptions are not the most conservative we could make.

The scenarios may **over-estimate** the effect on common cost recovery because:
(i) as noted above the figures represent the gross common cost at risk from the loss of active products. They do not reflect any common costs recovered from sales of passive access.
(ii) it has been assumed that BT loses all internal and external sales of these circuits
(iii) the scenarios include AI services within the WECLA area and assume that all volumes are lost immediately, whereas in practice any volume losses would be spread over time.

The scenarios may **under-estimate** the effect on common cost recovery because:
(i) our illustrative scenarios exclude any loss of TI circuits, whereas it is possible that some TI circuits may be displaced as a result of take-up of passive access.
(ii) BT's 2013 RFS report LRIC and FAC data for most but not all AI and TI services. The scenarios do not include common cost contributions from services for which no LRIC and FAC data was published. Whilst significant for TI services the gap is much less so for AI services.

[30] The 2013 RFS was the last year that BT published DLRIC data for BCMR services. This report included AI services within the WECLA but did not report on MI services. The MI estimates in the tables have been generated from the MI volume and FAC data reported in the restated 2012/13 results within BT's 2014 RFS and assuming that 50% of FAC are common for MI services. The latter is broadly consistent with the proportion of FAC that is common costs for AI circuits

[31] DLRIC is higher than LRIC as it includes a distribution of intra core fixed common costs. Pages 18 and 19 of BT's Relationships and Parameters document have more details. See https://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2014/LRICModelRelationshipsandParameters2014.pdf.

(iii) BT may find itself unable to recover certain service specific fixed costs if passive remedies are introduced. For example, BT may have installed equipment to provide active leased line services and would still bear the cost of this equipment if customers migrate to a passive product (leaving these costs to be recovered from a smaller active customer base).

5.20 Therefore while highly dependent on volumes, the loss of active circuits could have implications for BT's opportunity to recover its common costs. As set out above, when regulating BT's wholesale service our general approach is to seek to provide BT with an opportunity to recover its efficiently incurred costs, including common costs. If we were to introduce passive access remedies, we would wish to continue to provide such an opportunity.

5.21 While the common cost contribution lost from active sales would be offset by revenues (and common cost contributions) received from the sale of passive access to some degree, the arbitrage risks mean that, unless active prices were to adjust, it is likely that there would still be a net loss of contribution to common costs (as discussed in Section 7).

5.22 One potential option in the short term to give BT the opportunity to recover its efficiently incurred costs might be via a rebalancing of active prices from the current structure.[32] In particular, it is possible that price increases elsewhere (on a product and/or geographic dimension) could be required to take account of the likely effect of passive access on demand for, and cost recovery from active products. This could be both to allow BT to respond to competition based on passive access (e.g. in order to reduce the arbitrage opportunities, which may well reduce the volume of active circuits lost), and to support common cost recovery overall.

5.23 In light of the above incentives, we consider that a price rebalancing of downstream services could potentially manifest itself in three ways:

- price reductions for active services where BT faces competition from CPs using passive access (likely to be higher value/bandwidth services);
- compensatory price increases for active products where BT does not face competition (likely to be lower value/bandwidth services); and/or
- geographic de-averaging/rebalancing of active prices, to reflect the different customer densities and to reduce the density-based arbitrage opportunities (we discuss the density-based arbitrage opportunities further in Section 7).

5.24 The availability of passive access over time may therefore tend to produce a flatter structure than we observe today in charges for active services, (with differences between circuits more closely reflecting incremental cost differences), and on a potentially geographically de-averaged basis. This would create winners and losers among CPs (and end customers) depending on the mix of services typically purchased and the scope for switching to passive-based services. Additionally, depending on the specific products which experience price increases, this could potentially compound the common cost recovery problem overall. For example,

[32] If an active charge control is implemented, we could potentially allow for this rebalancing via detailed cost modelling, or facilitate it by maintaining wide baskets with limited (if any) sub-caps/additional restrictions (subject to any strategic/anti-competitive concerns with the basket). If an active charge control is not implemented, then BT will already have flexibility over its active prices.

attempting to recover more common costs from lower bandwidth services than today could accelerate end user migration to Virtual Unbundled Local Access (VULA) at the low-bandwidth end of the market, while attempting to recover more costs from higher bandwidth active products could accelerate migration to passive access.

Potential implications for other markets

5.25 The introduction of passive remedies may also have implications for the common costs recovered from other markets. If there is a significant impact in the long term such that usage of wholesale active leased lines sold by BT falls relative to other products, proportionately more common costs may need to be recovered from other services, including wholesale access services (such as Wholesale Line Rental (WLR), LLU and Integrated Services Digital Network (ISDN) lines[33]).

5.26 Figure 3 below, provides an illustrative example of the potential effects of price rebalancing in response to passive access, using the illustrative common cost calculations in Figure 2 above.

Figure 3: Illustrative example of the effect on prices in adjacent regulated markets

Figure 2 above estimates the potential impact of passive remedies on BT's common cost recovery for two different scenarios using 2012/13 cost data. The table below uses these scenarios to illustrate the potential knock-on effect on prices if BT recovers more of its common costs from other regulated products to maintain its cost recovery overall.

The table shows the effect of each scenario. We believe these are maximum effects for three reasons (i) we have assumed the active volumes are lost immediately; (ii) there is no offsetting contribution to common costs from passive access; (iii) the services over which any increase in common cost recovery might be spread exclude services for which BT has not published cost data in its RFS.

The table illustrates the potential increase on 2012/13 wholesale revenues for two different sets of products under the two scenarios[34]. For example, if in the short to medium-term the displaced common costs were recovered from all active BCMR leased line services, then the effect of Scenario 1 might be to increase wholesale charges by around 9%. Given that we generally provide flexibility for BT to set the charges for individual services within a broader constraint on the overall basket, this may mean that some leased lines products may see a higher price increase than others.

If, by contrast, active leased line prices were unchanged, and the displaced common costs were recovered from all currently regulated wholesale fixed line services, then the effect of Scenario 1 might be to increase prices by around 2%.

The effects in the relatively high impact scenario, Scenario 2, are given in the end column below.

[33] These wholesale services are used by CPs to provide retail telephony and broadband services to consumers and businesses. We reviewed these services in our FAMR. The latest FAMR statement was published in 2014, see http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/specific-conditions-entitlement/market-power/fixed-access-market-reviews-2014/statement/. There are two main LLU services: Metallic Path Facility (MPF) commonly called full unbundling and Shared Metallic Path Facility (SMPF). MPF gives CPs access to all frequencies on a copper line to provide voice and broadband services. SMPF gives CPS access to a subset of frequencies that can be used to provide broadband services. There are also two main ISDN services: ISDN 2 which provides two 64kbit/s channels that can be used for switched voice and data services and ISDN 30 which provides 30 64/kbit/s channels.

[34] We note that 2012/13 prices may not be representative of the prevailing prices we might expect at the point when passives could be introduced. However, for ease of reference we have chosen to report the effects relative to prices. Except for WLR and MPF, for an unchanged level of common cost reallocation (in £m), the proportionate effect would be slightly greater if expressed relative to 2012/13 FAC (i.e. for services where prices in 2012/13 are above FAC).

Illustration of the potential increase in annual per unit charges		
Products over which illustrative displaced common costs are recovered	**Scenario 1 - £70m loss of common costs**	**Scenario 2 - £155m loss of common costs**
All Leased lines[35]	9%	27%
All ISDN, WLR and LLU services	2%	5%

5.27 While a change to the pattern of cost recovery may not be a concern in its own right, we would need to consider any efficiency and distributional[36] impacts of such a change (alongside any additional benefits or costs).

5.28 It follows that, depending on which specific products common costs are recovered from, we would need to take into account the wider impacts on all consumers of network services that will be affected. For example:

a) Leased lines: As noted above, recovering the common costs from other leased lines products could potentially accelerate migration and compound the common cost displacement overall.

b) ISDN 2/ISDN 30: Volumes of ISDN 2 and ISDN 30 are in a gradual decline so whilst it is possible to recover common costs from these services in the short-term, this may not be sustainable long-term (depending on the rate of decline over time).

c) WLR / MPF: These wholesale products are primarily used to support voice and broadband services consumed by residential consumers and have a large volume base over which to recover any displaced common costs. However, price increases could potentially raise concerns over affordability for particular customer groups. Price increases might also raise efficiency concerns if they resulted in customers abandoning fixed access lines (e.g. in favour of mobile only access) when much of the cost of the fixed access network is sunk and involves the use of long-lived assets.

Question 3: Do you agree with our preliminary views on the impacts and risks of passive remedies? Please provide evidence to support your view.

Question 4: What are your views about the potential impact of passive remedies on the pattern of common cost recovery and the associated distributional impacts?

[35] Calculation based on MI, TI and AI charge control baskets. The more than proportionate increase in unit charges in Scenario 2 (relative to Scenario 1) is because there are fewer circuits over which to recover common costs and the remaining circuits are the comparatively lower priced circuits.
[36] Distributional impacts may include, for example, increased burden of cost recovery on those either least able to pay and/or who may see limited benefits from the innovation or additional competition engendered by the new access remedy (i.e. passive remedy).

Section 6

Scope and design considerations

Introduction

6.1 This section sets out our initial consideration of some of the key scope and design choices for passive remedies, particularly those that would influence:

- the benefits that passive remedies could provide; and
- how the impacts and risks discussed in Section 5 could be addressed.

6.2 In particular, we consider the following topics in this section:

- the primary applications for passive remedies and the most suitable remedy for those applications;
- the approaches that could be used to address the impact of passive remedies on common cost recovery;
- the appropriate product and geographic scope of passive remedies;
- the potential impact of restricting the scope of passive remedies on their usefulness and the benefits they could provide;
- the arrangements for construction of new infrastructure;
- the appropriate form of non-discrimination obligation for passive remedies; and
- the implementation arrangements and implementation costs.

Our first step is to identify the primary applications for passive remedies and the most suitable remedy

6.3 As we have discussed in Section 4, based on responses to the CFI and our own analysis we have identified two broad types of passive remedy, i.e. duct access and dark fibre access, as having potential application in wholesale leased lines markets.

6.4 We have discussed some of the potential benefits of passive remedies in more detail in Section 4. Our initial view is that most of the potential benefits of passive remedies appear to be associated with control of the electronic equipment used to provide leased lines and consequently dark fibre appears to offer most of the benefits of duct access.

6.5 In practice, the type and scale of benefits that could be delivered by passive remedies may also be dependent on the type of applications they are used to supply. To illustrate, we set out some potential uses of passive remedies.

- **Mobile backhaul**: MNOs may realise benefits through the deployment of new RAN technologies. For example, emerging standards such as C-RAN (see Figure 1 in Section 4).

- **Business connectivity**: The expansion of on-net competition through network deployment using passives may spur innovation and efficiencies. For example, CPs would have the ability to pursue technology upgrades, such as Software Defined Network (SDN) technology which allows the introduction of a new generation of protocols and greater remote configuration of devices.[37]

- **Fixed backhaul**: Residential broadband and leased line providers could gain more control of their backhaul. Self-provision of backhaul using passive access could increase the level of independence from BT and may also enable scope for efficiencies, such as reducing the number of aggregation points in the network.

- **Fibre broadband services**: duct access in the form of the Physical Infrastructure Access (PIA) remedy is currently available in the Whole Local Access (WLA) market to support contestable investment in fibre infrastructure for superfast broadband services. However there may be economies of scope available between these investments by CPs and investments in leased lines services.

6.6 CFI Respondents' interest in passive access was focused primarily on two applications: mobile backhaul and fixed backhaul. For these applications, dark fibre was the favoured remedy. However, some respondents were interested in using duct access to deploy access networks to serve business customers and to extend existing access networks to connect additional business sites.

6.7 We recognise that CPs could potentially generate economies of scale and scope if passive remedies could be used to deliver superfast broadband services as well as leased lines services. However, it is not clear to us at this stage how much appetite there is for this type of investment among CPs. Also, the magnitude of this benefit would depend on the degree to which infrastructure could be used for both types of services. Therefore, while we recognise that passive access could lead to benefits in other markets if it leads to wider investments (e.g. for residential consumers of NGA services), we consider that this is highly uncertain at this stage.

6.8 As we have discussed in more detail in Section 4, in our view the key opportunities for innovation and competition from passive access lie in the active layer. Having control over the choice of electronic equipment could allow CPs for a greater responsiveness to the end users' needs and a differentiation in their product offerings. In this context dark fibre appears to offer most of the benefits of duct access.

6.9 In comparison to dark fibre, duct access would provide the opportunity for other CPs to deploy their own fibres and to adopt different architectures or configurations. However, we are not clear whether in practice this delivers a significant degree of innovation potential over that which could be realised through access to dark fibre. Overall, the incremental benefits offered by duct access appear relatively small, particularly in the context of backhaul for the fixed access and mobile applications that appear to be of most interest.

6.10 Given these factors, our view at this stage is that if we were to implement a passive remedy in the BCMR, dark fibre appears to be a more attractive option than duct access. It appears to offer many of the benefits of duct access and appears to have

[37] Although SDNs could be deployed using the current active leased line products, access to passive infrastructure could allow a CP to utilise its full potential such as the introduction of new physical layer protocols.

the potential to be more widely used given the interest expressed by stakeholders. In addition, it appears to us that compared with dark fibre, duct access would require more duplication of infrastructure (fibre and sub-duct) and would therefore make less efficient use of BT's existing infrastructure.

6.11 We also note in this context that under the CID, CPs could request access to ducts and poles from other CPs and utility network providers irrespective of their SMP status (although we recognise that the precise terms and conditions, including price, will remain uncertain beyond April 2016).

We could consider several approaches to address the impact on common cost recovery

6.12 Broadly there are four ways in which the impact of passive remedies on BT's common costs could be addressed:

a) Passives pricing approaches – we could structure the pricing of a passive remedy in a way that minimises disruption to common cost recovery. We discuss the potential approaches further in Section 7.

b) Wholesale leased lines charge control flexibility – we could take account of the common cost impact when setting charge controls for wholesale leased lines, for example by allowing BT greater flexibility for rebalancing of wholesale leased lines prices in order to facilitate common cost recovery.[38]

c) Product and geographic scope of the passive remedy – depending on our assessment of competition we could consider restricting the scope of a passive remedy to particular wholesale markets. Whilst restricting the scope of a passive remedy in this way would help minimise disruption to common cost recovery, it could also reduce the benefits. We discuss this approach further below.

d) More widespread changes to the pattern of common cost recovery - as discussed in Section 5 if there is a significant impact on common cost recovery over the long term, more common costs may need to be recovered from services outside the leased lines markets. As also discussed in Section 5 we would need to consider any efficiency and distributional impacts including the impacts on consumers of the affected services.

The product and geographic scope of passive remedies would be informed by our SMP assessment

6.13 A key design consideration in our assessment of passive remedies is the scope of the remedies, specifically the allowed uses and their geographic scope. This will be informed by our assessment of competition conditions.

6.14 While still at an early stage in our analysis, we anticipate that in the current BCMR, similar to the last review, we may define multiple markets reflecting differences in competitive conditions between geographic areas (reflecting the availability of alternative infrastructure and how effectively CPs use infrastructure to compete with

[38] We note that there are also interactions between our approach to pricing passive and active remedies which we would need to consider, both in terms of the implication for the scale of impact on common cost recovery and also BT's ability to respond to it.

BT) and types of leased lines products. Figure 4 below summarises our market definition and SMP findings in the last market review. Depending on our analysis of competitive conditions, the market definitions and SMP assessments may change in this review.

Figure 4: Summary of market definition and SMP findings in the 2013 BCMR

<table>
<tr><th colspan="2" rowspan="2"></th><th colspan="2">Retail Services</th><th colspan="4">Wholesale Segments</th></tr>
<tr><th colspan="3">Symmetric Broadband Origination</th><th>Trunk</th></tr>
<tr><th>Interface technology</th><th>Bandwidth (Mbit/s)</th><th>UK</th><th>Hull</th><th>The WECLA</th><th>UK except the WECLA and Hull</th><th>Hull</th><th>UK</th></tr>
<tr><td rowspan="5">Traditional (TI)</td><td>V Low: <2</td><td>BT</td><td>KCOM</td><td colspan="2">BT</td><td>KCOM</td><td rowspan="4">National
No SMP

Regional
BT</td></tr>
<tr><td>Low: <=8</td><td rowspan="4"></td><td rowspan="4"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>Med: >8, <=45</td><td>No SMP</td><td>BT</td><td>KCOM</td></tr>
<tr><td>High: >45, <=155</td><td>No SMP</td><td>BT</td><td>KCOM</td></tr>
<tr><td>Very High: 622</td><td colspan="2">No SMP</td><td>KCOM</td></tr>
<tr><td>Alternative (AI)</td><td>Low <=1,000</td><td>KCOM</td><td>BT</td><td>BT</td><td>KCOM</td><td></td></tr>
<tr><td>Multiple (MI)</td><td>>1,000, and any if WDM at customer's premises</td><td></td><td>No SMP</td><td>BT</td><td></td><td></td></tr>
</table>

6.15 As Figure 4 shows we defined 17 wholesale markets in the last review. In the 12 markets outside the Hull area, we found BT to have SMP in seven markets and that a further five markets were effectively competitive and therefore no CP had SMP.

6.16 In markets that are found to be effectively competitive we would not be able to impose a passive remedy under the SMP framework as by definition there would be no need for an SMP remedy (at least in relation to that market). Thus, for example, if our SMP findings reflect the last review the scope of application of any passive remedy would exclude passive access for the purpose of providing Multiple Interface (MI) services in the WECLA.

6.17 In those markets in which we propose that BT has SMP and could therefore consider imposing passive remedies, it may be appropriate to take other factors into account, in particular:

- Prospects for competition – in markets that, on the basis of our analysis, demonstrate the potential to be effectively competitive beyond the forward-looking period of this review, we will need to consider whether it would be proportionate to introduce passive remedies and whether passive remedies could have an adverse impact on the prospects for the market becoming effectively competitive.

- Nature of competition problems and potential benefits – the nature of the competition problems and the potential benefits of passive remedies may vary between markets or applications.

- Interactions between product (and geographic) markets – in the same geographic area, there may be some product markets which are effectively competitive and some where a CP is found to have SMP. Any mandated provision of passive access would apply only in those markets where there is SMP. Where it is not possible to cost effectively monitor and police usage, e.g. where CPs may use the passive product to support services outside the regulated markets, we need to consider the extent to which this risks creating competitive distortions which undermine any potential benefits from the passive remedy in the SMP market(s).

A focus on particular product or geographic markets might limit the impacts and risks of passive remedies but could also limit the benefits

6.18 Restricting the scope of passive remedies to particular wholesale markets could help mitigate the scale of risks identified in Section 5 of this consultation. For example, a more targeted approach which differentiates access on a geographic basis would recognise differing competitive conditions. This would allow for the protection of investment (or investment potential) in relevant areas, whilst lowering barriers to entry in areas where competitive entry through network build would not be viable. Such an approach could also help to allay concerns regarding uniform pricing of a passive remedy compromising the current pattern of common cost recovery. The uniform pricing of passives will have implications not just for BT's recovery of common costs downstream, but also for other CPs that have built their own infrastructure (including passive assets) to support their provision of downstream leased lines services.

6.19 While any limitations to the scope of passive remedies could reduce the potential adverse consequences of their imposition, we also recognise that such limitations may also limit their benefits and possibly also the usefulness of passive remedies to CPs. As part of our assessment we will need to consider the impact of such restrictions on the scale of benefits that can be achieved by CPs and how likely CPs would be to use passive remedies with such limitations.

6.20 In deciding on the appropriate remedy we will need to balance the benefits and costs arising from passive remedies. We would therefore welcome stakeholders' comments about the potential impact on the usefulness and benefits of passive remedies if, as would be most likely under the SMP framework, their usage was restricted to specific product types in specific geographic areas.

A specific challenge for passive remedies concerns the arrangements for the construction of new infrastructure

6.21 A further design consideration relating to the scope of passive remedies is the arrangements that would apply when new infrastructure is required. New infrastructure would be required in three distinct situations:

- congestion – where there is no spare capacity available, new infrastructure would need to be built. For example, additional fibres may need to be deployed to relieve a congested flexibility point or new duct may need to be constructed to relieve a congested section of duct;

- blockages and damage – where duct is blocked or damaged, remedial work (such as repair of a broken duct) would be needed to allow the duct to be used; and

- network extensions – at locations not currently served by BT, new ducts/poles and fibre would be required to provide service.

6.22 These situations appear to be comparable with the situations where new infrastructure is required for wholesale leased lines.

6.23 For wholesale leased lines, BT's current practice is to provide service to any location upon request including locations that are not currently served by its network. In cases where new infrastructure is required to fulfil an order for a leased line, BT levies Excess Construction Charges (ECCs) for any extension to its access network that is specific to an individual customer i.e. the final leg of its duct and fibre network that serves an individual premise. For fibre based wholesale Ethernet services this generally equates to fibre between the serving fibre flexibility point (analogous to a Distribution Point in BT's copper access network) and the customer's premises, and duct that serves an individual customer premise. New infrastructure in the common parts of BT's network (such as the installation of a new fibre flexibility point) and work to repair blockages and damage are not charged as ECCs even when undertaken to fulfil a customer order.[39]

6.24 Given the need for passive remedies to coexist with active remedies, our initial view is that the new infrastructure arrangements adopted for passive remedies would need to be designed so as to:

- Enable CPs to deliver comparable outcomes to wholesale leased lines and to compete effectively with them.

- Satisfy any non-discrimination obligations that apply to the remedies. In practice this is likely to mean that BT would need to ensure that any differences in the arrangements would not be unduly discriminatory.

- Minimise the risk that differences between the arrangements adopted for wholesale leased lines and passive remedies artificially incentivise CPs to use either type of remedy.

6.25 In relation to the physical network components at least, a dark fibre remedy would be very similar to the wholesale leased lines remedy i.e. both involve a requirement to provide a fibre circuit between two locations. Given this, our initial view is that the most straightforward way to satisfy the design considerations listed above would likely be for the same arrangements to be used for wholesale leased lines and dark fibre.

6.26 The differences between wholesale leased lines and a duct access remedy suggest that it may not be practicable or appropriate to apply exactly the same arrangements to duct access. We nevertheless consider that the wholesale leased line arrangements are likely to provide a good starting point for our consideration of the arrangements that would be appropriate for a duct access remedy. We plan to consider this further as we proceed with our analysis.

6.27 Finally, we note that passive remedies could potentially enable a different approach to be adopted for network extensions. In the case of locations not currently served by BT's access network, particularly those requiring a significant amount of new duct

[39] BT also charges ECCs where a customer requests a method of delivery which is not Openreach's first choice or work is required to provide a second route for resilience.

construction, CPs may prefer to construct their own infrastructure and retain ownership of it, rather than pay BT to extend its network. In such cases the dark fibre circuit provided by BT could be handed over at an intermediate point such as a footway box.

6.28 We would welcome stakeholder comments on the new infrastructure arrangements that would be appropriate for passive remedies.

A further important consideration is the model of non-discrimination that should apply

6.29 In considering whether to impose passive remedies, we would need to consider the appropriate form of non-discrimination obligation. In the absence of such an obligation BT would have the incentive to provide the passive remedy on terms and conditions that favour its own downstream divisions. This could be price-based discrimination where BT might effectively charge competing providers more than the amount charged to its own downstream divisions. There could also be non-price discrimination where BT prioritised its own requirements (including provisioning and fault repair) or provided the same services but within different delivery timescales.

6.30 Non-discrimination obligations may take different forms:

- Equivalence of Inputs (EOI) - a strict form of non-discrimination that requires BT to use exactly the same products and services as its competitors. The development, provision, maintenance and repair of access services are provided on the same timescales, terms and conditions (including price and service levels), by means of the same systems and transactional processes and by sharing the same information. Essentially, the inputs available to all CPs (including BT) would be provided on an equivalent basis.

- No undue discrimination obligation - a less strict form of non-discrimination obligation which does not require BT to use exactly the same products and services as its competitors but instead requires it to ensure that any differences between the services it consumes and those it supplies to its competitors do not amount to undue discrimination. Generally we interpret this obligation in accordance with our guidelines of November 2005 on Undue discrimination by SMP providers (the Discrimination Guidelines).[40]

6.31 For the wholesale Ethernet and WDM services provided by Openreach we have imposed an EOI form of non-discrimination obligation and for the wholesale TI services provided by BT Wholesale we have imposed the no undue discrimination obligation. An EOI obligation is by definition a more restrictive form of non-discrimination obligation than a no undue-discrimination obligation. We recognise however that an EOI obligation should be imposed only when proportionate.

6.32 If we were to introduce a passive remedy, our preference would be to require BT to provide it on an EOI basis if possible. However, given the established processes for the current set of services and the fact that many of these services use passive infrastructure, any requirement on BT to consume a passive remedy as an input for these services would involve re-engineering many of its business processes. This could lead to a disruption in the provision of the existing services as well as adding to the overall scale of costs associated with introducing a passive remedy. In our initial

[40] http://stakeholders.ofcom.org.uk/consultations/undsmp/contraventions/

view therefore, it is unlikely to be proportionate to require BT to consume a passive remedy for the provision of the existing wholesale leased line services.

6.33 We also consider that there may be circumstances where although an EOI obligation applies; it may not be effective in preventing BT behaving in a manner which is not unduly discriminatory against third parties. If we were to impose a passive remedy, we would also need to consider whether it is appropriate to complement an EOI obligation with a no undue discrimination obligation to effectively address any potential concerns regarding BT's ability to discriminate between its passive and active products, particularly if it chose to consume one form above the other.

Implementing passive remedies would be a significant undertaking

6.34 Some CFI respondents shared their views on the technical and operational challenges associated with deploying and using passive remedies. There were a range of views. Some acknowledged there would be challenges but considered that other countries have proven that they are surmountable. Others cited practical challenges that may make passive remedies expensive or even impossible.

6.35 Some respondents argued that the introduction of a dark fibre remedy would not require significant administrative effort as the operational processes could largely mirror the existing processes for wholesale leased lines.

6.36 Our view is that implementation of a passive remedy would be likely to be a significant undertaking that would require significant effort by BT and CPs. Based on our experience with other major remedies such as LLU and PIA we consider there would be a need for an implementation period following the completion of the market review in March 2016. During this period, BT could develop a draft reference offer, operational processes and systems and would then review them with CPs before launching the service. There may also be a need for field trails or a soft launch with low order volumes to test the processes and systems. It is difficult at this stage to estimate how long this process would take. In the case of the PIA remedy, an eight month implementation period was granted for a low volume service launch. However, we note that this implementation period was shorter than it might otherwise have been because detailed industry discussions had taken place before the final statement concluding the market review.

6.37 To the extent that it is suitable, the existing PIA remedy may simplify the implementation of a duct access remedy in wholesale leased lines markets.

6.38 We would consider the implementation arrangements in more detail if we decide to propose passive remedies. At this stage, the important conclusion is that it would take some time to bring a passive remedy into operation, particularly if high order volumes are anticipated.

Development and implementation costs would need to be recovered

6.39 There would also be development and implementation costs associated with the introduction of a passive remedy. The scale of these costs would be likely to depend on the exact form of the remedy and also usage volumes. Based on our experience with other complex remedies, we consider that these costs may be significant. However, we note that:

- Some elements of the existing processes and systems for wholesale leased lines may be suitable for re-use (as some respondents to the CFI have pointed out).

- BT already offers a duct access remedy (PIA) in the Fixed Access Markets. To the extent this remedy is suitable for the leased lines markets it could reduce the development costs. We note, however, that BT may incur additional costs to 'industrialise' the processes if high volumes are anticipated.

6.40 Our initial view is that it would be appropriate for BT to be given an opportunity to recover these development and implementation costs. We would need to decide whether it would be appropriate for these costs to be recovered from the passive remedy or more widely (for example, across all leased lines).

Question 5: Do you agree with our initial view that mobile backhaul and fixed broadband backhaul are likely to be the primary applications with significant demand for passive remedies?

Question 6: What benefits might duct access offer over dark fibre and vice versa? Is there a case for having both remedies?

Question 7: If passive remedies were restricted to particular product types or geographic areas how might this affect the usefulness and benefits of the passive remedy?

Question 8: What arrangements would be appropriate for the supply of new infrastructure for passive remedies?

Question 9: Do you agree with our initial views about the non-discrimination arrangements for passive remedies?

Section 7

Pricing approaches for passive remedies

Introduction

7.1 In this section we set out our initial consideration of the pricing approaches that could be adopted for passive remedies and how these might be used to minimise the distributional impacts and arbitrage effects discussed in Section 5.

7.2 The relative pricing of active and passive remedies would be a key driver of how and where passive remedies are used, and of the ultimate impact on competition and consumers. For this reason, our assessment of whether to impose passive remedies must take into account the potential approaches to the pricing of those remedies.

7.3 For the reasons explained in Section 2, we consider that CPs' incentives to invest using passive remedies would tend to be strongest where the margins from selling leased lines are highest, which will tend to be the circuit bandwidths and/or geographic areas from which BT currently recovers a relatively high proportion of its common costs through wholesale active sales. Specifically, we consider that competition based on passive remedies is likely to be strongest in relation to:

- high value services (where the gap between the passive and active prices on a per circuit and/or per customer basis is greatest); and/or
- high density areas (where the gap between the passive access charge and the value of active services in that local market is highest).

7.4 Competition focused on high value services and geographic areas of high customer density could be seen as a form of arbitrage. This is a situation where CPs are able to take advantage of any inconsistency between the price of active and passive services, not because the CP is more efficient or offers more innovative services, but because of differences between BT's current active price structure and the price for passive access. As a result, such entry and competition may not necessarily be efficient or sustainable. It could also undermine investments already made by CPs under the existing regulatory regime.

7.5 We note that current market prices will have already been shaped to some extent by the existence of competing infrastructure-based (i.e. self-build) competitors. Indeed, as might be expected, fixed network entry via self-build has been primarily in high demand density areas (including core network routes) and/or focused on high value customers and products. Therefore, we acknowledge that the issues surrounding infrastructure based competition and the pattern of cost recovery across the network do not solely relate to the introduction of passive access remedies. However, the introduction of passive remedies is likely to increase the number of viable arbitrage opportunities compared with the current market situation (depending on how they are priced), by reducing entry costs relative to self-build. We need to take this into account when considering the costs and benefits of introducing passive remedies.

7.6 Below we consider:

- the regulatory pricing approaches available to Ofcom and the extent to which they could either exacerbate or mitigate potential arbitrage issues; and

- how the issues may differ between a duct access or dark fibre access remedy.

Pricing options

7.7 If passive access were introduced as a remedy, we consider that there are three main options for the regulation of pricing :

a) no specific pricing obligation;

b) fair, reasonable and non-discriminatory pricing obligations with guidance; or

c) charge control.

7.8 In each instance we envisage that other remedies would apply, such as a network access obligation and a price publication and notification obligation.

7.9 In discussing these potential pricing options for passive access, we use the current active pricing structure as our starting point for considering the potential interactions between passive and active services.

No specific pricing obligation

7.10 Under this approach, there would be no ex-ante obligation on BT in relation to the pricing of passive access.

7.11 While such an approach could limit the arbitrage opportunities (and therefore reduce the scope for inefficient entry), BT is likely to have the incentive and ability to set its passive prices in a way which could deter take up. Allowing BT pricing flexibility may also create significant uncertainty over the pricing of passive access during the market review period for other CPs. As a result, this approach could potentially distort entry signals and reduce the scope for the use of passive access (even by efficient CPs).

Fair, reasonable and non-discriminatory ('FRND') pricing obligations

7.12 Under this option, BT would be required to provide access to passive infrastructure and set prices for that access on fair, reasonable, and non-discriminatory terms. BT would still have significant pricing freedom, and could potentially set prices in a way which reduced the arbitrage opportunities discussed above. This approach could provide more efficient and sustainable entry signals which are not based on arbitrage opportunities, potentially limiting the extent of rebalancing of prices required.

7.13 However, FRND pricing obligations could cause regulatory uncertainty which could in turn undermine incentives for other CPs to use passive access. To address this, we could provide guidance on how we would interpret the obligation in order to bound the flexibility enjoyed by BT before it sets its charges and to try to reduce this uncertainty for other CPs. This could, for example, relate to the absolute level of charges or to the margin to be maintained between active and passive services.

7.14 Guidance would need to be well specified to be effective, otherwise there may still be periods of uncertainty around the exact pricing levels (and terms and conditions), particularly until it had been tested (e.g. via a dispute). We consider that this is particularly relevant to a new regulatory remedy in business connectivity markets with limited precedent (particularly for dark fibre). Therefore it would be important that any

guidance we provided was sufficient to provide a stable environment for BT and other CPs to invest and not undermine the potential use of passive access by CPs.

7.15 We note that it may still be necessary to allow for some rebalancing of active prices following the introduction of passive remedies. This is because, as we discuss below, it is unlikely that all arbitrage opportunities can be avoided.

Charge control

7.16 With this approach we would set an explicit regulatory control on the maximum charges for passive access. While this approach would tend to be more restrictive than a FRND-based approach, there is a range of ways a charge control can be set, with varying levels of flexibility afforded to BT. For example, we could set the specific price for passive access, or we could include it within a wider basket of services.

7.17 Broadly speaking there are two main charge control approaches available:

- A cost-based approach – this could be appropriate for both duct access and dark fibre, and would involve setting charges based on their respective underlying costs.

- A value-based ('active minus') approach – this would involve setting passive access charges equal to the price of an active service (or basket of services) minus the relevant incremental costs attributable to the active service. We consider that this approach is likely to be particularly difficult to implement for duct access (given the ability to provide multiple leased lines circuits through a single share of duct), and so consider that it is more likely to be an alternative option in relation to dark fibre.

Cost-based approach

7.18 Conceptually, this form of pricing could be relatively simple, and would mean prices reflect the underlying costs of the passive infrastructure used. Although estimating the costs and translating these costs into prices would be a complex exercise (particularly in the presence of common costs), the price would ultimately be based on either the total cost estimate for duct or dark fibre (including an appropriate contribution to common costs), divided by a measure of distance and then shared between passive access-using CPs.

7.19 We note that a cost based approach has already been adopted for the PIA remedy which requires BT to offer a duct access service in the Wholesale Local Access Market.[41]

7.20 A cost-based approach is unlikely to result in passive pricing which reflects the current active pricing structure and current pattern of cost recovery by BT. Therefore, under a cost-based approach, we consider it likely that a significant rebalancing of prices to maintain cost recovery would be required to reflect the likely effect of passive access on demand for, and pricing of, active products.

[41] BT is subject to a cost orientation obligation requiring it to ensure that its charges are reasonably derived from its forward looking long-run incremental costs, plus an appropriate mark-up for common costs and including a reasonable return on the capital employed.

7.21 In terms of efficiency, it can be argued that passive access prices that reflect costs would facilitate efficient and sustainable competition at a deeper network level. Equally however, it could be argued that, to the extent that the initial usage of passive remedies is focused on high margin services and geographies, this would amount to a form of regulatory arbitrage and could represent inefficient entry. We would need to balance these opposing views by taking into account, for example, the likely overall impact on competition, both within and outside the markets defined in the BCMR and on consumers.

Value-based ('active minus') approach

7.22 As noted above, we consider that an 'active minus' approach is likely to be better suited to a dark fibre access remedy than a duct access remedy. The aim of this approach would be to reduce the regulatory arbitrage opportunities which could occur under the existing active pricing structure if cost-based passive access was introduced, and thereby also reduce the need to rebalance prices to maintain cost recovery. Underpinning this approach, therefore, is the assumption that the current structure of wholesale pricing is broadly efficient and/or otherwise results in an appropriate recovery of common costs between markets, including between leased lines markets and fixed access line markets, as well as within these markets).

7.23 The relative prices between upstream (passive) and downstream (active) services will determine how and where investments are made by competing CPs, and in particular will be important in determining whether a CP uses passive access in preference to purchasing an active leased line service from BT. In principle, if the price difference equals the incremental cost of the active layer of the service, entry should occur if the CP either has a lower incremental cost to BT (in the active layer), or if the CP can exploit genuine innovation benefits from differentiating its services to end customers.

7.24 To determine an appropriate passive access price, we would need to select an active wholesale product(s) to serve as a price benchmark, and deduct the incremental costs that the access provider would avoid by not providing the active components. Therefore, passive prices would still be based on a measure of cost, but would do so in a way which attempted to reflect the existing active market pricing structure and therefore pattern of common cost recovery.

7.25 This approach could be implemented:

a) On each product individually, where the dark fibre price would depend on the downstream service being provided (meaning, for example, that the dark fibre price could be different depending on whether it will be used to provide 1Gbit/s services or 100Mbit/s services), or

b) On a basket of active products, or

c) Using a single reference product (e.g. 1Gbit/s EAD), but where the dark fibre price would be the same irrespective of what service it is used to provide.

Each product individually

7.26 Under this approach, the passive access price would depend on (and vary according to) the specific downstream service being provided by the access seeking CP. Once the equivalent active remedy product was identified, the dark fibre price would be set equal to the active price minus the active costs avoided.

7.27 In principle, this approach would prevent value-based arbitrage as CPs could no longer target the highest value services simply to exploit the margin variation used to recover common costs. However, it would be necessary to monitor downstream sales by the access seeking CPs to ensure use was being accurately reported. Monitoring of this type may not be practical.

7.28 This approach would also require CPs to provide products that could be readily identified as being similar to a BT active product. This could restrict market freedom to develop business models in line with consumer demand and technical evolution. Such a restriction could compromise the intended benefits of passive remedies if it limits the ability of CPs to differentiate their offer, and also lead to disputes over service classification (given the direct impact it will have on access charges).

Basket of active products

7.29 An alternative approach is to price passive access based on a basket of BT's active products. The passive access price would then essentially be the weighted average price of existing BT active products, less the average avoided active costs.

7.30 It is not clear that this approach would deal with the potential arbitrage issues. An averaging approach of this type would favour 'cherry picking' active services that have a market value greater than the average.

Single reference product

7.31 This option would involve using a single active product to set a wholesale passive access price which would apply irrespective of the downstream service it was used to provide. In order to minimise the arbitrage opportunities noted above with an averaged approach, it may be desirable to use a higher priced active product (i.e. an active product which makes a high margin/contribution to common costs), and deduct the incremental costs of that active service.

7.32 Under this approach, we could set the passive price once at the start of the charge control period, or alternatively the passive price could be explicitly linked to a specific active reference product for the whole charge control period. The latter option would allow the price to vary over time, although we would need to take care to ensure that BT does not have scope to game the control by varying its charges for the reference product or introducing an attractively priced close substitute to the reference product.

7.33 In principle, using a reference product could reduce the arbitrage opportunities discussed above by maintaining some link between the passive access price and the contribution to fixed and common costs built into the active price structure. However, depending on the reference product used and the scope for circuit aggregation by CPs, it is unlikely to entirely address the opportunity for arbitrage. Nonetheless, while some rebalancing of prices may still be required to maintain BT's opportunity for cost recovery, this approach could reduce the extent to which it is necessary (relative to the pure cost-based approach) as it is likely to result in a higher passive price.

7.34 A disadvantage of this potential solution is that it may also restrict the use of passive access to the provision of downstream services with a greater value than the reference product. For example, if 1Gbit/s EAD is used to set passive prices, then investment and innovation in passives is likely to be focused on services at or above 1Gbit/s. This could potentially limit the profitability of using dark fibre for sub-1Gbit/s services even if low bandwidth services could be profitably supplied using dark fibre under a pure cost-based approach for passive access.

7.35 However, if high bandwidth service provision is where entry using dark fibre is most likely to be focused, the potential restriction on use may not have a significantly detrimental effect on the extent of benefits realised, while retaining the advantage of reducing the extent of rebalancing of prices that is required to maintain cost recovery. Moreover, we note that over time demand for bandwidth is increasing rather than decreasing.

Consideration of arbitrage in relation to duct and dark fibre

7.36 This section considers whether arbitrage concerns vary according to whether duct or dark fibre is the passive remedy implemented.

Value-based arbitrage

7.37 Value-based concerns appear to be relevant for both duct and dark fibre, as both can be used to target high-value services only.

Density-based arbitrage – duct

7.38 Duct access can be used to serve multiple end customers and/or to provide multiple circuits, by deploying multiple fibres. Therefore, if the pricing of duct is based on a fixed and uniform national average charge, it will invite entry into the areas where this fixed charge can be best recovered, i.e. the high-density areas. However, it is these high-density areas where much of the costs of BT's duct network will be recovered through sales of active circuits. Moreover, where entry using duct access can displace more than one active circuit this will compound the cost recovery problem for BT.

Density-based arbitrage – dark fibre

7.39 In relation to dark fibre, we consider that density-based arbitrage is potentially less of a concern than it is for duct access. As our regulatory focus in the BCMR is on the access part of the network, here the majority of fibre cables are likely to provide a point to point access connection for a single circuit/customer (i.e. a single fibre is required per circuit/customer). This limits the ability of a CP to use a single fibre cable to serve multiple customers. As current active pricing is also on a per circuit/customer basis, it follows that a geographically averaged dark fibre access price may present fewer pure arbitrage opportunities based on demand aggregation, potentially limiting density-based arbitrage concerns.[42]

7.40 Nonetheless, there may be some situations where density of use may be a concern with dark fibre. There are likely to be situations where a CP will be able to serve multiple customers and/or multiple existing active circuits with a single dark fibre.

7.41 Given the considerations above, we think there is a risk that the introduction of either a duct or dark fibre access remedy could create arbitrage opportunities. However, we

[42] Note that leased lines used for backhaul already include an element of demand aggregation (e.g. traffic for multiple LLU-based broadband consumers is typically aggregated at a local exchange and passed over a higher bandwidth backhaul circuit), meaning a single active backhaul connection already supplies multiple end customers (and the bandwidth can be increased to serve more). As such, the replacement of an active backhaul circuit with dark fibre in this scenario is likely to be more relevant for value-based arbitrage than density-based, as a CP is still only replacing one circuit with dark fibre.

consider that the overall risk may be higher in the case of a duct access remedy than in the case of a dark fibre remedy.

Question 10: In light of the trade-offs identified, which broad options on pricing do you consider would be most appropriate for passive remedies and why? Please also provide details if there is another pricing approach you consider would be appropriate in light of the considerations identified in this section.

Question 11: If a value-based (active minus) approach to pricing dark fibre were adopted, what do you think would be an appropriate active wholesale product (or products) to reference?

Annex 1

Responding to this consultation

How to respond

A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made **by 5pm on 5 January 2015**.

A1.2 Ofcom strongly prefers to receive responses using the online web form at http://stakeholders.ofcom.org.uk/consultations/bcmr-passives/howtorespond/form, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.

A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email business.review@ofcom.org.uk attaching your response in Microsoft Word format, together with a consultation response coversheet.

A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Monika Kochanowska-Tym
Floor 4
Competition Group
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax: 020 7783 4192

A1.5 Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.

A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 4. It would also help if you can explain why you hold your views and how Ofcom's proposals would impact on you.

Further information

A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Monika Kochanowska on 020 7783 4192.

Confidentiality

A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your

response should be kept confidential, can you please specify what part or whether all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

A1.9 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.

A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's approach on intellectual property rights is explained further on its website at http://www.ofcom.org.uk/website/terms-of-use

Next steps

A1.11 Following the end of the consultation period, Ofcom intends to publish a consultation in the spring of 2015.

A1.12 Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: http://www.ofcom.org.uk/static/subscribe/select_list.htm

Ofcom's consultation processes

A1.13 Ofcom seeks to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.

A1.14 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk. We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.

A1.15 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Graham Howell, Secretary to the Corporation, who is Ofcom's consultation champion:

Graham Howell
Ofcom
Riverside House
2a Southwark Bridge Road
London SE1 9HA

Tel: 020 7981 3601

Email Graham.Howell@ofcom.org.uk

Annex 2

Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened Plain English Guide for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will consult for up to 10 weeks depending on the potential impact of our proposals.

A2.6 A person within Ofcom will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. Ofcom's 'Consultation Champion' will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why.

After the consultation

A2.8 We think it is important for everyone interested in an issue to see the views of others during a consultation. We would usually publish all the responses we have received on our website. In our statement, we will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

A3.1 In the interests of transparency and good regulatory practice, we will publish all consultation responses in full on our website, www.ofcom.org.uk.

A3.2 We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality where appropriate.

A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their coversheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.

A3.4 We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at www.ofcom.org.uk/consult/.

A3.5 Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only, so that we don't have to edit your response.

Annex 4

Consultation questions

Question 1: Do you agree with our preliminary framework for considering the case for passive remedies?

Question 2: Do you agree with our preliminary views on the potential benefits of passive remedies? Please provide evidence to support your view.

Question 3: Do you agree with our preliminary views on the impacts and risks of passive remedies? Please provide evidence to support your view.

Question 4: What are your views about the potential impact of passive remedies on the pattern of common cost recovery and the associated distributional impacts?

Question 5: Do you agree with our initial view that mobile backhaul and fixed broadband backhaul are likely to be the primary applications with significant demand for passive remedies?

Question 6: What benefits might duct access offer over dark fibre and vice versa? Is there a case for having both remedies?

Question 7: If passive remedies were restricted to particular product types or geographic areas how might this affect the usefulness and benefits of the passive remedy?

Question 8: What arrangements would be appropriate for the supply of new infrastructure for passive remedies?

Question 9: Do you agree with our initial views about the non-discrimination arrangements for passive remedies?

Question 10: In light of the trade-offs identified, which broad options on pricing do you consider would be most appropriate for passive remedies and why? Please also provide details if there is another pricing approach you consider would be appropriate in light of the considerations identified in this section.

Question 11: If a value-based (active minus) approach to pricing dark fibre were adopted, what do you think would be an appropriate active wholesale product (or products) to reference?

Question 12: Do you have any other comments on the issues raised in the document or comments that might aid our consideration of the passive remedies as a whole?

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing ☐

Whole response ☐

Part of the response ☐

Name/contact details/job title ☐

Organisation ☐

If there is no separate annex, which parts?

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here. ☐

Name

Signed (if hard copy)