

Section 8

Approach to remedies

Introduction

8.1 In light of our market analyses of each of the markets we propose to identify and associated market power determinations set out in previous Sections, we now turn to our proposals on SMP remedies. In this Section, we focus on giving a background to issues we have taken into account in our assessment of the specific SMP remedies we propose to impose in the various markets, as discussed in the following Sections of this consultation document. We have structured those Sections as follows:

- Section 9 sets out the SMP remedies we propose to impose on BT for the retail low bandwidth TI leased lines market;
- Section 10 sets out the SMP remedies we propose to impose on BT for the wholesale TI markets;
- Section 11 sets out the SMP remedies we propose to impose on BT for the wholesale AI market;
- Section 12 sets out the SMP remedies we propose to impose on BT for the wholesale MI market;
- Section 13 sets out the SMP remedies we propose to impose on BT for specific interconnection and accommodation services;
- Section 14 sets out the SMP remedies we propose to impose on KCOM for the relevant markets in the Hull area; and
- Section 15 sets out the SMP remedies we propose to impose on BT concerning cost accounting and accounting separation in relation to various markets.

8.2 Additionally to providing a background to issues we have considered in reaching our proposals on remedies, this Section also covers the following:

- our proposals to deregulate for markets where we propose that no person have SMP;
- our approach to assessing whether competition law would be sufficient to address the competition problems we have identified;
- the requirements we have to satisfy in imposing SMP remedies, including the legal tests prescribed, and our statutory duties, under the Act; and
- our current view on whether passive remedies, alone or alongside active remedies, would be appropriate remedies to impose to address the competition problems we have identified in the wholesale leased lines markets.

Proposals to remove regulation

- 8.3 Where we determine that a person to whom any SMP conditions currently apply is no longer a person with SMP in a services market, we are required by section 84(4) of the Act to revoke every SMP services condition applied to that person by reference to the market power determination made on the basis of the earlier analysis. Similarly, where we determine that a person has no SMP in a new services market, we have no powers to impose SMP conditions on any person in such a market. Indeed, where we conclude that the relevant market is effectively competitive, Article 16(2) of the Framework Directive¹ precludes us from imposing or maintaining any SMP remedies.
- 8.4 For reasons discussed in Section 7, we propose to identify five markets in which we propose that no person has SMP, namely;
- the market for wholesale medium bandwidth TISBO in the WECLA;
 - the market for wholesale high bandwidth TISBO in the WECLA;
 - the market for wholesale very high bandwidth TISBO in the UK excluding the Hull area; and
 - the market for wholesale national TI trunk segments in the UK
 - the market for wholesale MISBO in the WECLA.
- 8.5 We also propose to make some changes to the SMP conditions we imposed in the 2007/8 Review for some of the markets we are now proposing to identify, for reasons which will be further explained in the following Sections. Whilst we are not proposing to change the SMP conditions substantively for some markets, we are proposing to revoke all of the SMP conditions imposed on BT and KCOM in the 2007/8 Review and replace them with new SMP conditions. We set out our proposal to revoke those current SMP conditions, together with the new SMP conditions we are proposing to impose, in the statutory notification which is published at Annex 14 to this consultation document.
- 8.6 This approach of revoking and imposing new SMP conditions has provided us with an opportunity to make certain presentational improvements to the proposed new SMP conditions. In particular, we have sought to avoid unnecessary duplication of what is essentially the same type of SMP remedy in different markets. Currently, this is achieved by allocating a specific numbering system to the SMP conditions in question, which makes the legal instrument unnecessarily long. The structure we now propose is to set out, in effect, a single 'standard' SMP condition for each particular SMP condition and apply it to the relevant markets in question by indicating at the outset of the legal instrument, where such a condition applies to the market in question.

¹ Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002.

Assessment of sufficiency of competition law

The need for *ex ante* regulation

- 8.7 In contrast to the position discussed above where we determine that no person has SMP in a services market, we are required under Article 16(4) of the Framework Directive² to impose SMP remedies on those persons we identify as having SMP in relevant markets we determine are not effectively competitive. Indeed, the SMP Guidelines state that NRAs must impose one or more SMP remedies on a person having SMP, and that it would be inconsistent with the objectives of the Framework Directive not to impose any SMP remedies on such a person.
- 8.8 Recital 27 to the Framework Directive states that it is essential that *ex ante* regulatory obligations should only be imposed where there is not effective competition – i.e. in markets where there are one or more operators with significant market power, and where national and Community competition law remedies are not sufficient to address the competition problem(s) identified in those markets.
- 8.9 Therefore, for those markets in which we propose that BT or KCOM has SMP, we have considered the sufficiency of competition law by itself (without *ex ante* regulation) to address the market failure in question. We discuss our assessment of this matter in relation to each of the relevant markets in the following Sections of this consultation document, in light of our general considerations below.

Relative efficiency of competition law and complimentary *ex ante* regulation

- 8.10 The SMP Guidelines deal with the relationship with competition law. They emphasise that simultaneous application of competition law remedies and sector specific measures applied by NRAs would address different problems. In particular, they state that *ex ante* regulation obligations imposed by NRAs on undertakings with SMP aim to fulfil the specific objectives set out in the relevant directives, whereas competition law remedies aim to sanction agreements or abusive behaviour which restrict or distort competition in the relevant market.
- 8.11 In its Explanatory Memorandum to the EC's Recommendation, the EC further states that "[e]x ante regulation would be considered to constitute an appropriate complement to competition law in circumstances where the application of competition law would not adequately address the market failures concerned. Such circumstances would for example include situations where the regulatory obligation necessary to remedy a market failure could not be imposed under competition law (e.g. access obligations under certain circumstances or specific cost accounting requirements), where the compliance requirements of an intervention to redress a market failure are extensive (e.g. the need for detailed accounting for regulatory purposes, assessment of costs, monitoring of terms and conditions including technical parameters and so on) or where frequent and/or timely intervention is indispensable, or where creating legal certainty is of paramount concern (e.g. multi-period price control obligations)".
- 8.12 At Annex 6 to this consultation, we explain our own general thinking on the sufficiency of competition law. We note, in particular, that *ex ante* regulation is appropriate more often than not to address the types of market failures and entry barriers we frequently identify in our market analyses and, without such regulation,

² Implemented by s87 of the Act.

there is a risk that effective competition might not become established. Such *ex ante* regulation is normally needed to promote actively the development of competition, particularly when addressing the effects of network externalities. We generally also attach weight to creation of legal clarity and certainty for the markets under review, which in our view is likely to be achieved through specific SMP remedies. Linked to that certainty is the fact that such remedies enable us to intervene in a timely manner and to monitor market progress.

The relationship with the BT Undertakings

- 8.13 In considering the sufficiency of competition law, we have also had regard to the BT Undertakings, which are in essence a remedy under national competition law, the Enterprise Act 2002.
- 8.14 We consider that the BT Undertakings are not sufficient to address the competition problems we have identified in the various relevant markets. In particular, as we explained in 2005 when we accepted them in lieu of a reference to the Competition Commission, the BT Undertakings are intended to complement *ex ante* regulation under the Act. They seek to deploy a variety of mechanisms aimed at defining equivalent treatment, and at preventing and detecting discriminatory conduct by BT when supplying wholesale network access and backhaul services to its downstream competitors. They also constitute a more comprehensive solution to the specific problem we identified in 2005 than could be achieved by a series of interventions under the Act.
- 8.15 In contrast, we consider that the SMP remedies we are proposing in the following Sections are needed to effectively address the competition problems we have identified under this market review, including to achieve the aims prescribed by our statutory duties, even if this would lead to a series of interventions under the Act. For example, whilst some obligations in the BT Undertakings and our proposed SMP remedies may overlap³, we have strengthened powers under the Act since May 2011 to take enforcement action in respect of securing compliance with the SMP remedies. Parties are also able to bring regulatory disputes to us in relation to such remedies under the Act for swift resolution. We have already resolved a number of disputes relating to markets considered in this market review (e.g. PPCs and Ethernet Extension Services). We consider that such possible interventions are important to effectively redress the market failures we are seeking to remedy in this market review. We have also identified likely developments in certain markets and the importance to effective competition becoming established in those markets over the course of the review period of three years. We therefore consider that creating legal certainty is particularly of paramount concern for those markets and something which we consider can be achieved through the proposed SMP remedies.

Voluntary commitments given by BT

- 8.16 As set out above, we are obliged under section 87 of the Act to impose SMP remedies on those persons we identify as having SMP in relevant markets we determine are not effectively competitive. Voluntary commitments, in and of themselves, do not provide for timely intervention and effective enforcement – precisely because by definition they are not imposed as SMP remedies under the Act – and as such we consider they are insufficient to address the identified competition problems we have identified.

³ E.g. with regard to Equivalence of Inputs (see Sections 11 and 12 below).

- 8.17 In particular, in the retail low bandwidth TI leased lines market, we propose to find competition is not effective and have proposed remedies to address the issues we have identified. We recognise that end-users in this market may derive additional reassurance from public commitments made by BT but, as noted above, do not consider these are sufficient in and of themselves.
- 8.18 We remain open to discussing the nature of any such voluntary commitments with BT over the course of the consultation. Should we receive voluntary commitments from BT we intend to consult on their appropriateness.

Background to the requirements for imposing SMP remedies

Powers to impose SMP conditions

- 8.19 Section 87(1) of the Act provides that, where we have made a determination that an operator has SMP in a particular market, we must set such SMP conditions as we consider appropriate and as are authorised under the Act.⁴
- 8.20 Sections 87 to 91 of the Act set out the SMP conditions that we can impose.⁵

Wholesale SMP conditions

- 8.21 Under section 87(3) we have the power to impose requirements on an operator who we have found to have SMP, to give such entitlements as respects:
- the provision of access to the network of the operator;
 - the use of that operator's network; and
 - the availability of relevant facilities by that operator.
- 8.22 In addition, requirements imposed under section 87(3) may include provision for:
- securing fairness and reasonableness in the way in which requests for network access are made and responded to; and
 - securing that the requirements contained in the SMP conditions are complied with within the periods and at the times required by or under the condition.⁶
- 8.23 In determining what requirements to impose under section 87(3), we must take into account the following cumulative factors:
- the technical and economic viability (including the viability of other network access products, whether provided by the operator to whom the requirement is intended to apply or another person), having regard to the state of market

⁴ Section 87(1) implements Article 8 of the Access Directive (Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities, OJ L 108, 24.04.2002, p.7, as amended).

⁵ Sections 87 to 91 implement Articles 9 to 13 of the Access Directive and Articles 17 to 19 of the Universal Service Directive (Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services, OJ L 108, 24.04.2002, p.51, as amended).

⁶ See section 87(5) of the Act.

development, of installing and using facilities that would make the proposed network access unnecessary;

- the feasibility of the provision of the proposed network access;
- the investment made by the operator initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed (taking account of any public investment made);
- the need to ensure effective competition (including, where it appears to us to be appropriate, economically efficient infrastructure based competition) in the long term;
- any rights to intellectual property that are relevant to the proposal; and
- the desirability of securing that electronic communications services are provided that are available throughout the member States⁷.

8.24 Section 87 also provides us with the power to impose other requirements on an operator who we have found to have SMP, including transparency, non-discrimination and accounting separation.⁸

8.25 In particular, section 87(9) confers on us the power to impose SMP conditions about network access pricing, as set out below:

- such price controls as we may direct in relation to matters connected with the provision of access to the network of the operator who we have found to have SMP, or with the availability of relevant facilities by that operator;
- such rules as we may make in relation to those matters about the recovery of costs and cost orientation;
- such rules as we may make for those purposes about the use of cost accounting systems; and
- obligation to adjust prices in accordance with such directions give by us as we may consider appropriate.

8.26 Where we exercise our powers under section 87(9) we must consider certain criteria set out in section 88 of the Act are satisfied. These are the following:

- there is a relevant risk that the dominant provider might price excessively or impose a price squeeze as to have adverse consequences for end-users; and
- the setting of an SMP condition under section 87(9) is appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on end-users.

8.27 In addition, in setting an SMP condition under section 87(9) of the Act, section 88(2) requires that we take account of the extent of the investment, in the matters to which the condition relates, of the person to whom it is to apply.

⁷ See section 87(4) of the Act.

⁸ See sections 87(6) to (8) of the Act.

Retail SMP conditions

- 8.28 Section 91 of the Act confers on us the power to impose SMP conditions on operators who we have found to have SMP in a relevant retail market. The sorts of SMP conditions we may impose include those authorised or required by sections 87 and 88.⁹
- 8.29 Section 91 also states retail SMP conditions may only be imposed where, in our view, it appears that the imposition of SMP conditions in the relevant wholesale market(s) would not enable us to perform, or fully perform, our duties under section 4 of the Act in relation to the situation in the retail market as revealed by our analysis of that market. We set out in Sections 9 and 14 how we consider we have satisfied this test.

Section 47 test for all SMP conditions

- 8.30 Section 47 requires that for each and every proposed SMP condition, or modification to an SMP condition, we must explain why that SMP condition satisfies the test that it is:
- objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;
 - not such as to discriminate unduly against particular persons or against a particular description of persons;
 - proportionate to what the SMP condition, or modification, is intended to achieve; and
 - in relation to what it is intended to achieve, transparent.

Statutory duties

General duties under section 3 of the Act

- 8.31 In performing our market review, we have a statutory duty under section 3 of the Act to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate by promoting competition.
- 8.32 In so doing, we are required to secure a number of specific objectives and to have regard to a number of matters set out in section 3. As to the prescribed specific statutory objectives in section 3(2), we consider that the objective of securing the availability throughout the UK of a wide range of electronic communications services as particularly relevant to this review.
- 8.33 In performing our duties, we are also required to have regard to a range of other considerations, as appear to us to be relevant in the circumstances. In this context, we consider that a number of such considerations are relevant, namely:
- the desirability of promoting competition in relevant markets;

⁹ See section 91(3).

- the desirability of encouraging investment and innovation in relevant markets; and
- the desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom.

8.34 Also, in furthering the interests of consumers, we must have regard to choice, price, quality of service and value for money.

8.35 Additionally, section 4 of the Act sets out the Community duties which flow from Article 8 of the Framework Directive and section 4A of the Act requires that we take due account of all applicable recommendations issued by the EC under Article 19(1) of the Framework Directive.

European Community requirements for regulation – section 4 of the Act

8.36 As noted in Annex 6, our functions exercised in this review fall under the Common Regulatory Framework. As such, section 4 of the Act requires us to act in accordance with the six European Community requirements for regulation.

8.37 In summary, these six requirements are:

- to promote competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;
- to contribute to the development of the European internal market;
- to promote the interests of all persons who are citizens of the European Union;
- to take account of the desirability of Ofcom's carrying out of its functions in a manner which, so far as practicable, does not favour one form of or means of providing electronic communications networks, services or associated facilities over another, i.e. to be technologically neutral;
- to encourage, to such extent as Ofcom considers appropriate for certain prescribed purposes, the provision of network access and service interoperability, namely securing efficient and sustainable competition, efficient investment and innovation, and the maximum benefit for customers of CPs;
- to encourage compliance with certain standards in order to facilitate service interoperability and secure freedom of choice for the customers of CPs.

8.38 In seeking to act in accordance with the six European Community requirements, and pursuant to obligations imposed on national regulatory authorities such as ourselves under Article 8(5) of the Framework Directive, we apply objective, transparent, non-discriminatory and proportionate regulatory principles.

Passive remedies

Introduction

8.39 The term 'passive remedies' refers to access remedies which are provided without electronics, and may include obligations to provide duct or pole access, or dark fibre. We use the term 'active remedies' to refer to access remedies which include the

provision of electronics. Currently, all access obligations imposed on BT in the leased lines markets relate to the provision of active remedies.¹⁰

- 8.40 In the 2007/08 Review, we considered whether BT should be required to provide dark fibre in the access network as a means of promoting more effective competition in downstream leased lines markets. Having considered stakeholders' responses and evaluated their arguments, we concluded that a review of dark fibre for the purpose of promoting competition in wholesale leased lines access markets was not warranted.
- 8.41 In the CFI we stated we were "inclined to look at whether passive remedies could provide, in some or all cases, an effective means to foster competition in infrastructure".¹¹ We asked stakeholders for their views on what role passive remedies could play in the leased lines markets and what implications their eventual adoption could have on provision of active access remedies, such as those which BT is currently required to provide.¹²
- 8.42 In their responses to the CFI, and in subsequent discussions, some stakeholders have asked us to consider imposing passive remedies to address BT's continuing SMP in leased lines markets, particularly in light of our recent decision to require Passive Infrastructure Access ("PIA") in the market for wholesale local access.¹³

Assessment of the case for imposing passive remedies

Summary

- 8.43 In summary, we do not consider that we should impose passive remedies to address competition issues in leased lines markets in this review. Our current assessment is that the case for imposing such remedies is weak because:
- while we recognise that it is possible that passive remedies could improve the prospects for competition generally, our analysis of the cases put forward by stakeholders suggests that the potential benefits that could flow from doing so could to a large extent be achieved by imposing alternative remedies such as price controls on BT's provision of active wholesale access services.
 - at the same time, we consider that imposing passive remedies in leased lines markets, either in isolation or in combination with active remedies, could carry significant risks of worse outcomes than continuing to impose active remedies alone, and the competition issues we have identified can be effectively addressed with other, less intrusive remedies.

¹⁰ E.g. PPCs or wholesale Ethernet leased lines such as Openreach's Ethernet Access Direct (EAD) or Ethernet Backhaul Direct (EBD).

¹¹ See paragraph 1.48

¹² See Question 18.

¹³ See http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf

Points raised by stakeholders in response to the CFI

Passive remedies to address issues in the provision of Ethernet backhaul for mobile data services

- 8.44 O2 proposed that, whereas previously microwave solutions have been viewed as the main self-build option for mobile backhaul, PIA can now change the business case for alternative fibre backhaul deployments by offering the opportunity to address cost and time-to-market barriers posed by the need to undertake civil works.
- 8.45 Everything Everywhere considered similarly that access to BT's dark fibre and ducts for provision of business connectivity services by competitive suppliers could lower the costs of supply by competitors and stimulate competition. It suggested that BT should be required to make available to other operators the fibre connecting base stations (without the need for equipment at each end, which increases cost) once the initial contract term had expired and BT had met its initial investment costs. It cautioned that the lead times before such remedies would be effective are likely to be significant, so they would need to be imposed in parallel with, rather than in place of, current remedies, at least initially. [X X] expressed similar views.
- 8.46 O2 considered that [X X]
- i)
- ii) X X].
- 8.47 Everything Everywhere and [X X] said that the unregulated component of BT's MEAS product that involves conveyance over BT's core network is not subject to strong competitive pressure from alternative providers of Ethernet services. They explained that competing providers of point-to-point Ethernet services struggle to match the efficiencies that BT achieves in delivering business connectivity services over its national network, the costs of which are shared with many other BT services. Furthermore, to the extent that such a provider can offer services in certain geographic areas, it needs to serve a critical mass of sites, which an MNO cannot necessarily offer, especially in sparsely-populated areas. Hence, the only way the MNO can incentivise competitive service provision in these areas is to offer to pay the potentially prohibitive costs of regional build-out of the provider's infrastructure.
- 8.48 Accordingly, Everything Everywhere and [X X] believed that we should investigate whether it would be appropriate to require BT to offer WDM-based products to competitive wholesale providers of AISBO and TISBO services (not just to providers competing with BT's Wavestream services), consider extending the allowed uses of PIA to competitive wholesale leased line supply, and re-examine the need for BT to provide access to its dark fibre.
- 8.49 Everything Everywhere and [X X] argued that allowing BT and KCOM to premium-price high-value leased lines means that MNOs are restricted in deploying

their own high speed broadband services, which is contrary to Government policy and to consumers' expectations.

Extension of allowed uses of PIA to support investment in super-fast broadband

- 8.50 Fujitsu said that current exclusions of leased lines and other services from the allowed uses of PIA have a significant impact on the business case of CPs bidding against BT for public funds available from BDUK to support investment in fibre infrastructure in less populated parts of the UK. It explained, for example, that the current exclusions would not allow a CP to use the same duct to backhaul services from neighbouring residential, business premises and mobile base stations to the CP's point of presence, whereas BT could do so without restriction.
- 8.51 Geo argued more broadly that the current restrictions on the allowed uses of PIA undermine the business case for, and design of, any new next-generation access network because all relevant service revenue opportunities are critical to generating the long-term cash flows needed to justify investment. In Geo's view, extending the allowed uses of PIA is also important to create a level playing field between BT and other CPs, allowing CPs to use their deployed networks for a complete range of products on the same basis that BT currently enjoys.
- 8.52 Fujitsu acknowledged that extending the allowed uses PIA could carry a risk of "cherry picking" in which companies would use PIA to only offer more lucrative services, such as high-bandwidth leased lines for businesses or mobile backhaul. It suggests that this risk might be addressed by allowing PIA to be used in an unrestricted manner only where an operator uses its network to provide a full range of services.

Other points raised

- 8.53 C&WW did not expect, in the event that the allowed uses of PIA were extended to leased lines, that services would be switched from the existing products to PIA *en masse*. It considered that passive remedies would have niche complementary applications to current wholesale offers, and saw potential benefits from using PIA to build network infrastructure to supply leased lines services in certain limited situations, particularly where product innovation by BT was moving too slowly, or was being delayed or blocked.
- 8.54 Sky considered that there could be a case for operators to invest in fibre and equipment for certain backhaul routes if PIA could be used for such purposes. It thought, for example, that such a PIA remedy could potentially offer a viable option to connect its LLU infrastructure in [X X] BT exchanges to its points of presence, especially in light of the current bandwidth-related gradient in BT's prices (i.e. the fact that BT's charges for higher bandwidth products are materially higher than those for its lower bandwidth products even though the costs of fibre provision are broadly the same in both cases) and Sky's growing need for higher bandwidth backhaul. It considered that dark fibre could potentially be viable over much longer distances than pulling new fibre using PIA, and hence could potentially provide options for connecting to Sky's infrastructure in a larger number of exchanges.

Our current considerations

General considerations

- 8.55 We recognise that leased lines need to provide increasing bandwidths at reducing costs per unit of bandwidth to meet end-users' generally increasing demands for faster services across a wide range of applications. The industry is currently providing an increasing number of fibre-based services using Ethernet and WDM technologies, which are capable of delivering high capacities at low cost.
- 8.56 Over the last few years, BT has implemented a national network design, known as 21CN, allowing it to deliver Ethernet-based services more efficiently than was previously possible. Whereas previously BT fulfilled demand for an Ethernet leased line with dedicated point-to-point fibre, the 21CN design aggregates many services into fibre transmission links of very high capacity that run between network nodes. The costs of these links and nodes are largely fixed, and the resulting economies of scale and scope allow BT to drive down unit costs as the volume of services it carries increases.
- 8.57 The industry depends heavily on BT's regulated fibre-based wholesale Ethernet services to fulfil end-users' demand. BT provides some of those services subject to current SMP conditions, including cost orientation and a charge control. BT has also committed in its Undertakings, amongst other things, to provide those services on the basis of Equivalence of Inputs ("EoI"). BT makes the services available throughout the country.
- 8.58 Requiring BT to share its physical infrastructure by imposing passive remedies, such as PIA or dark fibre, could stimulate competition by lowering barriers to entry for competitors who invest in infrastructure. In the case of a PIA remedy, BT's competitors would avoid the initial cost of investing in their own civil infrastructure such as trenches and ducts, while in the case of a dark fibre remedy they would avoid the same cost as well as the costs of purchasing and laying new fibre.
- 8.59 Whereas a PIA remedy may deliver increased investment in fibre, either PIA or a dark fibre remedy may deliver other important benefits, such as increased investment in fibre-based services, more innovation and greater choice for customers. We consider these potential benefits in paragraphs 8.66 to 8.93 below with reference to specific issues raised by stakeholders. In addition, if and when passive remedies deliver good outcomes, it may also be possible to withdraw from regulation of downstream services.
- 8.60 However, introducing passive remedies would also potentially add costs of competition. While passive remedies would avoid or reduce the need for BT's competitors to invest in building physical infrastructure, those competitors choosing a passive remedy would nevertheless incur additional costs in network infrastructure. The investments would include the costs of purchasing, installing and managing active equipment and, in the case of PIA, the costs of purchasing, installing and managing fibre in BT's ducts. The investments would, to some extent, duplicate BT's, and would therefore add to the cumulative costs of the industry. Models developed as part of our review of the WLA market suggest that these additional costs could be

significant. In the case of NGA investment using PIA, the cost per end-user with four competing networks was modelled at more than double that with just one network.¹⁴

- 8.61 Introducing passive remedies would also carry significant risks. Investment in fibre-based networks is subject to strong economies of scale, and, while passive remedies could reduce barriers to competition based on infrastructure, any such additional competition they stimulate may not be sustainable outside some dense geographic clusters of businesses, such as major urban centres.
- 8.62 At the same time, introducing passive remedies in business connectivity markets could lead to inefficient competitive entry. For example, the current charge control delegates to BT, within certain constraints, the ability to decide how to recover its common costs across the charge-controlled services. In practice, BT recovers proportionately more of its common costs from higher-bandwidth products.¹⁵ Therefore, while current regulations continue to apply to existing services, the opportunity for BT's competitors to use a passive remedy could be most attractive when delivering high-bandwidth services, not because those competitors could necessarily do so more efficiently than BT, but because of the way that BT had decided to recover its common costs.
- 8.63 Furthermore, introducing passive remedies in business connectivity markets could have wider implications on the recovery of common costs that underpins the current pricing of all of BT's regulated products. Extending the example above, BT may respond to competitive entry based on passive remedies by reducing its charges for higher bandwidth services. This may, in turn, require rebalancing of the recovery of BT's common costs, which may lead eventually to an increase in its charges for other regulated services, not only for those used in business connectivity markets but potentially also for others, such as local loop unbundling and wholesale line rental.
- 8.64 Overall, therefore, introducing passive remedies in business connectivity markets could have any of a range of outcomes between two extremes. At one extreme the outcome could be positive, delivering more investment and competition in fibre-based infrastructure and services, with faster pace of innovation and greater choice for end-users. At the other extreme, the outcome could be unsatisfactory, increasing competition only to the extent of reducing the charges paid by some customers of high-bandwidth products in a few specific geographies, for example large businesses in one or more big cities, while potentially increasing the charges paid by many other customers in the same geographies, and by most customers elsewhere.
- 8.65 Below we consider whether competition based on passive remedies is likely to lead to better outcomes for consumers than the current remedies, with reference to specific issues raised by stakeholders.

Backhaul for mobile network operators' radio base stations

- 8.66 An important specific issue raised by stakeholders is MNOs' need to support cost-effectively the increasing bandwidth demands of users of mobile data services. MNOs are likely to require Ethernet-based backhaul connections for this purpose, with capacities typically of 100Mbit/s or 1Gbit/s to each of several thousand radio

¹⁴ See CSMG report for Ofcom entitled Economics of Shared Infrastructure Access, 18 February 2010, page 54, at <http://stakeholders.ofcom.org.uk/binaries/consultations/wla/annexes/csmg.pdf>

¹⁵ For example, Openreach's current charges for its wholesale Ethernet Access Direct service operating at 1Gbit/s are significantly higher than its charges for the same service operating at 100Mbit/s, even though the difference between the underlying marginal costs of the two versions of the service is likely to be much smaller.

base stations (“RBS”), either at new sites or to increase the capacities and reduce the costs per unit of bandwidth of solutions using legacy TDM transmission technology at existing sites. MNOs expect that new sites will be needed particularly to support the roll-out of LTE services.

- 8.67 RBS backhaul solutions currently connect the RBS and the fixed network using one of three transmission methods: point-to-point microwave, copper wire or optical fibre. We understand that copper wire is likely to be used less and less in future because of the increasing bandwidth demands, and that the industry foresees using greater proportions of both point-to-point microwave and fibre.
- 8.68 We also understand from our discussions with MNOs that it would neither be practicable nor cost-effective to provide backhaul to all UK RBS sites with point-to-point microwave installations because of line-of-sight constraints, planning restrictions, capacity limitations of longer microwave links. Some MNOs have also claimed that there are limitations in availability of suitable microwave spectrum. Fibre-based Ethernet services are therefore likely to be required at several thousand RBS sites.
- 8.69 In late 2008 BT Wholesale launched a managed service for RBS backhaul known as Managed Ethernet Access Service (“MEAS”). The service connects an MNO’s RBS sites to its core network of switches. BT Wholesale implements MEAS by integrating Openreach’s wholesale fibre-based Ethernet services with unregulated components of BT’s 21CN. BT recently announced that it had delivered MEAS to more than 12,000 RBS sites by 31 December 2011, with an increase of over 1,000 in the quarter ending on that date.¹⁶ We understand that the Openreach Ethernet services connected to the RBS sites have significantly greater bandwidth capacity than the end-to-end MEAS service currently delivers. This is at least in part because the interface between the MEAS service and the MNOs’ equipment at the RBS sites still uses legacy TDM technical standards.
- 8.70 There is evidence of recent competitive entry in mobile backhaul. Virgin Media and MBNL, a joint venture between Everything Everywhere and H3G, announced in July 2011 that they have signed a deal for Virgin Media to provide fibre-based Ethernet backhaul to the joint venture partners’ RBS sites in certain regions over the next eight years.¹⁷ We understand that the deal foresees that Virgin Media will deliver its service to [redacted] RBS sites.
- 8.71 We are also aware that [redacted] has an agreement with [redacted] to supply fibre-based Ethernet backhaul to [redacted] RBS sites, of which it had delivered [redacted].
- 8.72 In our current view, the scale and pace of deployment of BT’s MEAS, together with the early evidence of entry by competing providers such as Virgin Media, suggests that the industry is currently likely to deliver fibre-based services to the RBS sites where MNOs require them within a reasonable time. We recognise nevertheless that BT’s competitors are likely to depend on Openreach’s provision of wholesale Ethernet access services to a significant proportion of sites because the coverage of their own physical networks, unlike BT’s, is not ubiquitous.

¹⁶ BT Group plc Q3 results news release, 3 February 2012, page 8 at <http://www.btplc.com/News/ResultsPDF/q312release.pdf>

¹⁷ See http://www.mbnl.co.uk/documents/MBNL_finaldraft_media_22072011.pdf

- 8.73 In their responses to the CFI and in subsequent discussions, MNOs have raised the following issues in relation to fibre-based Ethernet backhaul:
- a) delays in commissioning service to some RBS sites according to plan;
 - b) slow pace of development of solutions to certain technical constraints; and
 - c) charges for increments in bandwidth that appear to be significantly higher than the corresponding increments in costs.
- 8.74 We understand that BT had initially encountered difficulties in delivering the MEAS service to some RBS sites as it developed processes to provide the service on a large scale. [X X]. MNOs and BT told us that these difficulties have now been largely resolved. BT Wholesale published data in a recent analyst briefing which appears to confirm this.¹⁸
- 8.75 The apparent resolution of the difficulties which BT encountered initially in delivering MEAS on a large scale suggests that BT currently has significant incentives to deliver this service successfully. We do not consider at present that BT's operational performance in delivering MEAS is by itself evidence either of failure of the current remedies or of failure in a market downstream of those remedies. For example, it is not clear that greater competition in the provision of managed services for RBS backhaul would have provided more effective incentives to resolve the difficulties than any appropriate contractual provisions between the parties.
- 8.76 Some MNOs are concerned about the pace of technical development, which, in their view, is too slow. They point to the time taken by Openreach to provide support for technical standards which could allow more cost-effective synchronisation of RBS sites.¹⁹ They are also concerned that BT Wholesale's MEAS service currently utilises the bandwidth available in Openreach's Ethernet access circuits inefficiently.
- 8.77 We note that Openreach is preparing to introduce a variant of its EAD product which supports synchronisation in later this year in response to a request from BT Wholesale and other CPs. We understand that the relevant technical standards (Sync-E and IEEE 1588v2) and have been agreed in the last 2 years and that equipment manufacturers have started to release capabilities to support those standards recently.
- 8.78 We understand that currently the interface between the MEAS service and each RBS uses time-division multiplex technical standards, even though BT Wholesale delivers MEAS to RBS sites using Openreach Ethernet access circuits. This, among other things, limits the bandwidth that the MEAS service can deliver. We understand that the service bandwidths which BT Wholesale delivers with MEAS currently are 65Mbit/s to sites connected with 100Mbit/s Openreach Ethernet access circuits, and 300Mbit/s to sites connected with 1Gbit/s Openreach Ethernet access circuits. Whilst we understand MNOs' reservations about the pace of BT's product evolution towards a more fit-for-purpose solution, we also understand that the technical solution which

¹⁸ See BT Wholesale annual analyst briefing, 15 December 2011, slide 8 at <http://www.btplc.com/thegroup/industryanalysts/industryanalystspresentations/downloads/annualanalystbriefing15dec2011.pdf>

¹⁹ We provide an overview of the development of synchronisation support for RBS sites as part of a review of developments in mobile backhaul in Section 11.

Virgin Media intends to deploy is expected to address those technical issues and to provide other technical advantages over the MEAS solution.

- 8.79 We recognise that it is important that the industry resolves as rapidly as is reasonably possible the technical issues raised by MNOs, to enable delivery of appropriate quality of service to consumers cost-effectively. However, from the evidence available to us, it is not clear that the industry is currently failing to do so. We note that BT Wholesale appears to have been first in deploying fibre-based Ethernet backhaul to RBS sites on a large scale in the UK, and, despite some early issues, appears to have deployed solutions using modern technical standards while developing new features and enhancements. Meanwhile, Virgin Media's recent announced entry suggests that it intends to deploy solutions which meet substantially similar requirements.
- 8.80 MNOs are also concerned that the current relationship between bandwidth and charges in BT's Ethernet services are not consistent with consumers' expectations, and that that relationship is not justified by the underlying costs.
- 8.81 MNOs' concerns in this regard should be seen in the context of potential escalation in their costs if, as many industry forecasts predict, the bandwidth demand per end-user of mobile broadband services continues to increase in the coming years. MNOs have explained to us that they believe that consumers of mobile data services expect high and increasing bandwidth, but that those consumers are not likely to pay substantially more for higher bandwidth.²⁰
- 8.82 One possible factor in MNOs' concerns is that BT currently recovers proportionately more of its common costs from its higher-bandwidth regulated products, which tend to be purchased by large organisations, by MNOs and by operators of fixed broadband services, including BT itself. In allowing BT to determine, within appropriate constraints, how to allocate its common costs between the regulated services subject to a charge control, we have previously considered that BT has access to better information than we have to do so, and incentives to achieve outcomes consistent with economic efficiency.
- 8.83 Continuing with the same approach may not be appropriate in this review if we were to conclude that BT has strategic incentives to achieve inappropriate outcomes in allocating its common costs between its regulated wholesale leased line services to increase MNOs' costs. We are not aware of any evidence that BT has actually set its charges in a way designed to increase MNOs' costs. However, even if we were to conclude that BT has incentives to do so, we consider that we could address them with appropriate obligations on BT's provision of wholesale leased line services, rather than necessarily by imposing passive remedies. Such obligations could include, for example, appropriately designed price controls and restrictions on BT's ability to discriminate unduly in its charges for the backhaul services it provides to MNOs and to providers of fixed broadband services (including BT's own retail division) respectively. We would welcome any comments from stakeholders on BT's incentives in relation to MNOs' costs.
- 8.84 We note that MNOs' broader concern that their future backhaul costs could escalate unduly may be addressed to some extent over the next few years by a combination of technical development, which should enable the effective bandwidth delivered by BT's MEAS product through Openreach's 1Gbit/s Ethernet access tails to increase

²⁰ Our research of recent past trends in the mobile market provides some support for this view. See for example *Communications Market Report: UK*, 4 August 2011, figures 5.21 (page 265) and 5.49 (page 289).

substantially, and by the operation of any charge controls agreed in relation to leased lines following conclusion of this review.

- 8.85 In summary, we consider at present that the benefits that imposition of passive remedies in business connectivity markets may bring to meeting the need for more bandwidth in backhaul to RBS sites are likely to be limited because:
- a) The extent and speed of BT's deployment of fibre-based Ethernet backhaul is already significant, together with early signs of developing competition, suggests that the industry is currently likely to deliver fibre-based services to the RBS sites where MNOs require them within a reasonable time.
 - b) BT has deployed its 21CN infrastructure in the last few years, apparently using modern and efficient technologies, to position itself to deliver high-bandwidth Ethernet services cost-effectively. BT Wholesale has a leading position in deploying fibre-based Ethernet backhaul services to RBS sites on a large scale in the UK, and appears to be developing enhancements to improve the efficiency of those services. Meanwhile, Virgin Media's recent announced entry suggests that it intends to deploy a solution which is technically more efficient than BT Wholesale's current services. This suggests that there is some competitive dynamic in the provision of managed services for RBS backhaul and that the industry is addressing key technical developments that could enable delivery of appropriate quality of service to consumers cost-effectively.
 - c) MNOs' broader concern that their future backhaul costs could escalate unduly may be addressed over the next few years by a combination of technical development, which should enable the effective bandwidth delivered by BT's MEAS product through Openreach's 1Gbit/s Ethernet access tails to increase substantially, and by the operation of any price controls agreed in relation to leased lines following conclusion of this review.

Extension of allowed uses of PIA to support investment in super-fast broadband

- 8.86 In our October 2010 review of the WLA market, we imposed remedies on BT which were designed, among other things, to support competition and investment in NGA networks. This included an active remedy, virtual unbundled local access ("VULA") and a passive remedy, PIA.
- 8.87 As we have observed earlier in this section in relation to the leased lines market, we also noted in the WLA review the high fixed costs associated with deploying a shared infrastructure based NGA network using PIA and the significant static costs of competition that would result from duplicative investments in NGA. Taking this into account we concluded that VULA, rather than PIA, was likely to be the primary focus of NGA-based competition, at least over the next few years.
- 8.88 However in contrast to the leased lines market, there is potentially a sub-optimal level of investment in fibre to support next generation services (and NGA investment plans were less extensive at the time of our review of the WLA market). We noted in the WLA review that PIA could be a more attractive option for deploying new NGA networks in those areas outside BT's planned NGA footprint.
- 8.89 Some stakeholders have argued (both at the time, and as we have set out earlier in this section in relation to Fujitsu and Geo) that limiting use of PIA to the WLA market does not allow them the necessary economies of scope and scale to make NGA deployment viable. That is, they argue that if both NGA and business services were

allowed, the case for deploying NGA networks would become more favourable. We remain open to any evidence that shows that NGA investment could be unlocked by being able to use PIA for leased lines services, which could help us to formulate our policy in this area.

Other points raised

- 8.90 C&WW saw potential benefits from using PIA for leased lines in niche applications, particularly where BT's innovation was too slow.
- 8.91 We consider that it would not be practical to confine a requirement that BT make PIA available for leased lines to such specific applications. At the same time, the weight of benefits attached to such specific applications appears likely to be small in comparison with the costs and risks set out in paragraphs 8.60 to 8.63 that are likely to be associated with requiring BT to make PIA available for general application in leased lines.
- 8.92 Sky considered that, especially in light of the current bandwidth gradient in BT's prices and of Sky's growing need for backhaul bandwidth, PIA or dark fibre could provide viable options for certain routes in which it requires backhaul for its fixed broadband services.
- 8.93 We recognise that benefits to consumers and to competition could be achieved by imposing passive remedies on BT to offer Sky and others options for implementing backhaul in certain routes. However, we consider that similar benefits could also be achieved by imposing appropriate conditions requiring BT to supply wholesale leased line services on regulated terms, including, for example, price controls. We consider that such conditions are likely to be less intrusive than requiring BT to provide passive remedies, and are therefore likely to be more proportionate.

Provisional conclusions on the case for passive remedies

- 8.94 Our current view is that the case of passive remedies is weak because:
- While we recognise that it is possible that passive remedies could improve the prospects for competition generally, our analysis of the cases put forward by stakeholders suggests that the potential benefits that could flow from doing so could to a large extent be achieved by imposing alternative remedies such as price controls on BT's provision of active wholesale access services.
 - At the same time, we consider that imposing passive remedies in leased lines markets, either in isolation or in combination with active remedies, could carry significant risks of worse outcomes than continuing to impose active remedies alone, including
 - adding significantly to the cost of competition in leased lines markets;
 - encouraging inefficient entry;
 - narrowing the promotion of competition to the provision of high-bandwidth (and high revenue-generating) products and/or the provision of leased lines services in dense geographic clusters of businesses (such as major urban centres);

- increasing the charges paid by the majority of end-users of leased lines services;
- undermining the recovery of common costs that underpins the current pricing of all of BT's regulated leased lines products.

8.95 We therefore consider that in the leased lines markets in which we propose that BT has SMP, we should not impose passive remedies.

Impact assessments

8.96 The analysis presented in this Section, and the subsequent Sections setting out our proposed remedies for each of the markets in which we have found either BT or KCOM to have SMP, represent an impact assessment, as defined in section 7 of the Act.

8.97 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which means that generally Ofcom has to carry out impact assessments where its proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of its policy decisions. For further information about Ofcom's approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on the Ofcom website²¹.

8.98 Specifically, pursuant to section 7, an impact assessment must set out how, in our opinion, the performance of our general duties (within the meaning of section 3 of the Act) is secured or furthered by or in relation to what we propose.

8.99 Ofcom is separately required by statute to assess the potential impact of all our functions, policies, projects and practices on race, disability and gender equality. Equality impact assessments (EIAs) also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers regardless of their background or identity. Unless we otherwise state in this document, it is not apparent to us that the outcome of our review is likely to have any particular impact on race, disability and gender equality. Specifically, we do not envisage the impact of any outcome to be to the detriment of any group of society.

8.100 Nor are we envisaging any need to carry out separate EIAs in relation to race or gender equality or equality schemes under the Northern Ireland and Disability Equality Schemes. This is because we anticipate that our regulatory intervention will affect all industry stakeholders equally and therefore not have a differential impact in relation to people of different gender or ethnicity, on consumers in Northern Ireland or on disabled consumers compared to consumers in general. Similarly, we are not envisaging making a distinction between consumers in different parts of the UK or between consumers on low incomes. Again, we believe that our intervention will not have a particular effect on one group of consumers over another.

²¹ http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf.

Section 9

Remedies for the retail low bandwidth TI leased lines market

Introduction

- 9.1 In this section we set out the SMP remedies that we propose to impose on BT in the following retail market:
- Retail market for low bandwidth Traditional Interface (TI) leased lines in the UK excluding the Hull area at bandwidths up to and including 8Mbit/s.
- 9.2 The proposed SMP remedies are based on the nature of the competition problems we have identified in our market analysis, in particular the SMP assessment and the wholesale services that BT provides in the relevant upstream market (the wholesale low bandwidth TISBO market in the UK excluding the Hull area). We set out the competition problems in this section.
- 9.3 We consider these remedies would achieve our statutory duties and would satisfy the relevant legal tests. In reaching these proposals we have also taken account of our regulatory experience from two previous market reviews, recent developments in this market and the relevant upstream wholesale market, views expressed by stakeholders in response to the Call for Inputs (CFI) and expected developments over the review period of three years. Proposed remedies in relation to the Hull Area are set out in section 14.

Summary

- 9.4 The table below summarises the competition issues we have identified in this market and the remedies that we propose to address them.

Table 83: Summary of competition issues and proposed remedies for BT

Competition issues	Remedies
<ul style="list-style-type: none"> • Refusal to supply 	<ul style="list-style-type: none"> • Obligation to supply existing retail leased lines at bandwidths below 2Mbit/s (existing services only) with a provision to withdraw services provided notice of at least one year is given
<ul style="list-style-type: none"> • Price discrimination • Non price discrimination 	<ul style="list-style-type: none"> • Obligation not to discriminate unduly (sub 2Mbit/s digital leased lines) • Obligation to publish a reference offer (applicable to leased lines at bandwidth below 2Mbit/s)
<ul style="list-style-type: none"> • Excessive pricing 	<ul style="list-style-type: none"> • Safeguard cap charge control

- 9.5 This market comprises retail analogue and digital services of bandwidths up to and including 8Mbit/s, provided with a traditional interface, in the UK (excluding the Hull Area). It is the only retail business connectivity market in which we found BT to have

SMP in the 2007/8 Review and is therefore the only business connectivity market in which retail regulation is currently applied.

- 9.6 Competition in this market depends to a significant extent on PPCs which are the wholesale services that BT provides in the upstream wholesale low bandwidth TISBO market. Unlike the AI wholesale products, PPCs are not provided on an EOI basis. Consequently, the extent to which these services allow CPs technically and commercially to replicate BT's retail services is a significant factor in our assessment of the need for regulation at the retail level.
- 9.7 An unusual feature of this market is that because of the legacy nature of analogue services, unlike the digital services in this market there is no underlying analogue wholesale service from BT.
- 9.8 As previously discussed in section 3, the size of this market is declining, however, it is still the largest market by circuit volume.
- 9.9 This section is structured as follows:

Sub-section	Description
Assessment of the competition problems in the retail low bandwidth leased lines market	High-level discussion of competition issues identified as a result of our SMP analysis
Assessment of appropriate remedies	The assessment is performed through three steps: <ol style="list-style-type: none"> 1. Analysis of current competition in the retail low bandwidth leased lines market; 2. Analysis of issues raised by stakeholders in the CFI responses 3. Ofcom's assessment of the issues
Proposed remedies	Proposal of the appropriate remedies based on the above assessment. For each remedy we clarify the aim and the legal basis.

- 9.10 As our proposed remedies differ significantly by product segment, we discuss analogue circuits, sub 2Mbit/s digital circuits, 2Mbit/s digital circuits and 8Mbit/s digital circuits in turn.

Assessment of competition problems in the retail TI low bandwidth leased lines market

Competition problems identified in the retail TI low bandwidth market

- 9.11 In light of our SMP analysis, in the absence of ex-ante regulation, we consider that BT would have the incentive, and its market power would afford it the ability to:
- refuse to supply retail TI low bandwidth leased lines;
 - charge excessively high prices;
 - engage in unduly discriminatory pricing practices for example by charging certain groups of end-users more than others, in order to restrict retail competition or for other reasons; and

- engage in unduly discriminatory practices relating to non-price aspects of retail leased lines for example by offering certain groups of end-users different terms/conditions than others, different quality of service or different provision or repair timescales. This may be in order to restrict retail competition or for other reasons.
- 9.12 To assess the appropriate remedies to address these competition problems we have carried out an analysis of current competition in the retail TI low bandwidth leased lines market and we have taken into account views expressed by stakeholders in response to our CFI.
- 9.13 We rely on regulation at the wholesale level where this is sufficient to address competition in downstream markets. Indeed, under section 91(2) of the Act (and Art. 17(1) (6) of the USD), we may only impose retail remedies where wholesale regulation in the upstream market is insufficient fully to perform our duties in relation to the market situation in the relevant market. Consequently, an important aspect of our considerations here is whether the upstream wholesale remedies allow CPs effectively to replicate BT's retail services using wholesale inputs and whether retail competition is sufficiently strong for us to relax partially or wholly retail regulation.

Insufficiency of national and Community competition law remedies

- 9.14 We consider national and Community competition law remedies would be insufficient to address the competition problems we have identified. In reaching this view, we regard our general assessment of the sufficiency of competition law set out in our Approach to remedies Section and in Annex 6 on the Market Review Process as relevant to addressing the competition problems in TI low bandwidth retail market in the UK excluding the Hull area. In particular:
- we do not consider appropriate remedies could be imposed under competition law – e.g. a requirement to supply;
 - we consider the requirements of intervening are extensive – e.g. the need to monitor imposed terms and conditions;
 - we consider providing certainty in this retail market is of paramount concern, both to BT and to its competitors, and we consider this is best achieved through ex ante regulation which, in comparison to competition law remedies, would:
 - provide greater clarity on the types of behaviour that is/is not allowed;
 - be easier to enforce in that it would allow for timely intervention through a process with which the market in general is familiar and which is set out in the Act.

Result of our assessment of competition problems

- 9.15 In light of our market analyses, in particular our SMP assessment, and our assessment of the insufficiency of national and Community competition law remedies to address the competition problems we have identified, we consider that, over the course of the review period of three years, competition would be ineffective in the TI low bandwidth retail market. In order to address the competition problems we now turn to our assessment of the appropriate remedies.

Assessment of appropriate remedies

- 9.16 We propose remedies in this review which would require BT to provide end-users with retail leased lines services and would define rules that would apply to its provision of such services. To assess the appropriate form of the remedies we should propose, we have carried out an analysis of how competition operates in this market and have taken account of the views expressed by stakeholders in response to the CFI.
- 9.17 Before analysing how competition operates in this retail market we first set out the SMP remedies we imposed in the 2007/8 Review and discuss the approach that led us to impose these remedies.

Existing remedies

- 9.18 As a result of the 2007/8 Review, the following regulatory obligations currently apply to BT in this market:
- obligation to supply retail leased lines: BT is required to supply existing and new 2Mbit/s retail low bandwidth leased lines to third parties on reasonable request. BT is also required to supply existing low bandwidth analogue and digital services up to 2Mbit/s. The supply of new analogue and low bandwidth digital circuits up to 2Mbit/s is addressed through a voluntary undertaking, as referred to below;
 - no undue discrimination: For all analogue and digital services at bandwidths up to and including 8Mbit/s, a requirement not to unduly discriminate; and
 - obligation to publish a reference offer: For all analogue and digital services of bandwidths up to and including 2Mbit/s, a requirement to publish prices, terms and conditions, and to notify on the same day of entering into force any changes to those prices terms and conditions.
- 9.19 In addition, we accepted the following voluntary undertakings²² from BT in relation to the supply of new analogue and sub 2Mbit/s digital services and prices for analogue services:
- that it would continue to supply new analogue retail circuits until 2011 or earlier if, subject to industry agreement and consent by Ofcom, the underlying platform is closed at an earlier date;
 - that it would continue to supply new sub-2Mbit/s digital retail circuits until 2011 or earlier if, subject to industry agreement and consent by Ofcom, the underlying wholesale products are withdrawn from new supply at an earlier date;
 - that it would not increase its prices for analogue services more quickly than the rate of inflation (RPI-0%) for a period two years following the publication of the LLMR statement i.e. from 2008 to 2010; and
 - that it would commit to a further two-year cap, the level of which would be agreed with Ofcom prior to 2011.

²² These were published in Annex 9 of the December 2008 Statement.

- 9.20 As a safeguard, we also concluded that if BT breached its voluntary undertaking or if Ofcom and BT could not reach agreement on a further voluntary undertaking about the supply of analogue and low bandwidth digital leased lines for the remainder of the market review period then a network access obligation and a cost orientation obligation would also apply.
- 9.21 In April 2011, we agreed new voluntary undertakings with BT about the supply of new analogue and sub 2Mbit/s services. These are discussed below.

Approach taken in the 2007/8 Review

- 9.22 The obligations we imposed in the 2007/8 Review were fairly 'light touch' in nature, reflecting our view that where possible, regulatory intervention should be focused at the wholesale level, allowing retail markets to be deregulated. The remedies can broadly be divided into three groups on the basis of the competition problems that they aim to address:
- remedies intended to prevent refusal to supply (the relevant remedies are the obligation to provide network access and the voluntary undertakings about the supply of new analogue and sub 2Mbit/s services);
 - remedies intended to prevent exploitation of customers by means of excessively high prices. The relevant retail level remedy is the voluntary undertaking on prices of analogue circuits. The intended constraint on digital retail circuit prices is provided by competition based on wholesale remedies; and
 - remedies intended to prevent anti-competitive behaviour and promote competition. These include the non-discrimination and transparency (publication of prices obligations and conditions). These obligations prevent BT from offering bespoke prices and there is a presumption that bundles of SMP and non SMP services would be anti-competitive. The obligations make it easier for customers to switch supplier and may also protect particular groups of retail customers from unfair pricing and conditions. These benefits were felt to outweigh the dangers of price publication leading to price following and hence to muted competition.
- 9.23 Our approach drew on our previous work on replicability as discussed in more detail below.

Replicability

- 9.24 An important element of our approach as set out in the Telecoms Strategic Review (TSR) was that we anticipated that once 'replicability' had been achieved for BT's retail services it would be possible for us to concentrate our regulatory intervention at the wholesale level and ultimately withdraw ex ante regulation at the retail level.
- 9.25 Replicability is an important regulatory threshold. It reflects the availability of fit for purpose wholesale inputs from BT which allow its competitors effectively to replicate BT's retail products, both technically and commercially. Therefore, in the presence of replicability we would expect competition to improve significantly, with benefits for customers in terms of lower prices and more choice of services and providers.
- 9.26 The technical and commercial issues that we considered to be barriers to replicability of low bandwidth retail leased lines were set out in an Ofcom statement entitled "The

replicability of BT's regulated business services and the regulation of business markets" (the Replicability Statement), published in 2006.^{23 24}

- 9.27 In the 2007/8 Review we concluded that BT had not fully addressed the replicability issues. We therefore maintained the pricing obligations and non-discrimination obligations and encouraged BT to address these issues.
- 9.28 We proposed that once BT had addressed the impediments to competitors effectively replicating BT's retail digital circuits at bandwidths up to 2Mbit/s from BT's wholesale inputs, we would consider relaxing retail pricing restrictions applied to BT as a result of its SMP. In particular we said that, once replicability had been achieved, we would consider granting BT the freedom to set bespoke prices for these services and relaxing the presumption that bundles of SMP and non SMP products are anti-competitive.

Withdrawal of analogue and sub 2Mbit/s services

- 9.29 At the time of the 2007/8 Review, several stakeholders expressed concerns over the possible withdrawal of analogue and sub 2Mbit/s digital leased lines services. These concerns were particularly linked to BT's planned investment in an IP-based, multi-service Next Generation Network (NGN) called 21st Century network (21CN). In association with this investment, BT was planning to retire the platforms that are used to provide analogue and low bandwidth PDH services at some point over the next 4-7 years.
- 9.30 Given these developments, there was a real possibility that, in the absence of regulatory intervention, BT would cease to provide new analogue and sub 2Mbit/s digital TI services within the timeframe of 2007/8 Review, and might also seek to withdraw services from existing customers.
- 9.31 Some stakeholders were very concerned about this possibility. In particular, some utility companies emphasised that they need low bandwidth TI services to support critical telemetry applications such as those used to monitor electricity distribution networks. At that time, Ethernet services could not meet the utility companies' performance requirements and replacing the existing circuits would be likely to take several years and involve significant expense.
- 9.32 We took the view that a balance needed to be struck between the aim of encouraging BT's investment in new, more efficient network infrastructure and the aim of ensuring that retail customers can continue to run key applications without incurring unnecessary expenditure. Given that the volume of analogue and sub 2Mbit/s digital leased lines was in long-term decline we concluded that they should be regarded as legacy services that would be likely to be withdrawn once the migration to the NGN was completed. We therefore concluded it would be disproportionate to oblige BT to supply new lines (as opposed to continuing to supply existing lines) for analogue and digital circuits at bandwidths under 2Mbit/s.
- 9.33 To address stakeholder concerns we accepted the voluntary undertakings described above regarding the supply of analogue and low bandwidth digital leased lines and subsequently agreed further voluntary undertakings about the supply of new services as also discussed above.

²³ <http://www.ofcom.org.uk/consult/condocs/busretail/statement/>

²⁴ Annex 9 provides further background and lists the replicability issues.

Developments since the 2007/8 Review

- 9.34 Since the 2007/8 Review there have been several developments that are relevant to our choice of remedies.

Withdrawal of analogue and sub 2Mbit/s digital services

- 9.35 Since the 2007/8 Review BT has delayed the withdrawal of analogue and sub 2Mbit/s digital services to give users such as the energy utilities more time to migrate to other services. Where demand remains commercially viable BT now intends to support these services until March 2018 and has also committed to give at least three years notice if it decides to bring the withdrawal date forward for individual services.²⁵
- 9.36 Given the critical nature of the utilities' telemetry applications, BT has also established a regular dialogue with the electricity utilities via the Energy Networks Association. The utilities have made arrangements to migrate their telemetry applications away from the analogue and 2Mbit/s digital services and are keeping BT apprised of the progress of their migration programmes.

New voluntary undertakings for sub 2Mbit/s services

- 9.37 In April 2011, Ofcom accepted new voluntary undertakings from BT²⁶ in which BT undertook to:
- continue to supply new analogue retail circuits until December 2013 or earlier if, subject to industry agreement and consent by Ofcom, the underlying platform is closed at an earlier date; and
 - continue to supply new sub 2Mbit/s digital retail circuits until December 2013 or earlier if, subject to industry agreement and consent by Ofcom, the underlying platform is closed at an earlier date.
- 9.38 Ofcom and BT did not agree a new undertaking in relation to analogue leased line pricing and therefore the cost orientation obligation for these services came into effect.

The 2009 Replicability Consultation

- 9.39 In November 2008, BT wrote to Ofcom setting out how it considered it had addressed the replicability issues identified in the Replicability Statement. Consequently, in June 2009 we published a consultation entitled "Replicability and the regulation of BT's low bandwidth leased lines" (the 2009 Replicability Consultation).²⁷ This set out our provisional view that replicability had been achieved and therefore BT's low bandwidth digital leased lines could be replicated by its competitors. Consequently we proposed that BT should:
- no longer be obliged to publish its prices for low bandwidth digital leased lines;

²⁵ http://www.globalservices.bt.com/CampaignDetailAction.do/Campaigns/tdm-services/param/Record/tdm_services_campaign_all_en-gb/fromPage/Furl/chapterKey/1

²⁶ <http://stakeholders.ofcom.org.uk/consultations/bcmr08/renewal/>

²⁷ http://stakeholders.ofcom.org.uk/consultations/low_bandwidth/

- be permitted to offer bespoke prices for low bandwidth digital leased lines provided that prices do not fall below the LRIC price floor; and
- be required to implement an internal governance mechanism to ensure that it does not breach the LRIC price floor.²⁸

9.40 We subsequently suspended work pending the outcome of the Leased Lines Charge Control Appeal (LLCC Appeal).²⁹ In light of the delay and subsequent developments in the market, in 2011 we decided to defer consideration of the replicability proposals to this market review.

Review of responses to the 2009 Replicability Consultation

- 9.41 As we did not issue a statement following the 2009 Replicability Consultation, we have reviewed the consultation responses in Annex 9 and also the additional points made in the CFI responses.
- 9.42 Having analysed stakeholders' comments about the barriers to replicability, we remain of the view that BT's competitors can replicate BT's sub 2Mbit/s and 2Mbit/s digital retail products, using wholesale inputs.
- 9.43 Below we consider whether we should, as part of this market review, implement the replicability proposals set out in the 2009 Replicability Consultation. We propose that we should completely remove retail regulation for 2Mbit/s services rather than implement the replicability proposals and we propose not to implement the replicability proposals for sub 2Mbit/s services.

Responses to the Call for Inputs

- 9.44 Four stakeholders made comments specifically about the retail TI market in addition to comments about wholesale markets:
- Verizon considered that retail regulation should be maintained as wholesale regulation alone would not be sufficient to constrain BT;
 - UKCTA said that during the period of this review, end-users would need to start migrating away from analogue and sub 2Mbit/s services in preparation for the closure of the DPCN platform that BT uses to provide these services. It urged Ofcom to require BT to offer migration arrangements that would allow end-users to migrate to alternative BT Wholesale or Openreach services (including LLU) without penalty and minimal disruption; and
 - SSE emphasised the importance of low bandwidth circuits to energy networks and urged Ofcom to ensure that as much warning as possible is given of the withdrawal of services. SSE also considered that Ofcom should maintain retail price controls to protect end-users of these services.
- 9.45 We consider these points in the discussion below about the remedies for each product segment in this market.

²⁸ It is also worth noting that at the time of the 2009 Replicability Consultation, competition appeared less strong for 2Mbit/s services than sub 2Mbit/s services and we considered whether a more conservative FAC price floor would be appropriate for 2Mbit/s services.

²⁹ <http://www.catribunal.org.uk/237-4334/1112-3-3-09-Cable--Wireless-UK.html>

9.46 There were also several comments about the replicability proposals:

- C&WW said that Ofcom should not implement the replicability proposals, arguing that two of the major obstacles to replicability (PoH charging and circuit routing) had not been fully resolved, though it acknowledged that progress had been made with PoH charging;
- C&WW also raised concerns about relying on BT's internal governance processes as part of the replicability proposals; and
- UKCTA also argued that the replicability proposals should not be implemented until its concerns about PoH rental charges, circuit routing, BT's internal governance and the provision of a managed CP-to-CP circuit transfer process had been addressed.

9.47 We consider these points in Annex 9 with the response to the 2009 Replicability Consultation as they are very similar.

Analogue services

9.48 As noted in section 7, BT has a 96% share of retail sales of analogue services, almost unchanged since the 2007/8 Review and volumes are in steady decline as end-users migrate to more modern services.

Scope for relaxation of retail regulation

9.49 Under section 91(2) of the Act (and Art. 17(1) (6) of the USD) we may only impose retail regulation where wholesale regulation in the upstream market would not suffice to achieve our duties and objectives with regards to the relevant downstream market.

9.50 There are currently no upstream wholesale services available to CPs and given the legacy nature of these services and their impending withdrawal, there is little prospect that retail competition would increase even if we were to require BT to offer wholesale services to CPs. We therefore consider that wholesale regulation would be insufficient to perform our duties in relation to these services.

9.51 Given the virtual absence of retail competition for these services, it is unlikely to constrain BT's conduct during the period covered by this review and consequently we consider there is a need for ex-ante retail regulation to address the competition issues we have identified, namely:

- refusal to supply;
- excessive pricing; and
- undue discrimination.

9.52 Below we consider how these competition issues should be addressed.

9.53 Given the very poor prospects for retail competition we consider it appropriate to give less weight to measures designed to promote competitive entry.

Refusal to supply

- 9.54 We remain of the view that these services should be regarded as legacy services that are approaching the end of their life. It would therefore be inappropriate for us to seek artificially to extend the availability of these services. We therefore consider it would be disproportionate to require BT to supply new services and we propose not to seek a further voluntary undertaking for BT in relation to the supply of new services beyond December 2013 as provided for in the existing voluntary undertaking.
- 9.55 Thus our main concern in relation to refusal to supply relates to the withdrawal arrangements and in particular the need to ensure that end-users are provided with adequate notice of service withdrawal.
- 9.56 We note that in order to address the concerns of the utility companies and other users with critical applications, BT has significantly delayed the withdrawal of analogue circuits and has given a public commitment to give end-users at least three years notice of the withdrawal of analogue circuits and to consult key stakeholders should it decide to bring forward the withdrawal date from March 2018.³⁰
- 9.57 Given the critical nature of some of the services that use these leased lines we consider that it is appropriate to retain regulatory oversight of their withdrawal. We propose that BT should be subject to an obligation to supply retail analogue leased lines that would:
- not require BT to supply new analogue circuits;
 - require BT to supply existing analogue services until it gives end-users and Ofcom notice of at least one year of their withdrawal; and
 - require BT to comply with directions given by Ofcom in relation to the condition.
- 9.58 We consider it is appropriate to impose a minimum notice period for service withdrawal as a backstop to provide additional assurance to end users that sufficient notice will be given to allow end users to migrate critical applications to alternative services. On balance, a one year notice period is in our view adequate as a backstop for this purpose and would not interfere with the commercial arrangements that BT has proposed.

Excessive pricing

- 9.59 BT's position of SMP is entrenched, particularly given the legacy nature of analogue services and their impending withdrawal, and we have identified that its profitability is high. There is therefore a risk that BT may use its position of entrenched SMP to charge excessive prices. Given the circumstances, we consider a specific charging constraint in the form of a safeguard cap is appropriate. Safeguard caps are designed to protect end users from excessive price rises, generally by requiring that prices must not rise in real terms by more than a reasonable amount.
- 9.60 Unlike traditional RPI-X controls, safeguard caps are not generally set to bring charges into line with the forecast level of costs at the end of the charge control period. However, we also want the retail level safeguard cap to allow BT to recover a

³⁰ http://www.globalservices.bt.com/CampaignDetailAction.do/Campaigns/tdm-services/param/Record/tdm_services_campaign_all_en-gb/fromPage/Furl/chapterKey/1

reasonable amount of its retail and network costs from retail analogue leased lines, and to allow changes in these costs to be reflected in retail prices in order to encourage efficient migration to newer services.

- 9.61 We consider that setting the retail cap at the same level as the basket cap on wholesale TISBO and trunk charges will be consistent with our objectives set out above. Thus, if the basket cap on wholesale TISBO and trunk charges is $RPI+x\%$ we would propose that the retail cap should also be $RPI+x\%$. This is sufficient to allow recovery of costs, as we explain below, and provide appropriate signals for migration.
- 9.62 Setting the safeguard cap to reflect the charge control we propose for digital wholesale TISBO and trunk services will allow recovery of an appropriate amount of network costs since analogue services and sub-2Mbit/s wholesale digital services are supported by the same platform. The costs of providing sub-2Mbit/s wholesale digital services are included in the base year costs we use in our charge control model and the charges for these services would be subject to an $RPI \pm x\%$ wholesale basket cap.
- 9.63 Setting the cap in this way will also allow BT to recover a reasonable amount of retail costs. Most retail costs are determined by the total level of BT retail activity, rather than the volume of an individual service, and BT allocates retail costs between services largely on the basis of revenues. Hence, we consider that the amount of retail costs which needs to be recovered from each retail leased line (the unit retail cost) will not rise more rapidly than the increase in unit network costs allowed for in the sub-cap on wholesale charges.³¹ For these reasons, it has not been necessary explicitly to model BT's retail costs.
- 9.64 In addition, the wholesale TISBO and trunk charge control will be set taking into account the desirability of encouraging efficient migration to new services. Setting the retail safeguard cap at the same level will mean that price signals from the wholesale level can be transmitted to retail customers, who will then be given an appropriate incentive to switch to a newer alternative.
- 9.65 We will set out proposals for the safeguard cap in the LLCC Consultation which we intend to publish shortly.

Undue discrimination

- 9.66 In order to address the risk that BT might engage in unduly discriminatory conduct we consider it appropriate that BT should be subject to an obligation not to discriminate unduly. In the absence of such a requirement BT would have the incentive to discriminate against particular groups of retail customers (such as those least able to switch to AI services) by charging excessive prices, imposing unfair terms or offering inadequate quality of service.
- 9.67 To provide transparency and to support this obligation we consider that BT should also be subject to a requirement to publish a reference offer specifying prices and other terms and conditions.

³¹ We explained the way that BT's retail costs are determined in our consultation on the NTS retail uplift. See <http://stakeholders.ofcom.org.uk/binaries/consultations/nts-retail-uplift/summary/nts-retail-uplift.pdf>, in particular paragraph 5.123 onwards. We set a cap of $RPI+1.25\%$ to allow recovery of a reasonable amount of retail costs through the uplift.

Conclusions on analogue remedies

9.68 Based on the discussion above, we propose that BT would be subject to the following obligations in relation to retail analogue services:

- a requirement to supply existing analogue services with provision to withdraw services provided that notice of at least one year is given;
- a requirement not to discriminate unduly;
- a requirement to publish a reference offer (including prices, terms and conditions); and
- a safeguard cap retail price control.

9.69 We discuss the purpose of each of these obligations in more detail at paragraph 9.108 *et seq* where we also discuss the legal tests for the imposition of these obligations.

Sub 2Mbit/s digital services

9.70 This segment has some similarities to the analogue circuits assessed above. As noted in section 7, BT retains a high share of retail sales of these services and volumes are in steady decline. These services are provided on the same platform as some of the analogue services (BT's DPCN platform) and BT has announced the withdrawal of these services in conjunction with the analogue services (i.e. by March 2018 at the latest). An important difference is that, unlike the analogue services, BT provides upstream wholesale inputs in the form of PPCs.

9.71 The approach that we adopted in the 2007/8 has been partially successful. BT has addressed the barriers to replicability and has responded positively to stakeholder concerns about the withdrawal of these services by delaying the withdrawal of these services. However, competition has not developed as expected. In the presence of replicability we had expected retail competition to improve significantly with benefits for customers in terms of lower prices and more choice of services and providers. Although BT's share of this product segment has fallen somewhat from 79% in 2007 to 73%, it remains significantly higher than for 2Mbit/s services where BT's share has fallen from 60% to 45% over the same period.

9.72 These differences may be accounted for by the fact that sub 2Mbit/s services are declining more rapidly than 2Mbit/s services. Sub 2Mbit/s services are increasingly regarded as legacy services by both CPs and end-users. CPs have told us that most of the remaining activity in this segment is related to migrating users to more modern services where possible. We have also been told that consolidation is occurring as CPs with lower volumes find it unprofitable to continue to support them. Given the circumstances, the prospects for a significant increase in competition appear weak and there is some prospect of further consolidation of supply.

Scope for relaxation of retail regulation

9.73 Under section 91(2) of the Act (and Art. 17(1) (6) of the USD) we have an obligation to consider whether the imposing of wholesale regulation in the upstream market suffices to achieve our duties and objectives with regards to the relevant downstream market. Therefore, now that replicability has been achieved, we have considered

whether we could take steps to relax retail regulation for sub 2Mbit/s digital services by:

- removing ex-ante regulation - relying on the upstream wholesale remedies and competition law to achieve our duties and objectives in relation to sub 2Mbit/s digital services; or
- implementing the replicability proposals – in line with the approach we set out in the TSR, give BT greater pricing freedom whilst retaining some ex-ante safeguards on pricing.

Remove ex-ante regulation

- 9.74 If we remove ex-ante obligations in relation to sub 2Mbit/s digital services, BT would have significantly greater freedom than under the current obligations where it is subject to obligations requiring it to publish a reference offer (including prices terms and conditions) and not to discriminate unduly. In particular, BT would have greater freedom in relation to pricing and discrimination and would be able to use unpublished bespoke pricing.
- 9.75 Given the weakness of retail competition for sub 2Mbit/s it is less likely that the greater pricing freedom would lead to downward pressure on prices as BT would have less incentive to use the additional pricing flexibility to compete more aggressively on price. There would also be an increased prospect of BT using the additional pricing flexibility to raise prices or to restrict retail competition through price discrimination in the retail market, discounting where competition is strong and increasing prices where competition is weak. The ability of some end users to migrate from sub digital 2Mbit/s services to 2Mbit/s digital services (where competition is stronger) would afford some protection against price rises. However this option may not be suitable for some end users, given the switching costs and the additional rental charges (particularly those using the lower bandwidth sub 2Mbit/s services where the price difference is greatest), meaning that there could be a risk of discrimination against customers who are least able or willing to switch.
- 9.76 On balance we consider that given the weakness of competition, the prospect of adverse consequences associated with relying on wholesale regulation for sub 2Mbit/s services is such that some form of ex ante regulation is required.

Replicability proposals

- 9.77 To relax retail regulation for sub 2Mbit/s services as set out in the replicability proposals we would apply the following obligations to BT in respect of sub 2Mbit/s services:
- no undue discrimination obligation with a modified interpretation such that we would no longer regard bundles of SMP and non-SMP services including sub 2Mbit/s digital leased lines as necessarily unduly discriminatory;
 - an obligation for BT to implement an internal governance mechanism to ensure that its charges do not fall below a price floor that covers wholesale transfer charges for network components and LRIC for retail components; and
 - an obligation to publish a reference offer (including prices) that would only take effect if BT breached the price floor or governance obligations.

- 9.78 These measures would allow BT additional flexibility in the retail market by allowing it to discriminate in the retail market by offering bespoke prices and by bundling sub 2Mbit/s services with other non-regulated products. This could, in theory, benefit end-users by increasing downward pressure on prices leading to lower retail prices. A further benefit from relaxing retail regulation is that removing BT's obligation to publish its retail prices should reduce the risk of price-following by other CPs, encouraging them to compete more aggressively on price.
- 9.79 The replicability proposals include ex-ante safeguards in the form of the LRIC price floor and the associated governance arrangements to guard against the risk that BT might use pricing freedom to weaken competition in the retail market. These safeguards make the freedom to offer unpublished bespoke prices conditional upon BT observing a price floor in respect of those services, set by reference to the transfer charge for the network components plus BT's retail LRIC costs.
- 9.80 The proposed ex ante safeguards were primarily intended to allow BT additional freedom to compete more intensively whilst also protecting competition as it developed. These considerations are not particularly relevant in the context of sub 2Mbit/s services since competition in this segment appears limited and there is a very low prospect of competitive entry. Given this, the governance obligations would place an additional and unnecessary burden on BT. More importantly there is a risk that BT would use the additional pricing freedom to set either discriminatory high prices or low prices which could harm competition. Therefore in this context, the replicability proposals would have a similar risk of adverse consequences to relying on wholesale regulation. We therefore consider that the replicability proposals would not adequately address the competition issues identified.

Proposals

- 9.81 As discussed at the beginning of this section, the competition issues that we have identified in this market are:
- refusal to supply;
 - excessive pricing; and
 - undue discrimination.
- 9.82 Below we discuss how best these issues could be addressed.

Refusal to supply

- 9.83 We remain of the view that these services should be regarded as legacy services that are approaching the end of their life. It would be inappropriate for us to seek artificially to extend the availability of these services. We therefore consider it would be disproportionate to require BT to supply new services and we propose not to seek a further voluntary undertaking for BT in relation to the supply of new services beyond December 2013 as provided for in the existing voluntary undertaking.
- 9.84 Thus our main concern is in relation to refusal to supply relates to the withdrawal arrangements and in particular the need to ensure that end-users are provided with adequate notice of service withdrawal.
- 9.85 We note that in order to address the concerns of the utility companies and other users with critical applications, BT has significantly delayed the withdrawal of sub

2Mbit/s digital circuits and has given a public commitment to give end-users at least three years notice of the withdrawal of sub 2Mbit/s digital circuits and to consult key stakeholders should it decide to bring forward the withdrawal date from March 2018.

- 9.86 Given the critical nature of some of the services that use these leased lines we consider that it is appropriate to retain regulatory oversight of their withdrawal. We propose that BT should be subject to an obligation to supply retail sub 2Mbit/s digital leased lines that would:
- not require BT to supply new sub 2Mbit/s digital circuits;
 - require BT to supply existing sub 2Mbit/s digital services until it gives end-users and Ofcom notice of at least one year of their withdrawal; and
 - require BT to comply with directions given by Ofcom in relation to the condition.
- 9.87 We consider it is appropriate to impose a minimum notice period for service withdrawal as a backstop to provide additional assurance to end users that sufficient notice will be given to allow end users to migrate critical applications to alternative services. On balance, a one year notice period is in our view adequate as a backstop for this purpose and would not interfere with the commercial arrangements that BT has proposed.
- 9.88 We consider that this obligation in conjunction with BT's public commitment should provide end-users with sufficient reassurance about the withdrawal arrangements and give them sufficient notice to migrate the remaining critical applications to other services.

Excessive pricing

- 9.89 There is less of concern about the risk of excessive pricing for sub 2Mbit/s digital services than for analogue services as there is retail competition based on upstream wholesale inputs and some users may be able to switch to 2Mbit/s services. We consider that as in the 2007/8 Review that we can rely on wholesale competition to provide a constraint on BT's retail prices and we therefore do not propose to apply price controls to these services.

Undue discrimination

- 9.90 In order to address the risk that BT might engage in unduly discriminatory conduct we consider it appropriate that BT should be subject to an obligation not to discriminate unduly. In the absence of such a requirement BT would have the incentive to discriminate against particular groups of retail customers by charging excessive prices, impose unfair terms or offer inadequate quality of service.
- 9.91 To provide transparency and to support this obligation we consider that BT should also be subject to a requirement to publish a reference offer specifying charges terms and conditions.

Conclusions on sub 2Mbit/s services

- 9.92 Based on the discussion above, we propose that BT would be subject to the following obligations in relation to retail sub 2Mbit/s digital services:

- an obligation to supply existing sub 2Mbit/s digital services with provision to withdraw services provided that notice of at least one year is given;
- an obligation not to discriminate unduly; and
- a requirement to publish a reference offer (including prices, terms and conditions).

9.93 We discuss the purpose of each of these obligations in more detail later in this section where we also discuss the legal tests for the imposition of these obligations.

2Mbit/s digital services

9.94 This segment differs significantly from the analogue and sub 2Mbit/s digital services. Firstly, BT has not announced any plans to withdraw these services and although volumes are declining the rate of decline is less than in the other segments. The approach that we took in the 2007/8 Review has achieved some success. BT has addressed the barriers to replicability and as discussed in section 7, there are signs that there is more competition to supply 2Mbit/s circuits than at the time of the last review.

Scope for relaxation of regulation

9.95 Under section 91(2) of the Act (and Art. 17(1) (6) of the USD) we have an obligation to consider whether the imposing of wholesale regulation in the upstream market suffices to achieve our duties and objectives with regards to the relevant downstream market. Therefore, now that replicability has been achieved, we have considered whether we could take steps to relax retail regulation for 2Mbit/s digital services by:

- removing ex-ante regulation - relying on the upstream wholesale remedies and competition law to achieve our duties and objectives in relation to 2Mbit/s digital services; or
- implementing the replicability proposals – in line with the approach we set out in the TSR, give BT greater pricing freedom whilst retaining some ex-ante safeguards on pricing.

The replicability proposals

9.96 Maintaining the current package of remedies would be a cautious approach, but would be justified if we had concerns about the strength of retail competition or the replicability of retail services using BT's wholesale services. As noted above, we are satisfied that replicability has been achieved and the fall in BT's share of this market segment is indicative of the strength of retail competition.

9.97 A further consideration is that maintaining the current remedies may disadvantage BT in a way that might not be proportionate, given the presence of upstream fit for purpose remedies. If CPs are able to replicate BT's retail leased line services, and regulation does not reflect this, then BT might not be able to win contracts even when it is more efficient than its rivals.

9.98 To relax retail regulation for 2Mbit/s digital services as set out in the replicability proposals we would apply the following obligations to BT in respect of 2Mbit/s services:

- A obligation not to unduly discriminate with a modified interpretation such that we would no longer regard bundles SMP and non-SMP services including 2Mbit/s digital leased lines as necessarily unduly discriminatory;
- An obligation for BT to implement an internal governance mechanism to ensure that its charges do not fall below a price floor that covers transfer charges for network components and LRIC for retail components;³² and
- An obligation to publish a reference offer (including prices) that would only take effect if BT breached the price floor or governance obligations.

- 9.99 These measures would allow BT to compete more flexibly in the retail market by allowing it to offer bespoke prices and to bundle 2Mbit/s services with other non-regulated products. This would be expected to benefit end-users by increasing downward pressure on prices leading to lower retail prices. A further benefit from relaxing retail regulation is that removing BT's obligation to publish its retail prices would be expected to reduce the risk of price-following by other CPs, encouraging greater price competition. This in turn should result in lower prices for end-users.
- 9.100 This option includes ex-ante safeguards in the form of the LRIC price floor and the associated governance arrangements to guard against the risk that BT might use pricing freedom to weaken competition in the retail market. These safeguards make the freedom to offer unpublished bespoke prices subject to BT observing a price floor in respect of those services, set by reference to the transfer charge for the network components plus BT's retail LRIC costs.
- 9.101 Given the strength of retail competition and the potential benefits to end-users we consider that there is a much lower risk than for sub 2Mbit/s services that BT would use the increased pricing flexibility to raise prices or to restrict retail competition by acting in a discriminatory manner. We therefore consider there is a good case for adopting the replicability proposals. However, as discussed below we have also considered whether we should go further and completely relax retail regulation.

No ex-ante regulation

- 9.102 If we remove ex-ante obligations in relation to 2Mbit/s services, BT would have significantly greater freedom than under the current obligations where it is subject to obligations requiring it to publish a reference offer (including prices terms and conditions) and not to discriminate unduly. In particular, BT would be able to use unpublished bespoke pricing without any ex-ante price floor. BT pricing would then be subject only to the provisions of competition law.
- 9.103 A first test for anticompetitive pricing is whether the price of a service under consideration is below the additional costs incurred in supplying that service. The standard competition law test outside telecoms is based on Average Variable Costs (AVC). If a company is not able to cover its AVC for a given service, the price is presumed to be anti competitive. In the telecoms sector, additional costs are normally measured by long run incremental costs (LRIC). However, under competition law, the relevant output increment and time period used to calculate the incremental costs which a price should be expected to cover will vary from case to case and could be much lower than the LRIC price floor. For example, the incremental cost of an

³² The governance process would specify how the LRIC floor should be calculated, how it should be applied to retail sales (both standalone and when bundled with other services) and would also specify a requirement for BT to retain documentation for audit purposes

individual leased line contract could include very few of BT's retail costs, few of which would be directly caused by the supply of a single customer. A floor based on the incremental cost of an individual contract would therefore give BT greater freedom to offer large bespoke discounts than it would have with a LRIC floor calculated as if all retail activities were a single increment (as set out in the replicability proposals).

9.104 In the 2009 Replicability Consultation we rejected this approach in favour of a LRIC price floor approach because we felt that BT's LRIC costs for retailing were more appropriate as they relate to a much larger increment (BT treats all of its retail costs as a single increment). However, developments in this market since the 2009 Replicability Consultation suggest that this option warrants further consideration. 2Mbit/s TI services are increasingly regarded as legacy services with volumes in steady decline. Given this, market entry is highly unlikely so we need not give such a high priority to protecting nascent competition. In this environment, there is less risk that a predatory pricing strategy would be advantageous for BT. Other CPs are established and their network investments made (i.e. sunk costs) whilst the declining market would reduce the ability of BT to recoup losses incurred to induce other CPs to exit. Conversely, there is a higher risk that BT might have an incentive to keep prices high, particularly if there is further consolidation in the market.

9.105 We also note that there have not been any complaints about BT's conduct in relation to ISDN2 services since we completely relaxed retail regulation in the 2009 Narrowband Market Review.

Conclusions on options for 2Mbit/s services

9.106 On balance we consider that the safeguards provided by the replicability proposals (i.e. the LRIC price floor and the governance requirements) are unnecessary given the market circumstances. We therefore propose that BT should not be subject to any SMP obligations in relation to 2Mbit/s retail TI leased lines services.

8Mbit/s digital services

9.107 The only types of circuit with bandwidths above 2Mbit/s in use in this market are 8Mbit/s services. In view of the very small number of 8Mbit/s circuits left in use and their legacy nature, we consider that it would be disproportionate for us maintain retail regulation for these services.

Proposed remedies

9.108 Based on the discussion above we propose that BT should be subject to the following obligations in relation to the provision of retail leased lines at bandwidths below 2Mbit/s (i.e. in relation to analogue and sub 2Mbit/s digital services):

- an obligation to supply existing services with provision to withdraw services provided that notice of at least one year is given;
- a requirement not to discriminate unduly; and
- a requirement to publish a reference offer, including charges terms and conditions.

9.109 In relation to analogue services, we also propose that BT should be subject to a safeguard price cap.

- 9.110 We propose not to apply any obligations in relation to retail TI leased lines at bandwidths of 2Mbit/s and above.
- 9.111 Below we discuss the purpose of the proposed remedies in more detail and set out the reasons why we consider they comply with the relevant legal tests in the Act.
- 9.112 To give regulatory effect to our proposals we have proposed a new set of SMP conditions as set out in Annex 14.

Requirement to supply retail leased lines

Aim of regulation

- 9.113 As discussed above, given the critical nature of some of the services that use analogue and sub 2Mbit/s digital leased lines, it is important that end-users are given adequate notice of the withdrawal of these services. BT has given a public commitment that it will give end-users three years notice of the withdrawal of analogue and sub 2Mbit/s services (subject to certain conditions). We consider this should give end-users sufficient notice, particularly as BT has already significantly extended the availability of these services in response to end-user concerns. However, given the critical nature of some of the services that use these leased lines we consider that it would be appropriate to retain regulatory oversight of the withdrawal of these services.

Proposed condition

- 9.114 We therefore propose that BT should be subject to an obligation to supply retail leased lines at bandwidths below 2Mbit/s. This obligation would:
- not require BT to supply new circuits;
 - require BT to supply existing services until it gives end-users and Ofcom notice of at least one year of their withdrawal; and
 - require BT to comply with directions given by Ofcom in relation to the condition.
- 9.115 We consider that this obligation should provide end-users with sufficient reassurance about the withdrawal arrangements and give them sufficient notice to migrate the remaining critical applications to other services. We note that BT's public commitment about service withdrawal provides some additional reassurance to existing end-users.

Legal tests

- 9.116 We are satisfied that the proposed condition (as set out in Annex 14) in relation to analogue and sub 2Mbit/s digital services meets the various tests set out in the Act.
- 9.117 We have had regard for our duties under the Act, including our general duties under section 3 and duties for the purposes of fulfilling Community obligations (including under the EC framework for telecommunications regulation. We have also taken into account all relevant guidelines produced by the EC, ERG, Oftel and ourselves. We note in particular that we consider the proposed condition furthers the interests of citizens and consumers in relation to communications matters by ensuring that analogue and sub 2Mbit/s services are not withdrawn prematurely.

9.118 Section 47 of the Act requires conditions to be objectively justifiable, proportionate and transparent. The proposed condition is:

- objectively justifiable, in that, absent this obligation, there is a risk BT might withdraw these services with insufficient notice for some end-users to install alternative circuits to support critical applications such as electricity network telemetry circuits. This would not be in the interests of such end-users and their customers. We have recognised that this concern relates specifically to existing customers, and have therefore limited the obligation accordingly;
- not unduly discriminatory, as only BT and no other operator has been found to hold a position of SMP in this market and would therefore have the ability and incentive to exploit customers by withdrawing analogue and sub 2Mbit/s digital services with inadequate notice to end-users;
- proportionate since it is the least onerous obligation which addresses this particular risk of harm to end-users and citizens and will otherwise allow BT to withdraw these legacy services with insufficient notice. In particular, wholesale remedies alone would be insufficient in relation to these particular services in the UK because the rapidly declining and legacy nature of the services means there is little prospect that alternative suppliers would step in using wholesale inputs were such services withdrawn by BT with insufficient notice; and
- transparent in that the condition is clear in its intention and because the purpose and meaning of the obligation and the reasons for imposing it are clearly explained in this document.

Requirement not to discriminate unduly

Aim of regulation

9.119 In light of our analysis, particularly in relation to the replicability of BT's retail low bandwidth leased lines from wholesale inputs and about the strength of competition in this market we consider that it is appropriate that BT should be subject to an obligation not to discriminate unduly in the provision of services at bandwidths below 2Mbit/s. We consider that in the absence of such a requirement, BT would have an incentive to distort competition by discriminating against particular groups of retail customers e.g. through charging higher prices where competition is weak and lower prices where it is stronger. BT would also have an incentive to charge excessive prices, impose unfair terms or offer inadequate quality of service to particular groups of customers.

Proposed condition

9.120 BT would be obliged not to discriminate unduly against particular persons or against a particular description of persons, in relation to matters connected with the supply of retail leased lines at bandwidths below 2Mbit/s.

9.121 Although we do not consider this requires specific provision in the proposed condition, we note that there is a particular risk in relation to saw-tooth discounts which will often be unduly discriminatory, in view of their potentially anti-competitive effects. Saw-tooth discounts are discounts, which can lead to a decline in the overall level of charges following an increase in the level of consumption. To give a simple example, a supplier may offer a 10% discount if pre-discount expenditure exceeds £100. If the discount applies to all expenditure, rather than just the incremental

expenditure in excess of £100, an increase in volumes, which just triggers the pre-discount expenditure threshold, could lead to a reduction in post-discount spending.

- 9.122 We consider that saw-tooth discounts may often act as a barrier to market entry or expansion and, in a market characterised by SMP, may restrict the development of competition.
- 9.123 We consider that application of a non discrimination condition should not prevent BT from setting geographically de-averaged tariffs i.e. charging different prices for retail leased lines at different locations (as it does currently for the Central London Zone (CLZ), provided that in doing so it does not discriminate between customers or have a material adverse effect on competition.

Legal tests

- 9.124 We are satisfied that the proposed condition (as set out in Annex 14) in relation to analogue and sub 2Mbit/s digital services meets the various tests set out in the Act.
- 9.125 We have had regard for our duties under the Act, including our general duties under section 3 and duties for the purposes of fulfilling Community obligations (including under the EC framework for telecommunications regulation. We have also taken into account all relevant guidelines produced by the EC, ERG, Oftel and ourselves. We note in particular that the condition is aimed at preventing the distortion of competition and harm to particular groups of end-users in the form of high prices, unfair terms or inadequate service that might occur if BT had the freedom to unduly discriminate in the provision of services at bandwidths below 2Mbit/s
- 9.126 Section 47 of the Act requires conditions to be objectively justifiable, proportionate and transparent. The proposed condition is:
- Objectively justifiable, in that BT would otherwise be able to distort competition by discriminating against particular groups of retail customers, e.g. through charging high prices where competition is weak and lower prices where it is stronger. It also ensures that BT does not abuse its SMP position by charging excessive prices, imposing unfair terms or offering inadequate quality of service to particular groups of customers. The requirement therefore promotes competition and furthers the interests of consumers.
 - Not unduly discriminatory, as only BT and no other operator has been found to hold a position of SMP in this market and would therefore have the ability and incentive to exploit customers by charging excessive prices, imposing unfair terms or offering inadequate quality of service. Indeed, in relation to analogue services, BT is the only supplier of such services in the UK, and competition remains weak in sub 2Mbit/s digital services. Therefore, no other operator would have the incentive and ability to distort competition by setting discriminatory prices, terms or conditions;
 - Proportionate because it is the least onerous obligation which addresses this particular risk of harm to competition and also because we have limited the scope of the obligation to those services which we consider most susceptible to this type of harm (i.e. analogue and sub 2Mbit/s digital services). As noted in relation to the obligation to supply, we do not consider wholesale remedies would be sufficient because there is little prospect that alternative suppliers would step in using wholesale inputs were BT to charge excessive prices, impose unfair terms or offer inadequate quality of service; and

- Transparent in that the condition is clear in its intention and because the purpose and meaning of the obligation and the reasons for imposing it are clearly explained in this document.

Requirement to publish a reference offer (setting out prices, terms and conditions) and same day price notification

Aim of regulation

- 9.127 The publication provision has an important role in the regulation of BT's activities in this market because it provides transparency over pricing. In conjunction with the non-discrimination obligation, the effect is to prevent BT from bundling low bandwidth leased lines together with other, non-SMP, services and from offering bespoke prices in order to secure business contracts against competition from other CPs.
- 9.128 In light of our analysis discussed above, particularly in relation to the replicability of BT's retail low bandwidth leased lines from wholesale inputs and about the strength of competition in this market we consider that it is appropriate to retain a requirement for BT to publish a reference offer for analogue and sub 2Mbit/s retail leased lines. This is because wholesale inputs are not available for analogue services and although we consider that sub 2Mbit/s services are fully replicable from wholesale inputs, given the relative weakness of competition we consider the risk of adverse consequences of relaxing these obligations to be greater than the potential benefits.

Proposed condition

- 9.129 BT would be required to publish a reference offer for retail TI leased lines services at bandwidths below 2Mbit/s that includes at least the following:
- the technical characteristics of the services including the physical and electrical characteristics as well as the detailed technical and performance specifications which apply at the network termination point;
 - charges, including the initial connection charges, the periodic rental charges and other charges;
 - information concerning the ordering procedure;
 - contractual details; and
 - any refund procedure.
- 9.130 BT would be required not to depart from the terms specified in the reference offer except with permission from Ofcom and would be obliged to comply with directions made by Ofcom concerning its reference offer.

Legal tests

- 9.131 We are satisfied that the proposed condition (as set out in Annex 14) in relation to analogue and sub 2Mbit/s digital services meets the various tests set out in the Act.
- 9.132 We have had regard for our duties under the Act, including our general duties under section 3 and duties for the purposes of fulfilling Community obligations (including under the EC framework for telecommunications regulation. We have also taken into account all relevant guidelines produced by the EC, ERG, Oftel and ourselves. We

note that the condition is aimed in particular at preventing BT from using bundling or bespoke (hidden) discounts for services at bandwidths below 2Mbit/s in a way which could harm competition and consequently the interests of citizens and consumers.

9.133 Section 47 of the Act requires conditions to be objectively justifiable, proportionate and transparent. The proposed condition is:

- Objectively justifiable, in that it provides certainty to operators and prevents BT from withholding information from customers and competitors, or misusing information in a way which could harm competition, which would be a real risk in the absence of the condition. In addition it facilitates monitoring of compliance with the other obligations, notably the obligation not to unduly discriminate;
- Not unduly discriminatory, as only BT and no other operator has been found to hold a position of SMP in this market and would therefore have the ability and incentive to exploit customers by withholding or misusing information;
- Proportionate, since it is targeted at addressing the market power that we propose that BT holds in this market and because the information which BT would be obliged to publish is necessary to prevent it from using bundling or bespoke (hidden) discounts in a way which could harm competition. This is necessary because wholesale remedies have not been fully effective in removing BT's retail market power (there is moreover, no wholesale analogue product). The transparency obligations support the other conditions imposed to address BT's SMP in this market. Without this information CPs would be unable to compete fairly with BT. As noted in relation to the obligation to supply, we do not consider wholesale remedies would be sufficient because there little prospect that alternative suppliers would step in using wholesale inputs were BT to withhold or misuse information. Additionally, a wholesale remedy would not be capable of supporting the other obligations at the retail level referred to above; and
- Transparent in that the condition is clear in its intention and because the purpose and meaning of the obligation and the reasons for imposing it are clearly explained in this document.

Safeguard cap charge control

Aim

- 9.134 We propose, in relation to analogue retail services, to impose a safeguard price cap condition (a form of price control) to address BT's ability and incentive to charge excessive prices.
- 9.135 In a competitive market, prices would be expected to be cost reflective. However, where a provider has SMP, competition cannot be expected to provide effective constraints and ex-ante regulation may be desirable to prevent charges from being set at an excessive level. Such intervention could also have as its objectives the aim of promoting efficiency and of allowing the development of effective competition in downstream markets.
- 9.136 In this market BT has SMP and as previously discussed there is little likelihood of new entry, BT has an incentive and the ability to charge excessive prices. We have noted the legacy nature of these services and that remedies at the wholesale level would not realistically be capable of addressing the issue at the retail level.

- 9.137 Having identified this relevant risk of an adverse effect arising from price distortion in our market analysis, we consider that this risk should be addressed by the imposition of a specific charging constraint. As discussed above, our proposal is that a safeguard price cap is appropriate in these circumstances. The form, scope and level of the safeguard cap will be considered in the LLCC Consultation and will therefore be subject of further consultation through that process.

Legal tests

- 9.138 We will address the legal tests for the price controls in the LLCC Consultation. Nevertheless, we consider that in principle a safeguard cap would meet the relevant legal tests.
- 9.139 Section 87(9) of the Act authorises the setting of an SMP services condition setting price controls including a safeguard cap. Section 88 of the Act specifies that Ofcom are not to set such a control unless it appears to Ofcom that there is a risk of adverse effects due to pricing distortions and it appears to Ofcom that setting a price control would promote efficiency, sustainable competition and confer the greatest benefits on the end users. Under section 88 Ofcom must also take account of the extent of the investment in the matters to which the condition relates of the person to whom it is to apply.
- 9.140 We consider these criteria are satisfied.
- 9.141 We also consider a price control would meet the criteria set out in section 47(2) of the Act, since it is objectively justifiable, non-discriminatory, proportionate and transparent. This is for the reasons below. However, we will consult on this again when we consult on our specific price control proposals shortly. At this time, we consider that a price control is, in principle:
- objectively justifiable in that BT has SMP in the market, it is unlikely to be incentivised to reduce its costs and set prices at the competitive level;
 - not unduly discriminatory in that BT is the only operator to have SMP in the market;
 - proportionate in that we will protect end users from excessive price rises, ensure that BT can recover a reasonable amount of its retail and network costs from retail analogue leased lines and allow changes in those retail costs to be reflected in retail prices in order to encourage efficient migration; and
 - transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention.
- 9.142 For the reasons set out above, we consider that the imposition of a safeguard cap would in particular further the interests of citizens and further the interests of consumers in relevant markets in line with section 3 of the Act by ensuring that consumers are protected from excessive price rises. Further, we consider that, in line with section 4 of the Act, a safeguard cap obligation in particular promotes competition in relation to the provision of electronic communications networks and would result in the maximum benefit for retail consumers.

Impact on stakeholders

- 9.143 We consider not applying ex ante remedies would fail to meet our general duty under section 3 of the Act of furthering the interests of citizens and consumers. In addition, not applying ex ante remedies would be inconsistent with our statutory obligation to impose appropriate SMP remedies to address the competition problems we have identified in those markets in which we propose BT has SMP and in which we consider competition is not effective.
- 9.144 In terms of impact on other stakeholders, we consider not applying ex-ante remedies to analogue and sub 2Mbit/s digital services would benefit BT by reducing the competitive pressure on its activities in the retail markets for TI leased lines. In the absence of regulation BT's competitors may be disadvantaged by discriminatory conduct by BT and end users could suffer as a result of discriminatory activity by BT, service withdrawal with insufficient notice or excessive price increases.
- 9.145 The proposed obligations for analogue and sub 2Mbit/s digital services will impact BT by requiring it to continue to supply existing analogue and sub 2Mbit/s digital services and to give notice of withdrawal. These obligations intended as a safeguard and we do not consider them onerous as BT has already announced its intention to give more notice to end users. The obligation to publish a reference offer and not to discriminate unduly will also impact BT. We consider that these obligations are proportionate to the competition problems identified and not unduly onerous.
- 9.146 As noted above, we consider that maintaining retail regulation for 2Mbit/s services is now unnecessary given the strength of retail competition and the availability of wholesale inputs from BT which allow CPs to replicate BT's retail 2Mbit/s leased lines services.
- 9.147 Withdrawing retail regulation for 2Mbit/s services would reduce the regulatory burden on BT by allowing it to stop publishing a reference offer and would give it greater freedom to compete on price by allowing it to stop publishing its prices, to offer bespoke prices and to bundle 2Mbit/s services with non SMP services. This should benefit end-users by leading to lower prices for 2Mbit/s services. It may also impact other CPs who would be likely to need to offer lower prices in order to compete with BT.
- 9.148 Given the strength of retail competition and the available of wholesale inputs, withdrawing retail regulation should not lead to adverse consequences for end-users or for CPs that compete with BT.

Question 14: Do you agree with the remedies that we propose for BT in the low bandwidth TI retail market in the UK excluding the Hull area?

Section 10

Remedies for the wholesale TI markets

Introduction

10.1 In this Section we set out the SMP remedies we propose to impose on BT in the following wholesale markets:

- Wholesale market for low bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the Hull area at bandwidths up to and including 8Mbit/s;
- Wholesale market for medium bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the Hull area and the WECLA at bandwidths above 8Mbit/s and up to and including 45Mbit/s;
- Wholesale market for high bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the Hull area and the WECLA at bandwidths above 45Mbit/s and up to and including 155Mbit/s; and
- Wholesale market for TI regional trunk segments.

10.2 Unless stated otherwise we refer to these markets collectively as the wholesale TI markets.

10.3 These proposed SMP remedies are based on the nature of the competition problems we have identified in our market analysis, in particular our SMP assessment, in the TISBO markets. We set out these competition problems in this section.

10.4 We consider these remedies would achieve our statutory duties and would satisfy the relevant legal tests. In reaching these proposals we have also taken account of our regulatory experience from the two previous market reviews, recent developments in the TISBO markets, views expressed by stakeholders in response to the Call for Inputs (CFI) and expected developments over the course of the review period of three years.

Summary

10.5 Table 84 summarises the competition issues we have identified in the wholesale TI markets and the remedies that we propose to impose in them.

Table 84: Summary of the competition problems and proposed remedies

Competition problems	Remedies for the wholesale TI markets
<ul style="list-style-type: none"> Refusal to supply 	Requirement to provide Network Access on reasonable request
	PPC direction and RBS Backhaul direction
<ul style="list-style-type: none"> Price discrimination; Non-price discrimination, e.g. different terms and conditions, delaying tactics (different delivery timescales for provision and fault repair); strategic design of products; exclusive dealing; quality discrimination; different SLAs and SLGs; Predatory pricing; Margin squeeze. 	Obligation not to unduly discriminate
	Publication of reference offer
	Requirement to notify changes to charges and T&Cs
	Publication of quality of service as required by Ofcom
	Notification of technical information
<ul style="list-style-type: none"> Price and non-price discrimination; Excessive pricing; Predatory pricing; Margin squeeze. 	Accounting separation obligations (this obligation is discussed in more detail in section 15)
<ul style="list-style-type: none"> Cross-subsidisation Excessive pricing Over investments Excessive costs/inefficiencies 	Price control
<ul style="list-style-type: none"> Refusal to supply new network access; Price discrimination; Non-price discrimination, e.g. delaying tactics, strategic product design. 	Requests for new Network Access

- 10.6 The wholesale TI markets are now in long-term decline as many customers who do not have specific latency / jitter requirements switch to alternative services such as AI and MI leased lines. The wholesale TI markets nevertheless remain considerably larger by circuit volume than the AI and MI markets.
- 10.7 Our SMP analysis indicates that significant entry barriers continue to exist in these markets. In the low bandwidth TISBO market where BT maintains a market share of 80% the main barrier is the low value of retail leased lines compared to costs and the fact that the market is declining. In the medium bandwidth TISBO market where BT

has market share of 75% we do not expect to see any material demand for new circuits and due to the decline in the market, in all but exceptional circumstances we do not expect CPs to make investments to contest BT's current or future supply over the course of this review period of three years. Similarly, in the high bandwidth TISBO market which is declining rapidly and where BT has a market share of 49%, CPs are unlikely to make investments to contest BT's supply over the course of this review period.

- 10.8 Apart from the enlargement of the London geographic market ,our proposed SMP findings closely mirror those of the 2007/8 Review, particularly in relation to BT's market shares which have remained broadly the same as in the 2007/8 Review.
- 10.9 Our analysis shows that reliance on competition law alone would not address the competition concerns we have identified in the wholesale TI markets, and therefore we consider SMP remedies are required.
- 10.10 To date, our approach to regulating this market has been focused on encouraging competition based on access to BT's PPC products. We have required BT to provide PPCs on a non-discriminatory basis and have applied charge controls. We consider that this approach continues to be appropriate for the period of this market review to address the competition problems we have identified.

Structure

- 10.11 This Section is structured as follows:

Sub-section	Description
Assessment of the competition problems in the TISBO markets	High-level discussion of competition problems identified as a result of our SMP assessment
Assessment of appropriate remedies for the TISBO markets	The assessment is performed through five steps: <ol style="list-style-type: none"> 4. Setting out the regulated wholesale products BT provides in the TISBO markets 5. Approach taken in the 2007/8 Review 6. Developments in the TISBO markets since the 2007/8 Review; 7. Analysis of issues raised by stakeholders in the CFI responses 8. Ofcom's assessment of the issues
Proposed remedies for the TISBO markets	Proposal of the appropriate remedies based on the above assessment. For each remedy we clarify the aim and the legal basis.
Assessment of appropriate remedies for the TI regional trunk market	The assessment is performed through three steps: <ol style="list-style-type: none"> 1. Analysis of how competition operates in the AI markets and development of TISBO products; 2. Analysis of issues raised by stakeholders in the CFI responses 3. Ofcom's assessment of the issues
Proposed remedies for the TI regional trunk market	Proposal of the appropriate remedies based on the above assessment. For each remedy we clarify the aim and the legal basis.

Assessment of the competition problems in the TI wholesale markets

Competition problems identified in the wholesale TI markets

10.12 In light of our SMP assessment we set out below the competition problems we have identified in the TISBO markets and which behaviour, in the absence of ex-ante regulation, we consider BT would have the incentive, and its market power would afford it the ability, to:

- refuse to supply access at the wholesale level and monopolise the provision of services in the TI retail leased lines markets. In addition, a refusal to supply wholesale TISBO services or wholesale TI regional trunk services would adversely affect the provision of downstream mobile services as wholesale TI services are used for the supply of backhaul connectivity in mobile networks;
- leveraging of its position of SMP from the TI regional trunk market into the adjacent TISBO markets for example by charging excessive prices or by discriminating unduly;
- engage in undue price discriminatory practices – e.g. by charging its competing providers more than the amount charged to its downstream divisions;
- engage in undue non-price discriminatory practices – e.g. by supplying the same products on different terms and conditions, different timescales for provision and fault repair, quality discrimination, different SLAs and SLGs, creating new variants to fulfil the requirements of its downstream division and taking longer to address, or avoiding addressing the requirements of its competitors;

- charge excessively high prices, margin squeeze, engage in predatory pricing and/or anti-competitive cross subsidisation;
- refuse to supply, or engage in delaying tactics in the provision of, new network access services requested by its competitors.

10.13 We consider BT would have the incentive to engage in these practices in order to adversely affect the development of competition in the related downstream retail markets and thus enable it to act independently of competitors, customers and ultimately of consumers in those markets.

Insufficiency of national and Community competition law remedies

10.14 We consider national and Community competition law remedies would be insufficient to address the competition problems we have identified. In reaching this view, we regard our general assessment of the sufficiency of competition law set out in our Approach to remedies Section and in Annex 6 on the Market Review Process as relevant to addressing the competition problems in the wholesale TI markets. In particular:

- we do not consider appropriate remedies could be imposed under competition law – e.g. requiring the provision of access at the wholesale level;
- we consider the requirements of intervening are extensive – e.g. the need to assess costs for the imposition of proposed price controls, the need to monitor terms and conditions;
- we consider providing certainty in the wholesale TI markets is of paramount concern, both to BT and to other CPs, and we consider this is best achieved through ex ante regulation that, in comparison to competition law remedies, would:
 - provide greater clarity on the types of behaviour that is/is not allowed;
 - be easier to enforce in that it would allow for timely intervention through a process with which the market in general is familiar and which is set out in the Act.

Result of our assessment of the competition problems

10.15 In light of our market analyses, in particular our SMP assessment, and our assessment of the insufficiency of national and Community competition law remedies to address the competition problems we have identified, we consider over the course of the review period of three years that competition would be ineffective in the following wholesale markets:

- Wholesale market for low bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the Hull area at bandwidths up to and including 8Mbit/s;
- Wholesale market for medium bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the Hull area and the WECLA at bandwidths above 8Mbit/s and up to and including 45Mbit/s;

- Wholesale market for high bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the Hull area and the WECLA at bandwidths above 45Mbit/s up to and including 155Mbit/s; and
- Wholesale market for TI regional trunk segments.

10.16 In order to address the competition problems, we now turn to our assessment of the appropriate remedies.

Assessment of appropriate remedies

10.17 We propose remedies in this review which would require BT to provide its competitors with wholesale access to its network and would define the rules that would apply to its provision of such access. To assess the appropriate form of the remedies we should propose, we have carried out an analysis of how competition operates in the TISBO markets, and we have taken into account views expressed by stakeholders in response to the CFI.

10.18 Before analysing how competition operates in the TISBO markets, we first set out the SMP remedies we imposed in the 2007/8 Review.

Existing Remedies

10.19 In the 2007/8 Review we found BT to have SMP in the following TI wholesale markets:

- Wholesale market for low bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the Hull area at bandwidths up to and including 8Mbit/s;
- Wholesale market for medium bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the CELA at bandwidths above 8Mbit/s and up to and including 45Mbit/s;³³
- Wholesale market for high bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the UK excluding the CELA at bandwidths above 45Mbit/s and up to and including 155Mbit/s;³⁴ and
- wholesale trunk segments.

10.20 The following obligations were applied to BT in each of the wholesale markets listed above and will continue to apply until the conclusion of this market review:

- an obligation to provide Network Access;
- a requirement not to unduly discriminate;
- an obligation to ensure that charges are reasonably derived from the costs of provision;
- a charge control;

³³ In the 2007/8 Review we called this the high bandwidth market.

³⁴ In the 2007/8 Review this was called the high bandwidth <=155Mbit/s market.

- requirement to publish a reference offer;
- an obligation to give 90 days' notice of changes to prices, terms and conditions for existing services;
- an obligation to give 28 days' notice of the introduction of prices, terms and conditions for new services;
- a requirement to publish quality of service information;
- a requirement to notify technical information with 90 days notice; and
- obligations relating to requests for new network access.

10.21 In the wholesale TI markets listed above, BT is subject to a direction under the general access condition requiring it to provide TI terminating segments (including where appropriate trunk segments) known as Partial Private Circuits (the PPC Direction), and in the low bandwidth TISBO market a direction requiring it to provide Radio Base Station backhaul (RBS backhaul).

10.22 In addition, in the wholesale TISBO and trunk segments markets listed above, BT is obliged to provide certain interconnection and accommodation products which are also subject to the remedies set out above in relation to each of these markets.

Role of the Undertakings in the TISBO markets

10.23 BT's Undertakings, given to Ofcom under Section 155 of the Enterprise Act in lieu of a market reference to the Competition Commission, require BT to comply with a series of regulatory obligations to apply to some of its wholesale access and backhaul services.

10.24 The Undertakings were designed to ensure that BT does not discriminate between its own downstream divisions (BT Retail and BTGS) and competitors when offering access services. The set of remedies set out in the Undertakings were particularly engineered to address non price discrimination for example in relation to service quality or through inferior terms of conditions of service.

10.25 Most of the Undertakings obligations that relate to wholesale terminating segments relate to the AI & MI markets and are discussed in more detail in section 11. However, in relation to the TISBO markets, the Undertakings commit BT to make available to any CP within a reasonable period of time new disaggregated TI local access and backhaul products. Existing TISBO services, however, do not have to be provided on an EOI basis.

10.26 As set out in the preceding Section on our Approach to remedies, we do not consider the Undertakings are sufficient to address the competition problems we have identified in the wholesale markets as a whole in which we propose to find BT has SMP.

10.27 However, as discussed further below, we do consider that EOI should be included in the suite of SMP remedies we propose to impose in the AISBO markets to address the competition problems we have identified in these markets. In doing so we consider this will:

- provide clarity and certainty to both BT and other stakeholders in general regarding the scope of the obligations to which we propose BT should be subject to in the AISBO markets;
- allow us to intervene timely and enable effective enforcement via the statutory procedures for enforcing obligations imposed via SMP remedies.

Wholesale products that BT provides in these markets

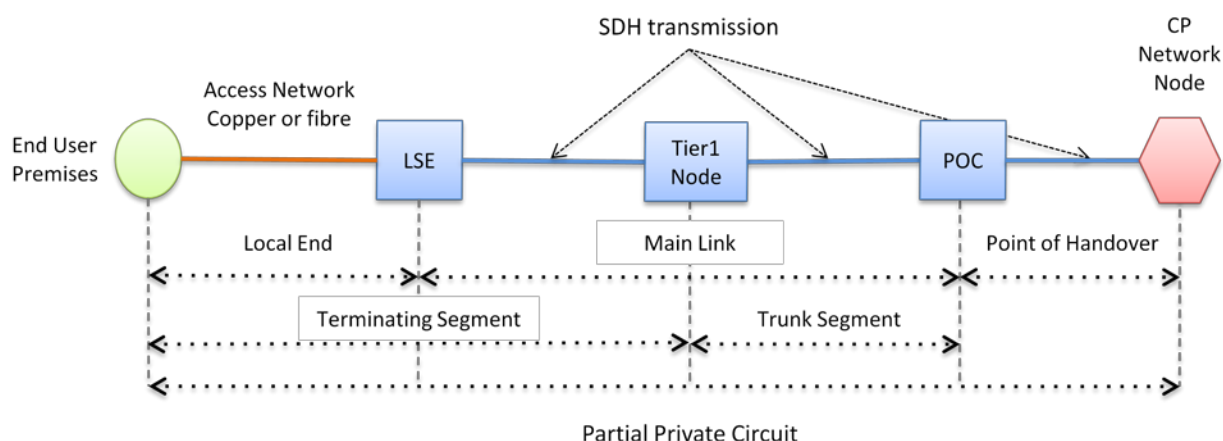
10.28 Below we describe the PPC and RBS Backhaul services that BT is required to provide in these markets.

Partial Private Circuits

10.29 PPCs provide dedicated symmetric transmission using PDH or SDH technologies between an end-user's premises and a CP's network via a Point of Connection (POC).

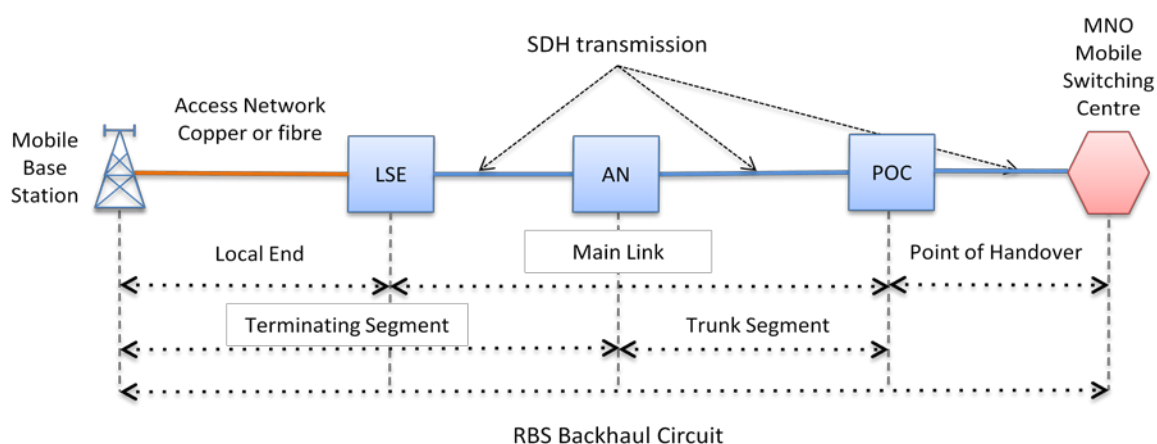
10.30 There are three main elements to a PPC:

- The 'Local End' is a dedicated link between the third party customer premise and the BT serving exchange generally using BT's copper or fibre access network or exceptionally a point-to-point microwave link.
- The 'Main Link' provides dedicated transmission capacity between the BT serving exchange and the CP's POC with BT's network. This Main Link can have a mixture of backhaul and trunk network transmission. The boundary between the backhaul and trunk element of a PPC is currently drawn at 46 aggregation nodes corresponding to major population and business centres.
- The Point of Handover (POH) is a high capacity link that connects the CP's network with BT's network. A POH can deliver multiple PPC circuits. BT is required to provide three different types of handover configuration:
 - In-Span Handover (ISH): interconnection is provided at a joint-box or man-hole adjacent to the BT POC exchange;
 - In-Span Handover Extension (ISH Extn): interconnection is provided at a joint-box or manhole further from the BT POC exchange; and
 - Customer Sited Handover (CSH): interconnection is provided at the CPs network node.

Figure 62: Partial Private Circuit

Radio Base Station Backhaul

10.31 An RBS backhaul circuit is a PPC that provides dedicated symmetric transmission at bandwidths up to 2Mbit/s between a Mobile Network Operator (MNO) radio base station and the MNO Mobile Switching Centre (MSC). The base station is linked to BT's local serving exchange using BT's copper or fibre access network or point-to-point microwave links.

Figure 63: Radio Base Station Backhaul

Approach taken in the 2007/8 Review

10.32 In the 2007/8 Review, we found that the regulatory regime had achieved some success in promoting competition in the wholesale TI markets. BT's market share of the higher bandwidth wholesale markets had declined and we found that BT no longer had SMP in the very high bandwidth TISBO market in the UK and that BT no longer had SMP in any wholesale TI market in the CELA area other than the low bandwidth TISBO market. However, we concluded that current regulation had only had limited success in promoting competition in the low bandwidth TISBO market or the associated downstream retail market, in which BT's market share had remained very high since the 2003/4 Review.

10.33 In light of our analysis we decided that the existing package of SMP conditions and directions were still broadly appropriate for the market. However we decided to

implement certain measures, including making adjustments to some of the SMP conditions and directions to promote competition and to address other issues that had arisen. The measures were:

- work with BT to address the obstacles to replicability identified in the Replicability Statement;
- once the replicability issues had been addressed, consult on the relaxation of SMP obligations in the downstream retail markets (see discussion in section 9);
- continue to engage with BT to ensure that any reasonable request for disaggregated access and backhaul products was properly considered and that such new services were promptly delivered;
- recognising that saw-tooth discounts are generally anti-competitive and contrary to the no undue discrimination obligation;
- make changes to the SLA/SLG obligations following an industry review led by the OTA since the existing regime was not considered fit for purpose by BT or CPs. In brief, these changes were to remove Key Performance Indicators (KPIs) from the scope of the PPC direction as there was industry agreement on a new set of KPIs and to require BT to make certain changes to the SLG regime specified in the PPC direction in accordance with previous Ofcom work on SLGs.³⁵ Importantly this required BT to make SLG payments proactively rather than reactively;
- consider applying a charge control to SDSL products;³⁶
- introduce a new charge control in each of the TISBO markets; and
- introduce a charge control for trunk services for the first time.

10.34 These measures have been successful in promoting competition in parts of the downstream retail market, most notably at 2Mbit/s where BT's share has fallen substantially.

Developments since the 2007/8 Review

The 2009 Replicability Consultation

10.35 As discussed in more detail in Section 9, in the 2009 Replicability Consultation we proposed that BT had addressed the barriers to replicability identified in the Replicability Statement and consequently we proposed to relax certain SMP obligations in the downstream retail market.

10.36 We subsequently suspended work pending the outcome of the Leased Lines Charge Control Appeal (LLCC Appeal).³⁷ In light of the delay and subsequent developments

³⁵ Service level guarantees: incentivising performance

http://www.ofcom.org.uk/media/news/2008/03/nr_20080320

³⁶ In the July 2009 LLCC Statement we concluded that it would be disproportionate to apply a charge control to SDSL services as they are a legacy product that BT was planning to withdraw. We accepted a voluntary undertaking from BT that it would not increase the price of these services faster than the rate of inflation (RPI-0%) for the two years following publication of the December 2008 Statement.

³⁷ <http://www.catribunal.org.uk/237-4334/1112-3-3-09-Cable--Wireless-UK.html>

in the market, in 2011 we decided to defer consideration of the replicability proposals to this market review.

Development of disaggregated TI wholesale products

- 10.37 Our proposal in the 2007/8 Review to engage with BT in connection with requests for disaggregated products was related to a commitment that BT made in the Undertakings, in which it committed that Openreach would offer disaggregated access and backhaul TI products within a reasonable period following a request from a CP.³⁸ The purpose of these products was to enable CPs to replicate commercially PPCs from disaggregated components and to promote competition in backhaul by enabling CPs to combine traffic from TI access segments at BT local exchanges with traffic for other services such as LLU backhaul.
- 10.38 When Openreach consulted CPs in 2007 on the supply of disaggregated access and backhaul components of PPCs, there was limited interest because the TDM equipment used for PPCs was regarded as legacy technology. Respondents felt that Openreach should instead dedicate resources to developing 'next generation' TDM interface products based on WDM technology. As a result, this was one of the product developments that CPs asked Openreach to prioritise in the Openreach Industry Commitments (OIC) that were agreed in May 2009.³⁹ This development, which Openreach committed to deliver by September 2010, has taken longer to develop than anticipated. Openreach trialled the access product called TDM Access Bearer with STM-1, STM-4 and STM-16 SDH interfaces (155Mbit/s, 622Mbit/s & 2.488Gbit/s) in autumn 2011 and intends to launch it in June 2012.

Responses to the Call for Inputs about TISBO remedies

- 10.39 The main points made by respondents that commented on the wholesale TI market were:
- that the TI and AI markets are still separate;
 - that TI services will continue to play an important role during the period of this review and beyond. UKCTA expected a gradual decline in volumes and noted that BT and others that had forecast a rapid decline in these markets had repeatedly proved wrong;
 - UKCTA considered that given the legacy status of TI services Ofcom should try to avoid further upheaval in the market. In particular UKCTA urged Ofcom to avoid further changes to the TAN boundaries, arguing that the changes made in the 2007/8 Review had a detrimental effect on CPs because the reduction in the number of aggregation nodes moved the boundaries between terminating and trunk sections pushing up CPs costs;
 - UKCTA argued that detailed regulation of PPCs would continue to be required and urged Ofcom to maintain a focus on this remedy, particularly the cost base and barriers to replicability;

³⁸ These were described as Traditional Interface Leased Line Access Product (TILLAP) and Traditional Interface Leased Line Backhaul Product (TILLBP) in the Undertakings.

³⁹ The Openreach Industry Commitments are a set of product and systems developments that BT committed to undertake when some of its Undertakings commitments relating to support systems functional separation were relaxed. <http://stakeholders.ofcom.org.uk/consultations/btundertakings/statement/>

- UKCTA provided a price comparison for 2Mbit/s circuits that indicated that UK PPC prices are the most expensive in the EU. It suggested that amongst other things this might be because BT introduced additional charges such as the DTO (diagnostic testing) charge that earn it additional revenues for service that were previously provided without an explicit charge;
- C&WW said that a new regulatory focus is required on migration/switching arrangements for the movement of business services between wholesale services provided by Openreach, BT Wholesale and CP services (e.g. those using LLU). These should offer a combination (as required) of minimised service outage, minimised customer disruption and low cost installation;⁴⁰ and
- BT suggested that Ofcom should make several changes to the TISBO remedies:
 - removing the SLA/SLG requirements from the PPC directions, as these are included in contractual arrangements agreed with industry;
 - link SLGs to CPs forecasting accuracy;
 - reflect SLA/SLGs in regulatory cost stacks for charge controls, recognising that CPs' actions can affect both the level of performance that can be achieved by BT and the cost of meeting any given level of performance;
 - shortening the notification period for price changes from 90 days to 28 days to align it with the notification period used in other markets such as the wholesale broadband access market;
 - BT suggested that Ofcom should not apply cost orientation obligations in conjunction with charges controls as it considered this can lead to situations where prices that BT must charge under a charge control regime might be found not to comply with the cost orientation obligation;

Ofcom's comments on the points raised in the CFI

10.40 We discuss C&WW's point about migration/switching in section 11 and the other points below.

Comments about the continued importance of the TI markets and about avoiding upheaval

10.41 We note the comments about the continuing importance of the TI markets and the desire to avoid unnecessary upheaval. As we discuss in more detail below, we consider that the package of remedies applied in the 2007/8 Review is broadly fit for purpose and should be retained with a few amendments.

Stakeholder comments about price controls

Application of cost orientation obligations in conjunction with charge controls

10.42 Charge controls and cost orientation obligations are intended as complementary remedies and should not lead to situations where BT is unable to comply with both obligations. However, as discussed in more detail below, we consider that in these markets we can provide adequate protection against excessive pricing with a charge

⁴⁰ We discuss this point in section 11 on AI remedies.

control and are therefore not proposing a cost orientation obligation for these markets.

- 10.43 We also note that in November 2011 we issued a Call for Inputs on our approach to cost orientation and regulatory reporting for telecoms services as a first step to reviewing our guidance on the application of cost orientation obligations.⁴¹ We are currently considering the responses and hope to publish a document in the coming weeks.

Reflecting SLA/SLGs in the regulatory cost stacks for charge controls

- 10.44 BT's suggestion that SLA/SLGs should be reflected in regulatory cost stacks for charge controls is relevant to our consideration of price controls. We will be publishing our LLCC Consultation shortly which will discuss this point.

PPC Prices

- 10.45 We note UKCTA's comments about the international price comparison for 2Mbit/s PPCs. Similar concerns about the level of PPC charges were raised in the 2007/8 Review. PPC charges were subsequently subject to detailed scrutiny initially in the LLCC and subsequently in relation to the LLCC appeal and the PPC disputes. We have also reviewed BT's charges again for the new wholesale price controls.

Introduction of new charges for charge controlled services

- 10.46 Regarding the concern about the introduction of new charges for existing services such as the DTO charge, our charge control obligations are generally drafted so as to include all charges relating to a particular type of service (e.g. rental and maintenance services for PPCs) and therefore new charges relating to those services would be within the scope of the charge control.⁴²

We do not propose to remove the SLAs and SLGs from the PPC directions

- 10.47 The PPC directions specify a set of SLAs and SLGs for PPC provision and repair.
- 10.48 BT has suggested to us that these provisions are no longer necessary and should be removed from the PPC directions because they are now incorporated in BT's PPC contracts with CPs. In BT's view the contractual arrangements provide sufficient protection for CPs because the reference offer on which the contracts are based can only be changed with industry agreement and if necessary CPs could bring a dispute to Ofcom. BT further argues that the current arrangements are inflexible because they prevent BT from agreeing changes with industry.
- 10.49 In the 2007/8 Review we made changes to the SLA/SLGs for PPCs following an industry review led by the Office of the Telecoms Adjudicator (OTA). The main changes were to harmonise our approach to SLGs that applied to Ethernet services and to remove a set of KPIs from the scope of the PPC directions. At that time the SLAs were considered broadly adequate and identified the correct provision and repair targets against which BT should be required to pay compensation. As far as we are aware, the PPC SLAs are still considered adequate and given the mature

⁴¹ <http://stakeholders.ofcom.org.uk/consultations/cost-orientation-telecoms/>

⁴² For example see Annex A of Condition G4 in relation to low bandwidth TISBO services in the July 2009 LLCC Statement.

nature of the PPC product it seems unlikely there will be a need for significant revisions to the SLAs.

- 10.50 In our view it is appropriate to retain the SLA/SLG provisions of the PPC directions since PPCs are not provided on an EOI basis and therefore BT may have an incentive to attempt to implement discriminatory changes. We consider that ex-ante obligations are likely to provide a more efficient outcome than forcing CPs to use the dispute process and to provide greater certainty for CPs.

We do not propose to link SLGs to CPs' forecasting accuracy

- 10.51 Our initial view is that in the context of PPCs at least, there is not a strong case for linking SLG payments to the accuracy of CPs ordering forecasts as suggested by BT in its CFI response. This is because the existing arrangements (as specified in the PPC directions) include a forecasting penalty mechanism to incentivise CPs to provide accurate forecasts. They also provide for extended ordering lead times when CPs order volumes significantly exceed forecast volumes. These arrangements were subject to detailed scrutiny by Ofcom when they were introduced. In the absence of information to the contrary, our current view is that they remain fit for purpose.

Ofcom's assessment

- 10.52 As noted above, BT is currently subject to a package of remedies in each of the wholesale TISBO markets comprising an obligation to provide network access, an obligation not to unduly discriminate, cost orientation and accounting separation obligations, charge controls and a set of transparency obligations. These remedies have been applied in broadly their current form since the 2003/4 Review.
- 10.53 Our analysis of these markets indicates that all of the TISBO markets are now in long-term decline as many customers who do not have specific latency / jitter requirements switch to alternative services such as AI and MI leased lines. The wholesale TI markets nevertheless remain considerably larger by circuit volume than the AI and MI markets.
- 10.54 Our SMP analysis indicates that significant entry barriers continue to exist in these markets. In the low bandwidth TISBO market where BT maintains a market share of 80% the main barrier is the low value of retail leased lines compared to costs and the fact that the market is declining. In the medium bandwidth TISBO market where BT has market share of 75% we do not expect to see any material demand for new circuits and due to the decline in the market, in all but exceptional circumstances we do not expect CPs to make investments to contest BT's current or future supply over the course of this review period of three years. Similarly, in the high bandwidth TISBO market which is declining rapidly and where BT has a market share of 49%, CPs are unlikely to make investments to contest BT's supply over the course of this review period.
- 10.55 Apart from the enlargement of the CELA into the WECLA, our SMP findings closely mirror those of the 2007/8 Review, particularly in relation to BT's market shares which have remained broadly the same as in the 2007/8 Review.
- 10.56 We note that CFI respondents favoured an approach to the wholesale TI markets that minimised disruption. The main points made by respondents were in relation to PPC charges and barriers to replicability. As noted in Section 9, in our view BT has addressed the barriers to replicability.

10.57 In light of our analysis and stakeholders' views, we consider that it would be appropriate to maintain broadly the current set of SMP conditions and the PPC directions. Below we discuss the rationale for each of the proposed remedies.

Proposed remedies for the wholesale TISBO markets

The three TISBO markets are sufficiently similar for us to consider remedies together

10.58 We consider that competitive conditions in the three wholesale TISBO markets in which we propose to find SMP and our considerations about the appropriate remedies for these markets are sufficiently similar for us to consider the remedies together. In particular we note that:

- each market is currently subject to the same package of remedies as listed above, namely an obligation to provide network access, obligation not to discriminate unduly, cost orientation obligation and charge controls and a package of transparency measures;
- the PPC direction is applied to each market and PPCs are the main vehicle of competition in each market; and
- each market is now in steady decline with the result that new entry is unlikely.

10.59 The main differences between the markets are:

- that BT does not offer wholesale analogue services in the low bandwidth TISBO market due to the legacy nature of these services; and
- that BT is currently subject to the RBS backhaul direction in the low bandwidth TISBO market.

10.60 We have taken these differences into account in our choice of remedies.

Interconnection and accommodation services

10.61 In order to use the wholesale TISBO services that BT provides in these markets CPs also require certain interconnection and accommodation services. To achieve an overall solution we consider that it is necessary to regulate the provision of these ancillary services, in the absence of which, we consider BT would have an incentive to refuse to supply or to supply in a discriminatory manner, for example by charging excessive prices.

10.62 Network access is defined in sections 151(3) and (4) of the Act and includes interconnection services and/or any services or facilities that would enable another CP to provide electronic communications services or electronic communication networks. We consider that a requirement to provide network access would, therefore, include any ancillary services as may be reasonably necessary for a Third Party to use the services. Consequently, each of the obligations that we propose below for these markets also applies to the provision of accommodation and interconnection services that are reasonably required by CPs in connection with the provision of the regulated services.

10.63 In section 13 we discuss whether BT should be required to provide specific types of interconnection services.

Requirement to provide network access

Aim of regulation

General requirement to provide network access

- 10.64 As a result of its SMP, we consider it is appropriate to impose a requirement for BT to meet reasonable requests for network access. We consider that, in the absence of such a requirement, BT would have an incentive not to provide such access, and would be able to monopolise the provision of services in the downstream markets.
- 10.65 The way in which Ofcom might assess reasonable demands for access is set out in the Access Guidelines. We consider that it is appropriate in cases where a CP has SMP to impose an access obligation on that provider requiring it to meet all reasonable requests for network access within the relevant wholesale market, irrespective of the technology required, on fair and reasonable terms, conditions and charges. We would impose the obligation to address the risk of refusal to supply, or supply on unfair terms which could otherwise prevent or restrict competition.
- 10.66 Our analysis in Section 7 has shown that the lack of competition in the wholesale TISBO markets stems primarily from entry barriers, particularly the magnitude of sunk costs, BT's scale within these markets and the ubiquity of BT's access network. All these factors mean that BT's cost of supply are significantly lower than its competitors and that, as a consequence, it is unlikely to be economically viable for BT's competitors to invest in the provision of network facilities on a sufficient scale to provide effective constraint on BT's SMP in these markets. Further, competitors are unlikely to be willing to make the necessary investments as each of these markets is declining. Also, relative to BT, its competitors face higher costs which in light of a declining market and low value contracts in the low bandwidth TISBO market are likely to present an additional barrier to investment.
- 10.67 Given these entry barriers, we consider that an obligation for BT to meet reasonable requests for access to its network would assist in promoting competition. Such an obligation would overcome the entry barriers by allowing CPs to provide services using network components rented from BT. We consider that, in the absence of such a requirement, BT would have an incentive not to provide such access, and would be able to monopolise the provision of services in the downstream markets.

Requirement to provide PPC and RBS Backhaul

- 10.68 Section 45(10)(a) of the Act authorises the giving of directions with respect to the matters to which SMP conditions relate. In addition to the obligation to provide network access upon reasonable request, BT is currently required to provide two network access products in the TISBO markets under the existing directions:
- PPCs: an obligation to provide PPC terminating segments in the UK, excluding the Hull area (and excluding the CELA for the medium and high bandwidth markets); and
 - RBS Backhaul: an obligation to provide RBS Backhaul traditional interface circuits at bandwidths up to an including 2Mbit/s to mobile network operators in the UK, excluding the Hull area.

- 10.69 BT is also subject to the PPC direction in the wholesale trunk market. Collectively these directions require BT to provide PPCs including both terminating and trunk segments.
- 10.70 These directions specify detailed requirements for the provision and repair of PPCs and RBS backhaul including:
- Migration arrangements (for migration of retail private circuits to PPCs);
 - Forecasting arrangements for capacity ordering; and
 - Service level agreements including provision and repair performance targets and Service level guarantee payments.
- 10.71 These directions are designed to ensure that BT provides PPC and RBS Backhaul services in a non-discriminatory manner and with a level of performance that meets CPs requirements. The SLGs are designed to incentivise BT to ensure that performance meets the specified targets and also to compensate CPs when performance does not meet the targets. If we were to lift these directions, in the absence of other suitable substitute products from BT, BT could change the product terms and conditions and technical specification in order to restrict or disrupt competition.
- 10.72 As discussed in section 9, PPCs account for the vast majority of terminating segments provided in this market and we expect this to continue to be the case, particularly given the mature nature of this market and the gradual transition to AI services. Although the migration of mobile backhaul circuits to AI services is now well under way, MNOs are likely to continue to require TI RBS backhaul for the duration of this review.
- 10.73 We therefore consider that PPCs and RBS Backhaul remain the relevant products for fostering competition in downstream markets. We therefore consider it appropriate to reapply these directions, modified to take account of the enlarged London geographic market where appropriate. The specification of the service that BT is required to provide is detailed in the PPC/RBS Backhaul Direction in Annex 15.

Legal tests

- 10.74 We are satisfied that that the proposed conditions (as set out in Annex 14) and directions (at annex 14) meet the relevant tests set out in the Act.
- 10.75 First, section 87(3) of the Act authorises the setting of an SMP services condition requiring the dominant provider to provide such network access as Ofcom may, from time to time, direct. These conditions may, pursuant to Section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to and for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions.
- 10.76 When considering the imposition of such conditions in a particular case, we must take into account six factors set out in Section 87(4) of the Act, including inter alia:
- the technical and economic viability of installing and using other facilities, including the viability of other network access products whether provided by the

dominant provider⁴³ or another person⁴⁴, that would make the proposed network access unnecessary;

- the feasibility of the proposed network access;
- the investment made by the person initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed (taking account of any public investment made); and
- the need to secure effective competition, including where it appears to us to be appropriate, economically efficient infrastructure based competition, in the long term.

10.77 In proposing the general requirement for the provision of network access, and for the provision of PPC and RBS backhaul via direction, we have taken all these six factors into account. In particular, we consider these requirements are necessary for securing effective competition, including economically efficient infrastructure based competition, in the long term. The requirements for BT only to meet reasonable network access requests also ensures that due account is taken of the technical and economic viability of installing and using other facilities, the feasibility of the proposed network access, and of the investment made by BT initially in providing the network.

10.78 Secondly, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the conditions and directions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by facilitating the development of competition in downstream markets.

10.79 Thirdly, sections 47 and 49 of the Act require conditions and directions respectively to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions and directions are:

- objectively justifiable, in that they facilitate and encourage access to BT's network and therefore promotes competition to the benefit of consumers;
- not unduly discriminatory, as they are proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate, since they are targeted at addressing the market power that we propose BT holds in these markets and does not require it to provide access if it is not technically feasible or reasonable; and
- transparent in that the condition is clear in its intention to ensure that BT provide access to its networks in order to facilitate effective competition.

10.80 For all the reasons set out above, we consider that the proposed conditions are appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

⁴³ i.e. in this instance BT.

⁴⁴ i.e. other CPs.

Requirement not to unduly discriminate

Aim of regulation

- 10.81 We consider that it is appropriate to impose a requirement on BT as a result of its SMP in the wholesale TISBO markets not to discriminate unduly in the provision of network access.
- 10.82 A non discrimination obligation is intended as a complementary remedy to the network access obligation, principally to prevent the dominant provider from discriminating in favour of its own downstream divisions and to ensure that competing providers are placed in an equivalent position. Without such an obligation, the dominant provider is incentivised to provide the requested wholesale network access service on terms and conditions that discriminate in favour of its own downstream divisions. For example, BT may decide to charge its competing providers more than the amount charged to its own downstream units or it might strategically provide the same services but within different delivery timescales. Both these behaviours could have an adverse effect on competition.
- 10.83 Non discrimination obligations can however have different forms of implementation. A strict form of non discrimination, i.e. a complete prohibition of discrimination, would result in the SMP operator providing exactly the same products and services to all CPs (including its own downstream divisions) on the same timescales, terms and conditions (including price and service levels), by means of the same systems and processes and by providing the same information. Essentially, the inputs available to all CPs (including the SMP operators' own downstream divisions) would be provided on a truly equivalent basis, an arrangement which has become known as Equivalence of Inputs (Eol). The concept of Eol was first identified in the Strategic Review of Telecoms in 2004/5 as one of our key policy principles to ensure that regulation of the telecommunication markets is effective. Following on from this review, a specific form of Eol was implemented in 2005 by means of the BT Undertakings.
- 10.84 On the other hand, a less strict interpretation of non discrimination may allow for flexibility and result in a more practical and cost-effective implementation of wholesale inputs in cases where it is economically justified.
- 10.85 As part of this review, we have considered what form of non discrimination obligation would be appropriate. In the case of wholesale TISBO markets, we do not consider it proportionate to require Eol. BT's current wholesale services for TI are Partial Private Circuits. An Eol requirement over PPCs would entail a major re-engineering of BT provisioning systems and processes and would be disproportionate, given that the TI market is declining and on a forward-looking basis that PPCs will be replaced by Ethernet-based leased lines.
- 10.86 We therefore consider that a less strict interpretation is appropriate for the wholesale TISBO markets under which BT would be required to ensure that any discrimination is not undue and we propose to interpret this obligation in accordance with our guidelines of November 2005 on Undue discrimination by SMP providers (the Discrimination Guidelines).⁴⁵ We consider that undue discrimination in particular would occur where, in the absence of objective justification:

⁴⁵ <http://stakeholders.ofcom.org.uk/consultations/undsmc/contraventions/>

- BT was to refuse to reflect relevant differences between (or was to refuse to reflect relevant similarities in) the circumstances of customers in the transaction conditions it offers; and
- BT was to discriminate between internal and external wholesale customers.

10.87 We have also considered our stance in relation to various types of discount that BT might offer and whether any changes are required in the obligation in relation to undue discrimination are appropriate to address particular types of discount.

Volume discounts

10.88 First in relation to volume discounts, we recognise that these would very often in practice constitute undue discrimination since BT's retail arm would almost inevitably be the main beneficiary and there is therefore a strong potential for anti-competitive effects. However, we believe that this point is well understood by CPs and do not consider a change in the obligation is required specifically to reflect this.

Geographic discounts

10.89 As discussed in section 5, we have conducted a detailed geographic analysis of each of the retail and wholesale product markets. Our analytical framework for this analysis focused on the presence of common pricing constraints and geographic variations in competitive conditions. On the basis of this analysis, we note that for the geographic markets where we have found SMP, the underlying costs and competitive conditions will not be completely homogenous throughout the UK (even outside the WECLA).

10.90 This suggests that some freedom to charge in a way that reflects more accurately the costs incurred and to respond to the local characteristics of competition that exist in these markets would be efficient. Moreover, given the level of cost differences that may exist and the extent of competition in some areas, BT's ability to compete could be limited if it were required to maintain nationally uniform prices. Hence, geographically differentiated prices may reflect BT responding legitimately to cost differences in the face of competition.

10.91 We therefore consider that geographic discounts may or may not be unduly discriminatory depending on the circumstances. In the event of an allegation of offering unduly discriminatory geographic discounts, we would judge each alleged breach of the no undue discrimination obligation on a case by case basis.

10.92 In the LLCC Consultation we will consider how geographic discounts should be treated in the proposed charge controls and in particular whether it is appropriate to place any constraints on the geographic discounts that BT may offer.

Term discounts

10.93 In principle, we consider this form of discount could raise competition concerns, for example:

- if BT's downstream operations were at an advantage compared to downstream competitors. In principle, the largest beneficiary of term discounts could be BT's downstream operations, as they may see no commercial disadvantage in being contractually tied to BT's wholesale services for a lengthy period of time. If so, it could provide BT with the ability to undercut downstream competitors in ways that

they could not match (where those competitors rely on wholesale services from BT, but do not wish to sign up to the discounts).

- term discounts may increase the barriers to entry/growth for upstream competitors to Openreach, if purchasers of wholesale services are tied into longer term contracts (and so increasing the switching costs).

10.94 It is not necessarily the case, however, that we should automatically view all forms of term discount as harmful to consumers.

10.95 We therefore consider term discounts may or may not be unduly discriminatory depending on the circumstances. In the event of an alleged breach we would judge each alleged breach on a case by case basis.

10.96 In the LLCC Consultation we will consider whether there should be any restrictions on the term discounts that BT may offer and how they might be taken into account in setting the price control.

Legal tests

10.97 We are satisfied that the proposed conditions (as set out in Annex 14) meet the relevant tests set out in the Act.

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

10.99 Secondly, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by preventing BT from leveraging its SMP into downstream markets.

10.100 Thirdly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions are:

- objectively justifiable in that they provide safeguards to ensure that competitors, and hence consumers, are not disadvantaged by BT discriminating unduly in favour of its own downstream activities or between different competing providers;
- not unduly discriminatory in that it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate in that it only seeks to prevent undue discrimination; and
- is transparent in that the condition is clear in what it is intended to achieve.

Price controls

Aim of regulation

10.101 We propose to impose a charge control condition to address BT's ability and incentive to charge excessive prices.

- 10.102 A price control can take a variety of forms⁴⁶, including but not limited to a charge control, cost orientation and/or safeguard cap.
- 10.103 In a competitive market, the charges for services would be set on the basis of the commercial judgements of individual companies and could be expected to deliver cost reflective prices. However, where a provider has SMP, competition cannot be expected to provide effective constraints and ex-ante regulation may be desirable to prevent charges from being set at an excessive level. Such intervention could also have as its objectives the aim of promoting efficiency and of allowing the development of effective competition in downstream markets.
- 10.104 In these markets BT has SMP and as previously discussed there is little likelihood of new entry, BT has an incentive and the ability to charge excessive prices. Excessive prices at the wholesale level could make it difficult for third party CPs to compete at the retail level with BT and in the long term, may result in market exit. Unjustifiably high wholesale charges are also likely to result in high retail prices i.e. consumers would be paying more for a service than they should expect if wholesale prices were constrained by effective competition.
- We propose to impose a charge control*
- 10.105 Having identified this relevant risk of an adverse effect arising from price distortion in our market analysis, we consider that this risk should be addressed by the imposition of an appropriate charge control condition to apply for a period of 3 years following the completion of this market review and the charge control consultation process.
- 10.106 Under Ofcom's preferred method of charge control regulation – RPI+/-X – incentives are created on the dominant provider to increase its efficiency, thereby imitating the effect of a competitive market. The charge control would result in prices being based on the projected costs for the provision of the services at the end of the period, taking into account efficiency improvements and possible future investment by BT that would be of benefit to consumers and citizens. If the firm can reduce its costs below the level expected when the cap was set, then the firm retains the increased profits, at least for the period the control is in place.
- 10.107 The form, scope and level of the charge control will be considered in the LLCC Consultation and will therefore subject of further consultation through that process.
- 10.108 Our initial view is that the scope of the charge control should encompass, with a few exceptions, charges for all of the services BT currently offers in these markets and would therefore include:

- charges for low bandwidth TISBOs in the UK excluding the Hull area;
- charges for medium and high bandwidth TISBOs in the UK excluding the WECLA and the Hull area;
- the interconnection and accommodation services that BT provides in connection with wholesale TISBO services in these markets; and
- ancillary services including excess construction charges.

⁴⁶ As suggested by Recital 20 of the Access Directive.

10.109 Under our preferred method of charge control regulation we make provision for new services that substitute, wholly or substantially, existing services in a charge control basket to be added to the basket. This ensures that BT has an incentive to ensure that substitute services are at least as efficient as the ones they replace.

10.110 The scope of the proposed charge control is such that it would cover most of the services that BT provides in these markets during the three year period of this review. If however, BT were to introduce new services that fall outside the scope of the proposed charge control (i.e. services that do not wholly or substantially replace existing services) we would consider whether a price control obligation would be appropriate for those services.

Legal tests for charge control

10.111 We will address the legal tests for the price controls in the LLCC Consultation.

10.112 Nevertheless, we consider that in principle a price control would meet the relevant legal tests.

10.113 Section 87(9) of the Act authorises the setting of an SMP services condition setting price controls for network access and relevant facilities. Section 88 of the Act specifies that Ofcom are not to set a price control unless it appears to Ofcom that there is a risk of adverse effects due to pricing distortions and it appears to Ofcom that setting a price control would promote efficiency, sustainable competition and confer the greatest benefits on the end users. Under section 88 Ofcom must also take account of the extent of the investment in the matters to which the condition relates of the person to whom it is to apply.

10.114 We consider these criteria are satisfied.

10.115 We also consider a price control would meet the criteria set out in section 47(2) of the Act, since it is objectively justifiable, non-discriminatory, proportionate and transparent. This is for the reasons below. However, we will consult on this again when we consult on our specific price control proposals shortly. At this time, we consider that a price control is, in principle:

- objectively justifiable in that BT has SMP in the market, and, in the absence of the charge control, it is unlikely to be incentivised to reduce its costs and set prices at the competitive level;
- not unduly discriminatory in that BT is the only operator to have SMP in the market;
- proportionate in that we will ensure that it will allow BT to make a return on investment whilst acting to constrain BT's ability to set prices above the competitive level which may result in consumers paying higher retail prices; and
- transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention.

10.116 For the reasons set out above, we consider that the imposition of a price control would in particular further the interests of citizens and further the interests of consumers in relevant markets by the promotion of competition in line with section 3 of the Act. Further, we consider that, in line with section 4 of the Act, a price control obligation in particular promotes competition in relation to the provision of electronic

communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

We do not propose to impose cost orientation

10.117 In the 2007/8 Review we applied a cost orientation obligation in each of the wholesale TISBO markets. The cost orientation obligations were intended to complement the charge controls by providing an additional safeguard about the level of individual charges, guarding against both excessive pricing and predatory pricing. Specifically BT was required to ensure that each and every charge was set on a cost-oriented basis, where the costs included in the charges are:

- the forward-looking long run incremental costs⁴⁷ incurred by the regulated firm to provide the service to which the charge refers;
- an appropriate mark-up to allow the recovery of common costs⁴⁸; and
- a reasonable return on the capital employed.

10.118 We consider that in these markets we can provide adequate protection against excessive pricing with a charge control. In particular we can design charge control baskets and sub caps so that they constrain only charges about which we have particular concerns about excessive pricing. This would provide BT with greater freedom to set individual charges subject to the constraints imposed by the basket and sub-caps. We will set out our reasoning in more detail in the LLCC Consultation.

10.119 We therefore propose not to apply a cost orientation obligation to charges in these markets.

Transparency and notification obligations

10.120 We propose that BT should be subject to a set of obligations, aimed at promoting transparency and ensuring non-discrimination. The obligations which we discuss in more detail below are:

- an obligation to publish a reference offer, including terms and conditions of provisioning and repair;
- an obligation to give 28 days' notice of price reductions and to give 90 days' notice of all other changes to prices, terms and conditions for existing TISBO services;

⁴⁷ Long run incremental costs may be defined in general as the costs that are caused in the long run by the provision of a defined increment of output. It can also be seen as the costs that the regulated firm would avoid if it decided not to provide the regulated services any longer, taking a long run perspective.

⁴⁸ The costs incurred in the production of two or more products can be classified as:

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

- an obligation to give 28 days' notice of the introduction of prices, terms and conditions for new TISBO services;
- a requirement to notify technical information with 90 days notice;
- an obligation to publish quality of service information, as directed by Ofcom; and
- obligations relating to requests for new network access.

10.121 These requirements are designed to support the general, and specific, network access and non-discrimination obligations. These forms of discrimination are particularly relevant when dealing with a vertically integrated incumbent, as in BT's case. They are designed to ensure that BT does not use non-price discrimination to restrict competition in downstream markets.

10.122 In our view, since their imposition as a result of the 2007/8 Review these SMP obligations have been on the whole effective in supporting the non-discrimination obligation to address BT's ability and incentive to engage in anti-competitive discriminatory practices.

10.123 We therefore consider it appropriate to apply these obligations to BT.

Legal test

10.124 Section 87(6) of the Act authorises the setting of SMP services conditions that require the dominant provider to publish information about network access to ensure transparency and to publish terms and conditions.

10.125 We discuss each of the transparency obligations in more detail in the sub sections below.

Requirement to publish a Reference Offer

Aim of regulation

10.126 We propose that BT should be required to publish a Reference Offer (RO) for products in these markets.

10.127 A requirement to publish an RO has two main roles, namely:

- to assist transparency for the monitoring of potential anti-competitive behaviour; and
- to give visibility to the terms and conditions on which other providers will purchase wholesale services.

10.128 This helps to ensure stability in markets without which we consider incentives to invest might be undermined and market entry less likely.

10.129 The publication of a RO has an additional role in potentially allowing for speedier negotiations, avoiding possible disputes and giving confidence to those purchasing wholesale services that they are being provided on non-discriminatory terms. Without this, market entry might be deterred to the detriment of the long-term development of competition and hence consumers.

10.130 We consider the requirement to publish an RO imposed as a result of the 2007/8 Review has been effective in carrying out the three roles explained above. Therefore we consider it appropriate to impose the same requirement on BT in this market review.

10.131 The proposed condition requires the publication of a RO and specifies the information to be included in that RO (set out below) and how the RO should be published. It prohibits the dominant provider from departing from the charges, terms and conditions in the RO and requires it to comply with any directions Ofcom may make from time to time under the condition. The published RO must set out (at a minimum) such matters as:

- a clear description of the services on offer including technical characteristics and operational process for service establishment, ordering and repair;
- the locations of points of network access and the technical standards for network access;
- conditions for access to ancillary and supplementary services associated with the network access including operational support systems and databases etc;
- contractual terms and conditions, including dispute resolution and contract negotiation/renewal arrangements;
- charges, terms and payment procedures;
- service level agreements and service level guarantees; and
- to the extent that BT uses the service in a different manner to CPs or uses a similar service, BT is required to publish a reference offer for in relation to those services.

Legal tests

10.132 We are satisfied that the proposed condition (as set out in Annex 14) meets the relevant tests set out in the Act.

10.133 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition firstly by ensuring that providers have the necessary information to allow them to make informed decisions about purchasing TISBO services in order to compete in downstream markets and by providing transparency in order to assist in the monitoring of anticompetitive behaviour.

10.134 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it requires that terms and conditions are published in order to encourage competition, provide stability in markets and allow monitoring of anti-competitive behaviour;
- not unduly discriminatory in that it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;

- proportionate in that only information that is considered necessary to allow providers to make informed decisions about competing in downstream markets is required to be provided; and
- transparent in that it is clear in its intention to ensure that BT publishes details of its service offerings.

Requirement to notify charges and terms and conditions

Aim of regulation

10.135 We propose that BT should be subject to an obligation to notify changes to its charges, terms and conditions.

10.136 Notification of changes to services at the wholesale level can assist competition by giving advanced warning to CPs purchasing wholesale services that also compete with the dominant provider in downstream markets. It also supports the non-discrimination obligation by ensuring that BT does not notify changes in a discriminatory manner. Notification of changes to charges therefore helps to ensure stability in markets and without which we consider incentives to invest might be undermined and market entry made less likely. However, there may be some disadvantages to notifications, particularly in markets where there is some competition. It can lead to a 'chilling' effect where CPs follow BT's prices rather than act dynamically to set competitive prices.

10.137 Currently the notification period for changes to prices, terms and conditions of existing products and services in these markets is 90 days. As noted above, BT's view is that the notice period should be reduced to 28 days, to align it with the notice period Ofcom applies in the wholesale broadband access market. BT argues that 28 day notice is now standard commercial practice for wholesale services and would therefore not inconvenience CPs. BT also argues that reduced notice periods would make it easier for it to comply with its charge control obligations by enabling it to alter its charges more quickly, for example after RPI figures are published.

10.138 We need to ensure that the regulatory approach that we adopt in each market adequately addresses the competition issues which we have identified. In the WBA market we concluded that a 28 day notice period was appropriate but in other markets such as the WLA market, we concluded that the competition issues warranted maintaining a 90 day notice period for LLU services. We therefore, do not accept BT's argument that because we have given BT more commercial freedom in a particular economic market we should do the same in other economic markets.

10.139 The investment required to use wholesale TISBO services is significantly greater and requires CPs to build more complex networks than for most of the services to which we have applied a 28 day notice period. Wholesale TISBO services also support multiple downstream services. This means that changes to wholesale TISBO services are likely to have a greater impact on CPs than changes to downstream services where we apply a 28-day notice period and will also be more complex to assess. Typically this might involve modelling the impact of the new charges on the cost of providing downstream services, securing internal approval for a pricing revision and finally notifying end-users (which may be subject to a minimum notice period, typically 28 days). With a shorter notification period, there is a risk that CPs would have insufficient time to react to changes to wholesale terms and could for instance be left financially exposed by changes to wholesale prices. For these

reasons we consider that the advantages of a 90 day notice period outweigh the disadvantages and that a 90 day notice period is therefore still generally appropriate.

10.140 However, when prices are being reduced there should not be a risk of financial exposure for CPs and we therefore consider there is scope to reduce the notification period for price reductions to 28 days. Often price reductions are given as part of a special offer to which conditions are attached so the shorter notice period would also need to apply to such conditions.

10.141 We could maintain the 90 day notice period and grant waivers if we receive similar requests in future. However, in our view there is a likelihood that such requests would be granted, and we therefore consider that it would be more proportionate and less administratively burdensome to reduce the notice period for price reductions to 28 days.

10.142 We therefore propose that the following notification periods should apply:

- 28 day notice for prices, terms and conditions relating to new service introductions;
- 28 days notice for price reductions and associated conditions (for example conditions applied to special offers); and
- 90 days notice for all other changes to prices terms and conditions.

Legal tests

10.143 We are satisfied that the proposed condition (As set out in Annex 14) meets the relevant tests set out in the Act.

10.144 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that CPs have the necessary information about changes to terms, conditions and charges sufficiently in advance to allow them to make informed decisions about competing in downstream markets.

10.145 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, in that there are clear benefits from the notification of changes in terms of ensuring that providers are able to make informed decisions within an appropriate time frame about competing in downstream markets;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate, as 90 days is considered the minimum period necessary to allow competing providers to plan for changes to existing network access, and 28 days would be sufficient for new network access and price reductions; and
- transparent in that it is clear in its intention to ensure that BT provides notification of changes to their charges and terms and conditions.

Requirement to notify technical information

Aim of regulation

- 10.146 We propose that changes to technical information should be published in advance, so that competing providers have sufficient time to prepare for them.
- 10.147 Under the proposed requirement to publish a RO, BT is required to publish technical information. However, advance notification of changes to technical information is important to ensure that providers who compete in downstream markets are able to make effective use of the wholesale services provided by BT.
- 10.148 For example, a competing provider may have to introduce new equipment or modify existing equipment to support a new or changed technical interface. Similarly, a competing provider may need to make changes to their network in order to support changes to wholesale services offered by BT.
- 10.149 Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of network access and technical standards (including any usage restrictions and other security issues).
- 10.150 We consider the requirement to notify technical information imposed as a result of the 2007/8 Review has been effective in allowing providers sufficient time to prepare for such changes. Therefore we consider it is appropriate to impose the same requirement in this market review.
- 10.151 The condition requires the notification of new technical information within a reasonable time period but not less than 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. We consider that 90 days is the minimum time that competing providers need to modify their network to support a new or changed technical interface or support a new point of access or network configuration.
- 10.152 Longer periods of notification may also be appropriate in certain circumstances. For example, if BT were to make a major change to its technical terms and conditions, a period of more than the 90 day minimum notification period may be necessary. We consider that regulations are not necessary to address such circumstances, because they are likely to be sufficiently rare for us to address them on a case-by-case basis.

Legal tests

- 10.153 We are satisfied that the proposed condition (as set out in Annex 14) meets the relevant tests set out in the Act.
- 10.154 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that providers have sufficient notification of technical changes to TISBO services to enable them to compete in downstream markets.
- 10.155 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it enables providers to make full and effective use of network access to be able to compete in downstream markets;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate in that 90 days is the minimum period that Ofcom considers is necessary to allow competing providers to modify their networks; and
- transparent in that it is clear in its intention that BT notify changes to technical information in advance.

Quality of service information

Aim of regulation

10.156 We propose that BT should be required to publish specific quality of service information.

10.157 Vertically integrated operators have the ability to favour their own downstream business over third party CPs by differentiating on price or terms and conditions. This discrimination could also take the form of variations in quality of service (either in service provision and maintenance or in the quality of network service provided by the dominant provider to external providers compared to its own retail operations). This has the potential to distort competition at the retail level by placing third party CPs at a disadvantage in terms of the services they can offer consumers to compete with the downstream retail business of the vertically integrated operator.

10.158 We consider the requirement to publish quality of service information imposed as a result of the 2007/8 Review has been effective in mitigating the risk of this type of discrimination. Therefore we consider it is appropriate to impose the same requirement on BT in this market review.

10.159 We propose that for each of the TISBO markets, BT should be subject to an obligation to publish information about the quality of service of the network access it provides. The obligation would require BT to publish information as directed by Ofcom, rather than requiring BT to publish specific information from the date of the imposition of the obligation.

10.160 The main benefit of this obligation is that BT could be required to publish information that would enable other CPs to determine whether the service they receive from BT is equivalent to that provided by BT to its own retail divisions.

10.161 BT already publishes a set of Key Performance Indicators (KPIs) that have been agreed with industry and the OTA. Given this agreement we do not consider it necessary to issue a direction specifying the quality of service information that BT should publish. This obligation will therefore function as a backstop that would allow Ofcom to require BT to publish specific information if satisfactory agreements cannot be reached in future

Legal tests

10.162 We are satisfied that the proposed condition (As set out in Annex 14) meets the relevant tests set out in the Act.

10.163 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that providers have visibility of the quality of service that BT provides to itself and to other providers.

10.164 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it aims to prevent undue discrimination in the provision of service by requiring BT to publish quality of service information about the service it provides to itself and to other providers;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate because it only requires BT to publish information as directed by Ofcom in the event we consider such information is required to monitor BT's compliance with its other obligations, which is the minimum condition to ensure the desired objective; and
- transparent in that it is clear in its intention that BT is required to publish quality of service information.

Requests for new network access

Aim of regulation

10.165 We propose that BT should be subject to obligations that determine how requests for new types of network access should be handled.

10.166 Section 87(3) of the Act authorises the setting of SMP services conditions in relation to the provision of network services. Under section 87(5)(a) such conditions may include conditions that secure fairness and reasonableness in the way in which requests for new network access are made and responded to.

10.167 Vertically integrated operators have the ability to favour their own downstream business over third party CPs by differentiating on price or terms and conditions. One form of discrimination is in relation to the handling of requests for new types of network access. This has the potential to distort competition at the retail level by placing third party CPs at a disadvantage compared with the downstream retail business of the vertically integrated operator in terms of their ability to introduce new services to meet their customer needs and in terms of their ability to offer innovative services in order to compete more effectively.

10.168 In order to ensure that BT does not discriminate in this way, we consider that BT should be subject to a set of obligations that specify how it should handle requests for new types of network access. These obligations would support the obligation not to unduly discriminate by specifying how requests should be handled.

10.169 We consider that the obligations which are currently applied in these markets are fit for purpose and should be retained. These obligations include:

- a requirement for BT to publish reasonable guidelines specifying the required content and form of requests for new network access and how they will be handled;
- a requirement for BT to provide sufficient technical information to CPs to allow them to draft product specifications that are efficient and which satisfy the reasonable requirements; and
- timescales within which BT must acknowledge and process requests.

Legal tests

10.170 We are satisfied that the proposed conditions (as set out in Annex 14) meets the relevant tests set out in the Act.

10.171 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the conditions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by facilitating the development of competition in downstream markets.

10.172 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that its purpose is to prevent undue discrimination in the processing of requests for new network access;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate as it continues to provide a SOR process based on the currently implemented process, while allowing scope for industry to be involved in agreeing process improvements; and
- transparent in that the condition is clear in its intention to set requirements for the processing of requests for new network access.

Disaggregated wholesale products

10.173 Although it is likely that over the next few years many end users will migrate from TI to AI leased lines, there is likely to be ongoing demand for TI services, particularly from end-users whose applications have very demanding latency and jitter performance requirements.

10.174 We consider that in line with its OIC commitments, BT should launch disaggregated TI interface products provided there is reasonable demand.

Impact on stakeholders

10.175 We have considered the impact of our proposed SMP remedies in the TISBO markets.

10.176 We consider the proposed remedies will facilitate competition in the TISBO market and the downstream retail markets by ensuring that CPs can access BT's SMP services and on non-discriminatory terms. Competition will bring benefits to

consumers from greater choice, lower prices and improved service quality at the retail level. Consequently, we consider our proposed remedies to meet our general duty under section 3 of the Act of furthering the interests of citizens and consumers.

10.177 Equally, for the reasons given above in relation to the specific remedies we propose, we therefore consider the proposed remedies as a whole do not place a regulatory burden on BT that is disproportionate to the aim sought to be achieved by their imposition. In this respect, we consider the proposed remedies would impose obligations that require BT to act in a manner broadly consistent with the behaviour of a wholesale operator in a competitive market and are not therefore unduly onerous.

10.178 Conversely, not applying ex-ante remedies would be inconsistent with our statutory obligation to impose appropriate SMP remedies to address the competition problems we have identified in the TISBO markets. In terms of impact on stakeholders, we consider not applying ex-ante remedies would benefit BT by reducing the competitive pressure on its activities in the downstream retail markets for TI leased lines. BT's competitors are likely to be disadvantaged because they may not be given non-discriminatory access to BT's SMP services, and would therefore be less able to compete effectively in the retail market. Consumers would also be likely to suffer in the form of poorer choice, higher prices and reduced service quality at the retail level.

Conclusions about TISBO remedies

10.179 Based on the discussion above, we propose that in the wholesale markets for low bandwidth TISBOS in the UK excluding the Hull area, medium bandwidth TISBOs in the UK excluding the WECLA and the Hull area and high bandwidth TISBOs in the UK excluding the WECLA and the Hull area, BT should be subject to the following remedies:

- a requirement to provide network access;
- a requirement not to unduly discriminate;
- a requirement to publish a reference offer;
- a requirement to give notice of changes to prices terms and conditions:
 - 28 days notice for the introduction of prices, terms and conditions for new services;
 - 28 days notice for price reductions for existing services; and
 - 90 days notice for all other changes to prices, terms and conditions.
- a requirement to publish quality of service information;
- a requirement to notify technical information with 90 days notice; and
- obligations relating to requests for new network access.

10.180 We propose that BT is also be subject to a direction under the general access condition to provide Partial Private Circuits (PPCs) in each of the markets, and in the low bandwidth TISBO market only a direction requiring it to provide Radio Base Station backhaul (RBS backhaul).

10.181 As explained above we propose that these remedies also apply to interconnection and accommodation services that BT provides in connection with wholesale TISBO services.

10.182 We consider that price controls are also necessary and we plan to set out our proposals for these obligations in LLCC Consultation, which we intend to publish shortly.

Analysis of how competition operates in the wholesale TI regional trunk segment market

Approach taken in the 2007/8 Review

10.183 In the 2007/8 Review we concluded that competition had not increased to the extent anticipated in the 2003/04 Review and that BT retained SMP with a persistently high market share, rates of return that were well above its cost of capital and prices that were persistently high despite a cost orientation obligation but no charge control.

10.184 In light of our analysis we proposed to maintain the SMP obligations in broadly their existing form and to take certain measures to address the issues that had arisen.

10.185 Our most significant measure was to introduce a charge control for wholesale trunk services for the first time and to require BT to address flaws in the PPC accounting regime. We expected this would lead to a significant reduction in the price of wholesale trunk segments, which in turn would be likely to be reflected in lower prices in the retail market. We also applied two of the measures we identified in the TISBO market which were also relevant to the wholesale trunk market. These measures were:

- work with BT to address the obstacles to replicability identified in the Replicability Statement including the flaws in the regulatory accounting regime; and
- make changes to the SLA regime.

Developments since the 2007/8 Review

10.186 Our analysis for this market review (as discussed in section 7) indicates that all of the TI markets are now in long-term decline as many customers switch to alternative services such as AI and MI leased lines. The wholesale TI markets nevertheless remain considerably larger by circuit volume than the AI and MI markets.

10.187 Our market definition for wholesale trunk services differs significantly from the 2007/8 Review. In particular:

- we propose to define two wholesale trunks markets: a regional TI trunk market and a national TI trunk market; and
- we propose that the national TI trunk market is effectively competitive and that BT has SMP in the regional TI trunk market.

Responses to the Call for Inputs about TI trunk remedies

10.188 Few of the CFI respondents commented specifically on the wholesale TI trunk market. However, many of the more general points previously discussed about the

future of the TI market are also relevant to this market. In relation to this market specifically, the main points made were:

- Verizon, C&WW and [X X] argued that there is still a separate TI trunk market and that BT has SMP;
- C&WW said that it continues to rely on BT for significant volumes of TI trunk segments despite attempts to maximise its use of its own network;
- UKCTA considered that given the legacy status of TI services Ofcom should try to avoid further upheaval in the market. In particular UKCTA urged Ofcom to avoid further changes to the TAN boundaries, arguing that the changes made in the 2007/8 Review had a detrimental effect on CPs because the reduction in the number of aggregation nodes moved the boundaries terminating and trunk sections pushing up CPs costs; and
- BT said that Ofcom should withdraw TI trunk regulation now that the market is no longer on the Commission's Recommendation on markets susceptible to ex-ante regulation. BT subsequently submitted a paper to Ofcom on 7 December 2011 (BT's December 2011 paper), in which it set out a detailed critique of our TI trunk product market definition and market power assessment based on the TAN concept. We discuss this paper in Section 6.

Ofcom's assessment

10.189 As noted above, BT is currently subject to a package of remedies in the trunk market (as previously defined) comprising an obligation to provide network access, an obligation not to unduly discriminate, cost orientation and accounting separation obligations, charge controls, a set of transparency obligations and a quality of service obligation. The charge control was first introduced in the 2007/8 Review but the other remedies have been applied in broadly their current form since the 2003/4 Review.

10.190 Our SMP analysis indicates that there are relatively high barriers to entry and expansion in this market and BT retains a share of 84%. Demand for regional trunk services is falling and we believe that competition is unlikely to provide an effective constraint on BT over the review period.

10.191 As discussed in Section 5, our analysis indicates that in many respects the regional TI trunk market is more like a terminating segment market in character. CPs will continue to purchase PPCs from BT, some of which will require trunk segments. The main difference being that only regional trunk segments will fall within the scope of the regulated market and the much longer national trunk segments will not be regulated.

10.192 Consequently, we consider that the remedies applied in the 2007/8 Review to the trunk market as previously defined and which are also applied to the adjacent TISBO markets would also be suitable for the newly defined TI regional trunk market.

10.193 We also note that CFI respondents favoured an approach to the wholesale TI markets that minimised disruption.

10.194 In light of our analysis and stakeholders' views, we consider that it would be appropriate to maintain broadly the current set of SMP conditions and the PPC Direction. Below we discuss the rationale for each of the proposed remedies.

10.195 Below we discuss the remedies that we consider are appropriate to address BT's SMP in this market.

Proposed remedies for the wholesale TI regional trunk market

Interconnection and accommodation services

10.196 In order to use the wholesale services that BT provides in this market CPs also require certain interconnection and accommodation services. To achieve an overall solution we consider that it is necessary to regulate the provision of these ancillary services, in the absence of which, BT would have an incentive to refuse to supply or to supply in a discriminatory manner, for example by charging excessive prices.

10.197 Network access is defined in sections 151(3) and (4) of the Act and includes interconnection services and/or any services or facilities that would enable another CP to provide electronic communications services or electronic communication networks. We consider that a requirement to provide network access would, therefore, include any ancillary services as may be reasonably necessary for a Third Party to use the services. Consequently, each of the obligations that we propose below for these markets also applies to the provision of accommodation and interconnection services that are reasonably required by CPs in connection with the provision of the regulated services.

10.198 In section 13, we set out our proposals to require BT to provide specific types of interconnection products.

Requirement to provide Network Access

Aim of regulation

10.199 We consider that as a result of BT's SMP it is appropriate to apply a requirement for BT to meet reasonable requests for network access. The considerations that support this proposal are the same as those discussed above for the corresponding obligation that we propose for the wholesale TISBO markets and are therefore not repeated here for brevity.

10.200 As PPCs and RBS Backhaul circuits will continue to be key wholesale products in the wholesale TISBO and TI regional trunk markets we consider that BT should also be subject to the PPC/RBS Direction in this market. Together with the corresponding TISBO obligations this will have the effect of requiring BT to provide PPCs and RBS Backhaul circuits with both terminating and regional trunk segments as required. Our reasons are the same as those discussed for the TISBO markets above.

Legal tests

10.201 Our assessment of the legal tests for the proposed network access obligation is the same as for the corresponding obligations in the wholesale TISBO markets. We are therefore satisfied that that the proposed condition (as set out in Annex 14 and the PPC Direction in Annex 14) meets the relevant tests set out in the Act.

Requirement not to discriminate unduly

Aim of regulation

10.202 We consider that as a result of its SMP it is appropriate for BT to be subject to a requirement not to discriminate unduly in the provision of network access. We consider that, in the absence of such a requirement, BT would have an incentive to give preferential treatment to its downstream divisions.

10.203 The considerations that support this proposal are the same as those discussed above for the corresponding obligation that we propose for the wholesale TISBO markets and are therefore not repeated here for brevity.

Legal tests

10.204 Our assessment of the legal tests for the proposed obligation not to discriminate unduly is the same as for the corresponding obligations in the wholesale TISBO markets. We are therefore satisfied that that the proposed condition (As set out in Annex 14 meets the relevant tests set out in the Act.

Price controls

Aim of regulation

10.205 We consider that as a result of BT's SMP it is appropriate to apply a charge control in this market. The considerations that support this proposal are the same as those discussed above for the corresponding obligation that we propose for the wholesale TISBO markets and are therefore not repeated here for brevity.

10.206 For the same reasons discussed above for the TISBO markets we do not propose to apply a cost orientation obligation.

10.207 Our initial view is that the scope of the charge control should encompass:

- prices for TI regional trunk segments;
- the interconnection and accommodation services that BT provides in connection with wholesale TI regional trunk services in these markets; and
- excess construction charges.

Legal tests for charge control

10.208 Our initial assessment of the legal tests for the proposed price control obligation is the same as for the corresponding obligations in the wholesale TISBO markets. We are therefore satisfied that price control obligations would meet the relevant tests set out in the Act. However as noted above we will set out our proposals in more detail in the LLCC Consultation.

Transparency and notification obligations

10.209 We consider that as a result of BT's SMP it is appropriate to impose transparency and notification obligations in this market, namely:

- an obligation to publish a reference offer, including terms and conditions of provisioning and repair;
- an obligation to give 28 days' notice of price reductions and to give 90 days' notice of all other changes to prices, terms and conditions for existing TI regional trunk services;
- an obligation to give 28 days' notice of the introduction of prices, terms and conditions for new TI regional trunk services;
- a requirement to notify technical information with 90 days notice;
- an obligation to publish quality of service information, as directed by Ofcom; and
- obligations relating to requests for new network access.

10.210 These requirements are designed to support the network access and non-discrimination obligations. These forms of discrimination are particularly relevant when dealing with a vertically integrated incumbent, as in BT's case. They are designed to ensure that BT does not use non-price discrimination to restrict competition in downstream markets.

Legal test

10.211 Section 87(6)(a) of the Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons, or against a particular description of persons, in relation to matters connected with the provision of Network Access. Section 87(6) also authorises the setting of SMP services conditions that require the dominant provider to publish information about network access to ensure transparency and to publish terms and conditions.

10.212 As explained above, each of these obligations will also apply to interconnection and accommodation services provided in connection with TI regional trunk segments.

10.213 We discuss each of the transparency obligations in more detail in the sub sections below.

Requirement to publish a reference offer

Aim of regulation

10.214 We propose that BT should be required to publish a Reference Offer (RO) for products in this market.

10.215 The considerations that support this proposal are the same as those discussed above for the corresponding obligations that we propose for the wholesale TISBO markets and are therefore not repeated here for brevity.

Legal tests

10.216 Our assessment of the legal tests for the proposed obligation to publish a reference offer is the same as for the corresponding obligations in the wholesale TISBO markets. We are therefore satisfied that that the proposed condition (as set out in Annex 14) meets the relevant tests set out in the Act.

Requirement to notify charges and terms and conditions

Aim of regulation

10.217 We propose that BT should be subject to an obligation to notify changes to its charges, terms and conditions.

10.218 The considerations that support this proposal are the same as those discussed above for the corresponding obligations that we propose for the wholesale TISBO markets.

10.219 As with the TISBO markets we propose that the notification period for price reductions could be reduced from 90 days to 28 days. We therefore propose that the following notification periods should apply:

- 28 day notice for prices, terms and conditions relating to new service introductions;
- 28 days notice for price reductions and associated conditions (for example conditions applied to special offers); and
- 90 days notice for all other changes to prices terms and conditions.

Legal tests

10.220 Our assessment of the legal tests for the proposed obligation to notify charges, terms and conditions is the same as for the corresponding obligations in the wholesale TISBO markets. We are therefore satisfied that that the proposed condition (as set out in Annex 14) meets the relevant tests set out in the Act.

Requirement to notify technical information

Aim

10.221 We propose that changes to technical information should be published in advance, so that competing providers have sufficient time to prepare for them.

10.222 The considerations that support this proposal are the same as those discussed above for the corresponding obligation that we propose for the wholesale TISBO markets and are therefore not repeated here for brevity.

Legal tests

10.223 Our assessment of the legal tests for the proposed obligation to notify charges, terms and conditions is the same as for the corresponding obligations in the wholesale TISBO markets. We are therefore satisfied that that the proposed condition (As set out in Annex 14) meets the relevant tests set out in the Act.

Quality of service information

Aim of regulation

10.224 We propose that BT should be subject to an obligation to publish quality of service information as directed by Ofcom.

10.225 The considerations that support this proposal are the same as those discussed above for the corresponding obligation that we propose for the wholesale TISBO markets and are therefore not repeated here for brevity.

Legal tests

10.226 Our assessment of the legal tests for the proposed obligation to publish quality of service information is the same as for the corresponding obligations in the wholesale TISBO markets. We are therefore satisfied that that the proposed condition (As set out in Annex 14) meets the relevant tests set out in the Act.

Requests for new network access

Aim of regulation

10.227 We consider that BT should be subject to a set of obligations that specify how it should handle requests for new types of network access. These obligations would support the obligation not to unduly discriminate by specifying how requests for new forms of network access should be handled.

10.228 The considerations that support this proposal are the same as those discussed above for the corresponding obligation that we propose for the wholesale TISBO markets and are therefore not repeated here for brevity.

Legal tests

10.229 Our assessment of the legal tests for the proposed obligation relating to new network access is the same as for the corresponding obligations in the wholesale TISBO markets. We are therefore satisfied that that the proposed condition (As set out in Annex 14) meets the relevant tests set out in the Act.

Impact on stakeholders

10.230 We have considered the impact of our proposed SMP remedies in the TI regional trunk market.

10.231 We consider the proposed remedies will facilitate competition in the TI regional trunk market and the downstream retail markets by ensuring that CPs can access BT's SMP services and on non-discriminatory terms. Competition will bring benefits to consumers from greater choice, lower prices and improved service quality at the retail level. Consequently, we consider our proposed remedies to meet our general duty under section 3 of the Act of furthering the interests of citizens and consumers.

10.232 Equally, for the reasons given above in relation to the specific remedies we propose, we therefore consider the proposed remedies as a whole do not place a regulatory burden on BT that is disproportionate to the aim sought to be achieved by their imposition. In this respect, we consider the proposed remedies impose obligations that are broadly consistent with those that would be offered by a wholesale operator in a competitive market and are not therefore unduly onerous.

10.233 Conversely, not applying ex-ante remedies would be inconsistent with our statutory obligation to impose appropriate SMP remedies to address the competition problems we have identified in the TI regional trunk market. In terms of impact on stakeholders, we consider not applying ex-ante remedies would benefit BT by reducing the competitive pressure on its activities in the downstream retail markets

for TI leased lines. BT's competitors are likely to be disadvantaged because they may not be given non-discriminatory access to BT's SMP services, and would therefore be less able to compete effectively in the retail market. Consumers would also be likely to suffer in the form of poorer choice, higher prices and reduced service quality at the retail level.

Conclusions about TI regional trunk remedies

10.234 Based on the discussion above, we conclude that in the TI regional trunk market BT should be subject to the following remedies:

- an obligation to provide network access;
- a requirement not to unduly discriminate;
- a requirement to publish a reference offer;
- an obligation to give notice of changes to prices terms and conditions:
 - 28 days notice for the introduction of prices, terms and conditions for new services;
 - 28 days notice for price reductions for existing services; and
 - 90 days notice for all other changes to prices, terms and conditions.
- a requirement to publish quality of service information;
- a requirement to notify technical information with 90 days notice;
- obligations relating to requests for new network access; and
- price controls.

10.235 BT will also be subject to a direction under the general access condition to provide Partial Private Circuits (PPCs).

10.236 As explained above these remedies will also apply to interconnection and accommodation services that BT provides in connection with wholesale TISBO services.

10.237 We consider that price controls are also necessary and we plan to set out our proposals for these obligations in LLCC Consultation, which we intend to publish shortly.

Question 15: Do you agree with the remedies that we propose for BT in the wholesale TISBO markets in the UK excluding the Hull area and the wholesale TI regional trunk market?

Section 11

Remedies for the wholesale AI markets

Introduction

11.1 In this section we set out the SMP remedies we propose to impose on BT in the:

- wholesale market for low bandwidth Alternative Interface Symmetric Broadband Origination (AISBO) in the WECLA at bandwidths up to and including 1Gbit/s; and
- wholesale markets for low bandwidth Alternative Interface Symmetric Broadband Origination (AISBO) in the UK excluding the WECLA and the Hull area at bandwidths up to and including 1Gbit/s.

11.2 Unless stated otherwise we refer to these markets collectively as the AISBO markets.

11.3 These proposed SMP remedies are based on the nature of the competition problems we have identified in our market analysis, in particular our SMP assessment, in the AISBO markets. We set out these competition problems in this section.

11.4 We consider these remedies would achieve our statutory duties and would satisfy the relevant legal tests. In reaching these proposals we have also taken account of our regulatory experience from the two previous market reviews, recent developments in the AISBO markets, views expressed by stakeholders in response to the Call for Inputs (CFI) and expected developments over the course of the review period of three years.

Summary

11.5 Table 85 summarises the competition issues we have identified in the AISBO markets and the remedies that we propose to impose in the wholesale market for low bandwidth AISBO in the UK excluding the WECLA and the Hull area and in the wholesale market for low bandwidth AISBO in the WECLA, respectively.

Table 85: Summary of the competition problems and proposed remedies

Competition problems	Remedies for the wholesale low bandwidth AISBO market in the UK excluding the WECLA and the Hull area	Remedies for the wholesale low bandwidth AISBO market in the WECLA
Refusal to supply	Requirement to provide network access on reasonable request	Requirement to provide network access on reasonable request
	Requirement to provide Ethernet services on reasonable request (disaggregated Ethernet access and backhaul)	Requirement to provide Ethernet services on reasonable request (disaggregated Ethernet access and backhaul)
<ul style="list-style-type: none"> Price discrimination; Non-price discrimination, e.g. different terms and conditions, delaying tactics (different delivery timescales for provision and fault repair); strategic design of products; exclusive dealing; quality discrimination; different SLAs and SLGs; Predatory pricing; Margin squeeze. 	Requirement to provide all network access on Equivalence of Input basis	Requirement to provide all network access on Equivalence of Input basis
	Obligation not to discriminate unduly	Obligation not to discriminate unduly
	Publication of reference offer	Publication of reference offer
	Requirement to notify changes to charges and T&Cs	Requirement to notify changes to charges and T&Cs
	Publication of quality of service as required by Ofcom	Publication of quality of service as required by Ofcom
	Notification of technical information	Notification of technical information
<ul style="list-style-type: none"> Price and non-price discrimination; Excessive pricing; Predatory pricing; Margin squeeze. 	Accounting and accounting separation obligations (this obligation is discussed in more detail in Section 15)	Accounting and accounting separation obligations (this obligation is discussed in more detail in Section 15)
<ul style="list-style-type: none"> Cross-subsidisation Excessive pricing Over investments Excessive costs/inefficiencies 	Price control	Less strict form of price control
<ul style="list-style-type: none"> Refusal to supply new network access; Non-price discrimination, e.g. delaying tactics, strategic product design, etc. 	Requests for new network access	Requests for new network access

- 11.6 The wholesale low bandwidth AISBO markets have grown significantly since the 2007/8 Review. Ethernet services have become established as the preferred option for new installations at bandwidths up to 1Gbit/s for all but a minority of customers who have specific latency/jitter requirements and therefore continue to use traditional interface services. Since the 2007/8 Review, BT's Openreach division has launched a second generation of Ethernet services based on significant investments in new backhaul infrastructure.
- 11.7 Our SMP analysis indicates that significant entry barriers continue to exist in the low bandwidth AISBO market in the UK excluding the WECLA and the Hull area. These stem primarily from the high sunk costs required to build network infrastructure and the associated economies of scale. However, as this market is growing rapidly, the prospects for competition are better than in the declining TI markets. In the low bandwidth AISBO market in the WECLA area, the barriers to entry are lower due to the high density of businesses and consequently the prospects for competition are somewhat better.
- 11.8 Our proposed SMP findings closely mirror those of the 2007/8 Review, particularly in relation to BT's market shares which have remained broadly the same in both markets.
- 11.9 Our analysis show that reliance on competition law alone would not address the competition concerns we have identified in the AISBO markets, and therefore we consider SMP remedies are required.
- 11.10 Current regulation in these markets is focused on encouraging competition based on access to BT's disaggregated wholesale Ethernet access and backhaul products on a non discriminatory basis in conjunction with charge controls. We consider that this approach for regulating these markets continues to be appropriate for the period of this market review.
- 11.11 We are however proposing some changes relative to the previous market review. First we are proposing to introduce obligations in the SMP conditions requiring BT to provide Ethernet services on the basis of Equivalence of Input (EOI). In particular, we propose to require BT to provide all forms of network access in the AI market other than interconnection and accommodation on the basis of EOI. We also propose to impose SMP conditions requiring BT to allocate accommodation and power on the basis of EOI.
- 11.12 Secondly we are proposing to provide more clarity around the routing arrangements that we expect should apply between areas served by different Trunk Aggregation Nodes. The 2007/8 Review relied on general access obligations rather than specific product remedies. This has at times led to a difference in view between BT and CPs on the details of the implementation of BT's obligations particularly in relation to circuit routing. We therefore consider it important to provide greater clarity as to what BT's obligations should be.
- 11.13 Thirdly, we consider it important that BT continues to work with industry to develop ISH interconnection and the 'high density handover' Ethernet aggregation capability requested by CPs. These developments have the potential to make interconnection more efficient and to reduce the pressure on co-location space (which is often in short supply). Also an ISH option would be better suited to larger CPs with network infrastructure, enabling them to avoid co-locating in BT exchanges. Given the

potential benefits we consider it important that Openreach works with CPs to develop these new forms of interconnection as soon as reasonably practicable so that deployment could proceed and CPs could begin to benefit from these enhancements.

11.14 Lastly, we note that the only difference between the remedies imposed inside and outside the WECLA would be the price control condition.⁴⁹ This reflects our SMP assessment which found the prospects for the development of competition are more favourable in the WECLA than in the AISBO market outside the WECLA. With a few specified exceptions, we consider the price control should apply to all of the services that BT currently provides in the wholesale AISBO markets. We will set out the details of these proposals in the LLCC Consultation which we will publish shortly.

Structure

11.15 This Section is structured as follows:

Sub-section	Description
Assessment of the competition problems in the AISBO markets	High-level discussion of competition problems identified as a result of our SMP assessment
Assessment of appropriate remedies	The assessment is performed through three steps: <ol style="list-style-type: none"> 9. Analysis of how competition operates in the AI markets and development of AISBO products; 10. Analysis of issues raised by stakeholders in the Cfl responses 11. Ofcom's assessment of the issues
Proposed remedies	Proposal of the appropriate remedies based on the above assessment. For each remedy we set out the aim and the legal basis.
Practical implementation of remedies across AI markets	Details about what regulation and in particular what price control obligation should apply to wholesale AISBO leased lines linking two sites located in different geographic markets.

Assessment of the competition problems in the AISBO markets

Competition problems identified in the AISBO markets

11.16 In light of our SMP assessment we set out below the competition problems we have identified in the AISBO markets and which behaviour, in the absence of ex-ante regulation, we consider BT would have the incentive, and its market power would afford it the ability, to engage in:

- refuse to supply access at the wholesale level and monopolise the provision of services in the retail AI leased lines markets. In addition, a refusal to supply in the AISBO markets would adversely affect the provision of downstream residential broadband and mobile services as wholesale AISBO services are used for the supply of backhaul connectivity in Local Loop Unbundling and mobile networks;

⁴⁹ We use the term “price control” here in the broadest sense to refer to range of SMP remedies we can impose under section 87(9) of the Act – e.g. charge control, cost orientation, safeguard cap, etc.

- engage in unduly discriminatory pricing practices – e.g. by charging its competing providers more than the amount charged to its downstream divisions;
- engage in unduly discriminatory non-pricing practices – e.g. by supplying the same products on different terms and conditions, different timescales for provision of fault and repair, quality discrimination, different SLAs and SLGs, creating new variants to fulfil the requirements of its downstream division and taking longer to address, or avoiding addressing, the requirements of its competitors;
- charge excessively high prices, margin squeeze, engage in predatory pricing and/or anti-competitive cross subsidization; and
- Refuse to supply, or engage in delaying tactics in the provision of, new network access services requested by its competitors.

11.17 We consider BT would have the incentive to engage in these practices in order to adversely affect the development of competition in the related downstream retail markets and thus enable it to act independently of competitors, customers and ultimately of consumers in those markets.

Insufficiency of national and Community competition law remedies

11.18 We consider national and Community competition law remedies would be insufficient to address the competition problems we have identified. In reaching this view, we regard our general assessment of the sufficiency of competition law set out in our Approach to Remedies section (Section 8) and in Annex 6 on the Regulatory Framework as relevant to addressing the competition problems in the AISBO markets. In particular:

- we do not consider appropriate remedies could be imposed under competition law – e.g. requiring the provision of access at the wholesale level;
- we consider the requirements of intervening are extensive – e.g. the need to assess costs for the imposition of proposed price controls, the need to monitor terms and conditions;
- we consider that providing certainty in the AISBO markets is of paramount concern, both to BT and to other CPs, and we consider this is best achieved through ex ante regulation that, in comparison to competition law remedies, would:
 - provide greater clarity on the types of behaviour that is/is not allowed; and
 - be easier to enforce in that it would allow for timely intervention through a process with which the market in general is familiar and which is set out in the Act.

Result of our assessment of the competition problems

11.19 In light of our market analyses, in particular our SMP assessment, and our assessment of the insufficiency of national and Community competition law remedies to address the competition problems we have identified, we consider over the course of the review period of three years that competition would be ineffective in:

- the wholesale market for low bandwidth AISBO in the WECLA at bandwidths up to and including 1Gbit/s; and
- the wholesale market for low bandwidth AISBO in the UK excluding the WECLA and the Hull area at bandwidths up to and including 1Gbit/s.

11.20 In order to address the competition problems, we now turn to our assessment of the appropriate remedies.

Assessment of appropriate remedies

11.21 We propose remedies in this review which would require BT to provide its competitors with wholesale access to its network and would define the rules that would apply to its provision of such access. To assess the appropriate form of the remedies we should propose, we have carried out an analysis of how competition operates in the AISBO markets, and we have taken into account views expressed by stakeholders in response to the CFI. We summarise below the following specific issues we have identified as a result of this analysis.

- in relation to refusal to supply:
 - provision of Ethernet access, Ethernet backhaul and Ethernet end-to-end specific products;
 - provision of integrated Ethernet access and backhaul;
 - provision of new forms of Ethernet interconnection (a high-density handover product);
 - provision of specific backhaul products for mobile networks, e.g. Sync-E; and
 - availability of space and power available in BT's exchanges.
- in relation to non-price discrimination:
 - potential restriction of circuit routing rules so that CPs are forced to adopt inefficient network topologies;
 - design of adequate switching and migrations processes;
 - potential adoption of delaying tactics during the Statement of Requirement process; and
 - potential discriminatory behaviour through Openreach Project Services.
- in relation to pricing:
 - concerns about excess construction charges.

11.22 Before analysing how competition operates in the AISBO markets, we first set out the SMP remedies we imposed in the 2007/8 Review.

Existing Remedies

11.23 In the 2007/8 Review we found that BT had SMP in the wholesale low bandwidth AISBO market in the UK excluding the Hull area at bandwidths up to and including 1Gbit/s. BT is subject to the following obligations in this market:

- an requirement to provide network access;
- a requirement not to unduly discriminate;
- a requirement to ensure that charges are reasonably derived from the costs of provision;
- a requirement to publish a reference offer;
- a requirement to give 90 days' notice of changes to prices, terms and conditions for existing services;
- a requirement to give 28 days' notice of the introduction of prices, terms and conditions for new services;
- a requirement to publish quality of service information;
- a requirement to notify technical information with 90 days notice; and
- obligations relating to requests for new network access.

11.24 In addition, BT is subject to a direction in relation to Service Level Guarantees (SLGs).

Analysis of how competition operates in the AISBO markets

11.25 In this sub-section we analyse how competition operates based on BT's regulated AISBO services.

BT's current AISBO products

11.26 BT currently provides both wholesale access and backhaul services in the AISBO markets.

11.27 Since the 2007/8 Review BT has withdrawn most WES, WEES and BES products from new supply.⁵⁰ These first-generation products are being replaced by a second generation of Ethernet access and backhaul products, Ethernet Access Direct (EAD) and Ethernet Backhaul Direct (EBD).

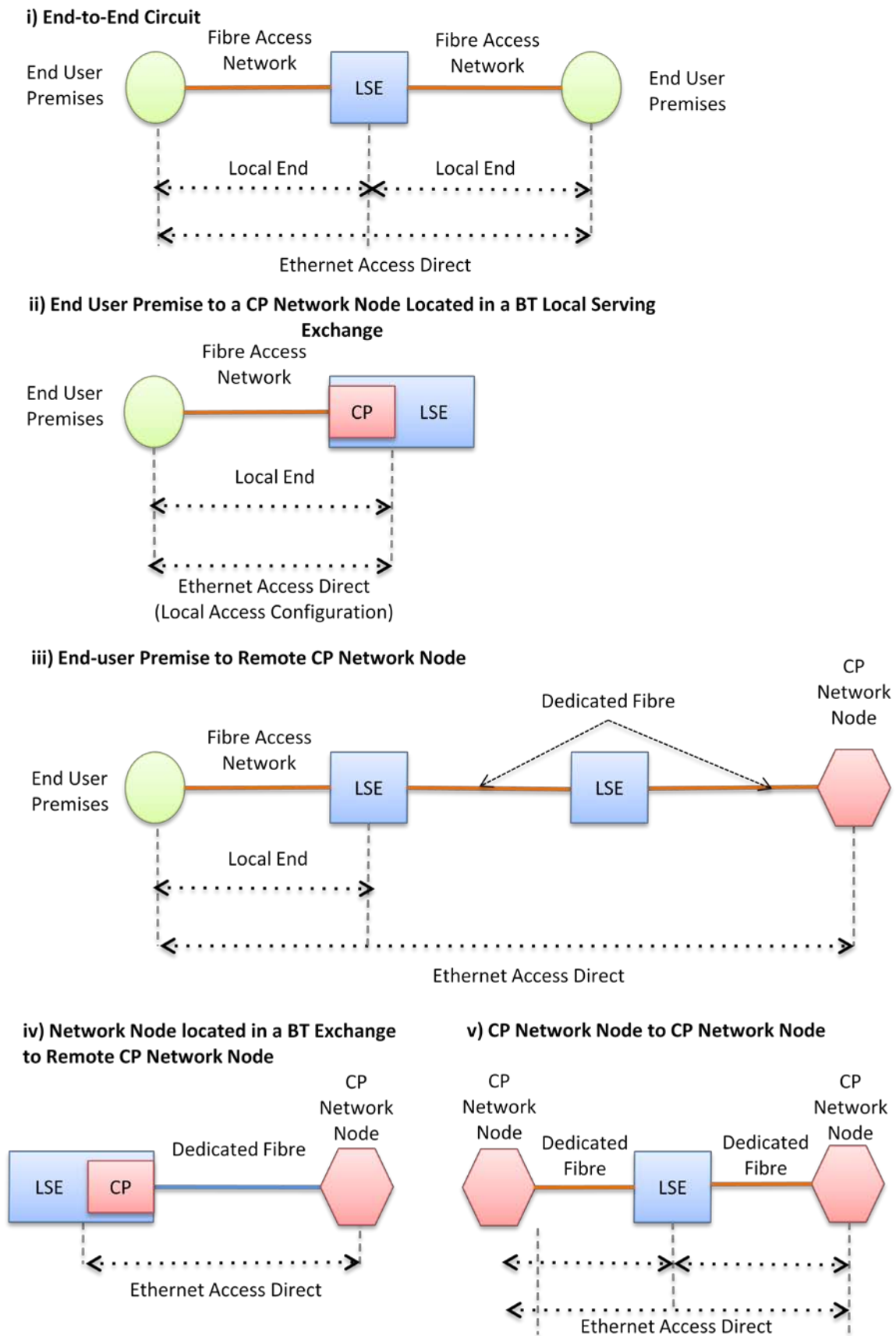
11.28 Wholesale access Ethernet services such as BT's EAD service are used to provide short-range services, typically up to 25 km (up to 35km in the case of EAD 1Gbit/s), and include:

- i) end-to-end services between two of the end-users' premises;

⁵⁰ The WES Aggregation product and the 2.5Gbit/s and 10Gbit/s versions of WES, WEES and BES are still available for new supply.

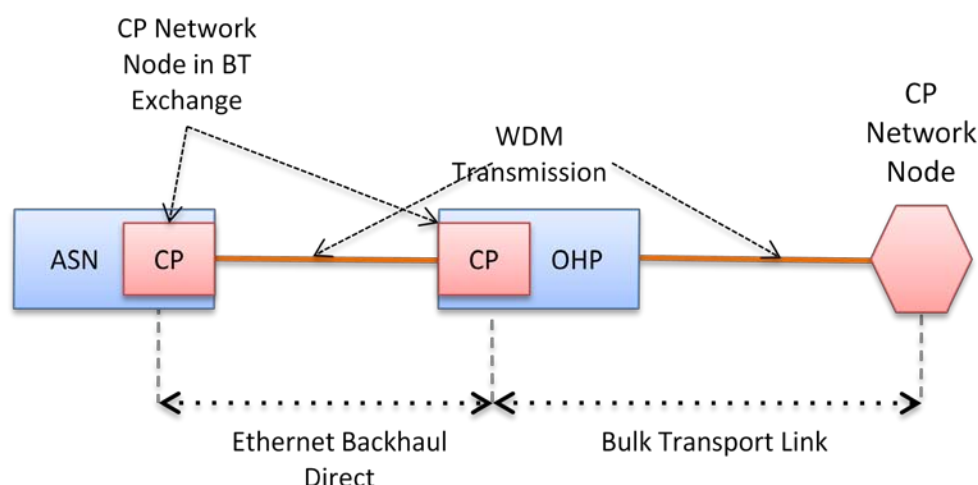
- ii) terminating segments between an end-user's site and a CP's network node (which could be located in the CP's building or in co-location space rented by the CP in a BT exchange); and
- iii) terminating segments between CP's network nodes (which could be located in co-location facilities in a BT exchange or in the CP's own premises).

11.29 Figure 64 below illustrates selected examples of these configurations for EAD.

Figure 64: Wholesale Ethernet access services

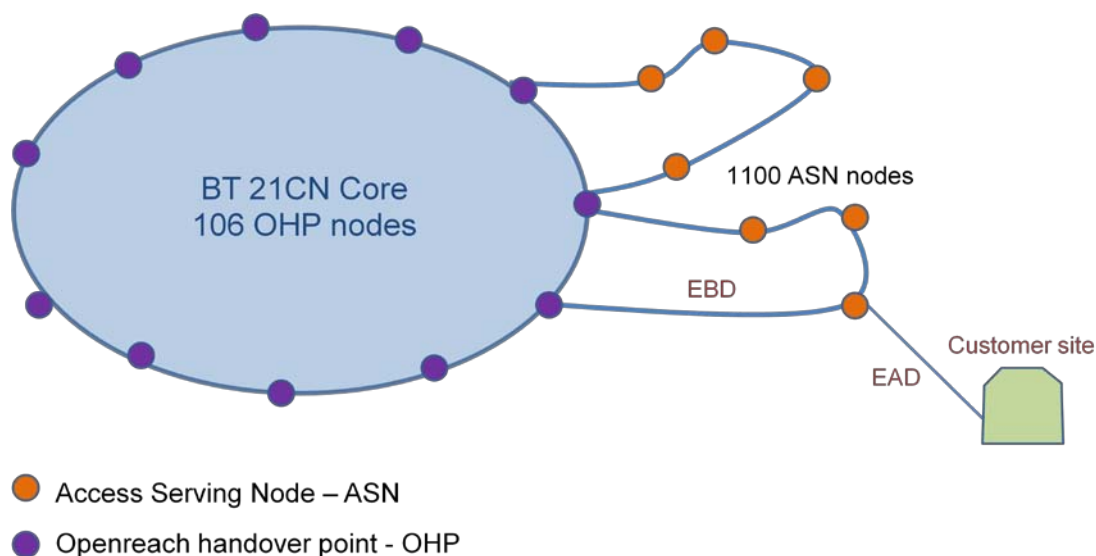
- 11.30 Wholesale access services generally use dedicated fibre circuits between their end-points and therefore do not make use of CPs' backhaul transmission systems.
- 11.31 Wholesale backhaul services are used to provide high capacity backhaul links between an operator's network nodes. These circuits generally make use of CPs' backhaul transmission systems and aggregate multiple individual circuits into higher capacity links. Figure 65 below illustrates the BT backhaul products Ethernet Backhaul Direct (EBD) and Bulk Transport Link (BTL).

Figure 65: Wholesale Ethernet backhaul services



- 11.32 BT introduced Ethernet Backhaul Direct (EBD) in 2009, a backhaul product based on its Orchid⁵¹ network. EBD provides backhaul connectivity from around 1,100 BT exchanges designated as ASNs, typically located in larger towns and cities, to corresponding major exchanges designated as OHPs, which are co-located in major urban centres with BT's 21CN core network nodes. Below is a schematic of the Orchid infrastructure.

Figure 66: Orchid network architecture



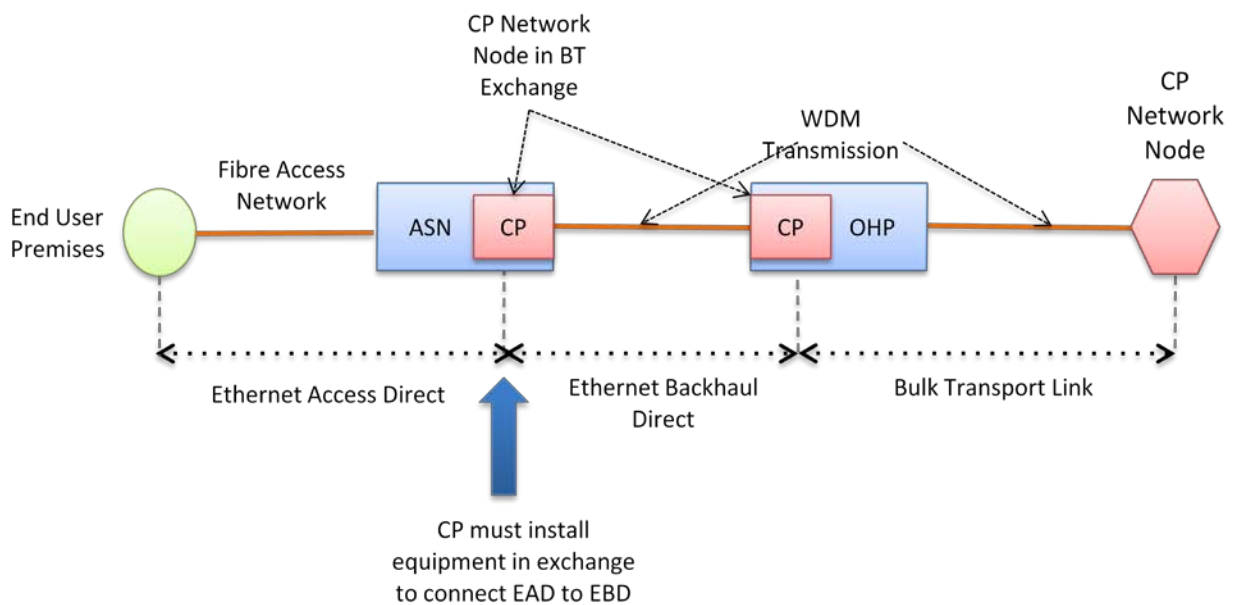
⁵¹ Industry normally refers to the Openreach EBD architecture as the Orchid network, from the original name of the Openreach project designing the network.

11.33 The EBD service only provides connectivity from ASNs to their parent OHPs, therefore it is only available to purchase from the 1,100 ASNs. It is currently available with bandwidths of 10Mbit/s, 100Mbit/s, 1Gbit/s and 10Gbit/s.⁵²

Comparison of PPCs and wholesale Ethernet services

11.34 Figure 67 below illustrates how the BT wholesale access and backhaul Ethernet products may be used together to provide longer distance terminating segments for retail leased lines.

Figure 67: BT Ethernet portfolio



11.35 It can be seen that there are similarities between the network topologies of BT's wholesale Ethernet services and TI PPCs. There are however several significant differences:

- the wholesale Ethernet services are only supplied on a disaggregated basis (i.e. access and backhaul services are sold separately and cannot be purchased as complete terminating segments comprising both access and backhaul);
- in order to connect EAD circuits to EBD circuits, CPs must rent co-location space in the BT ASN exchange and install their own multiplexing equipment; and
- there is no In-Span Handover option so CPs must either rent co-location space at the OHP exchange where the circuit can be terminated and provide their own onward transmission or use a BTL to have the circuit terminated at their own network node.

CPs' consumption of BT's regulated products

11.36 As discussed in previous sections, since the 2007/8 Review, the volume of TI services is in sustained long-term decline and AI services, particularly Ethernet

⁵²Openreach has introduced higher speeds gradually according to customer demand and technical availability. In the future, higher speeds such as 40 Gbit/s and 100Gbit/s may be introduced.

services, have become established as the preferred option for new installations. These trends have been driven mainly by the following factors:

- demand for higher bandwidth leased lines has increased significantly in the last few years. This is driven by many organisations which require dedicated services at higher bandwidth, as well as by increased take-up and speed of consumer broadband services, both fixed and mobile, which drives demand for high bandwidth backhaul. At the end of 2010, the total take-up of broadband services has reached 74% of UK households, with 19.6 million households using fixed broadband lines and 4.9 million using mobile broadband;⁵³ and
- the cost per unit of bandwidth of Ethernet technology is lower than that of legacy TDM-based technology.

11.37 As a consequence, take-up of Ethernet-related leased lines has significantly increased since the last market review; our estimates indicate that compared to 2007/8, volumes of Ethernet up to and including 1Gbit/s have grown by approximately 45%.

11.38 CPs have adopted a wide range of network architectures and patterns of consumption of Ethernet services. Nevertheless the following trends are evident:

- aggregation – CPs including BT generally purchase individual wholesale services and aggregate them using their own equipment which is typically located in POPs in BT exchanges. This differs from the approach used with PPCs for TI services in which BT aggregates circuits for handover on high capacity interconnection links;
- network architecture – For its own downstream services BT has adopted a ‘backhaul and core’ network architecture which involves aggregating traffic at ASNs for transmission over EBD circuits to OHPs for interconnection with its 21CN core network. In contrast, some CPs have adopted a mesh architecture for backhaul, linking aggregation nodes typically located in BT exchanges to each other. Sometimes this arrangement does not have a clearly defined core network;
- consumption of access-only products - CPs are increasingly establishing POPs at larger BT local exchanges so that they can consume ‘access only’ products such as EAD Local Access; and
- usage of EBD for backhaul – BT and LLU operators are the main users of BT’s WDM-based EBD backhaul service. Most other CPs continue to use point-to-point fibre Ethernet services such as EAD, BES and WES for backhaul.

11.39 These trends point to significant differences in the approach adopted by BT and CPs, particularly in relation to network architecture and usage of EBD services. A number of factors may have contributed to these differences:

- early network deployments were on a small scale so a mesh structure may have made more sense initially;

⁵³ “The Communication Market Report: United Kingdom”, Ofcom, 2011.

<http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr11/uk/>

- EBD was not introduced until BT launched its second generation of Ethernet products while its first generation products all had distance limitations initially, and this may have encouraged CPs to build networks using short links between BT local exchanges;
- EBD aggregates traffic efficiently by using WDM technology over pre-defined routes between ASNs and their parent OHPs. Its efficiency, however, may not serve the needs of CPs as well as it serves those of BT. For example, CPs may have established points of presence in different locations and may not need to convey traffic along BT's predefined EBD routes;
- point-to-point Ethernet services are less resilient than SDH services which are based on a self-healing ring architecture. Although resilient options are available a mesh architecture may be a more cost-effective way of introducing resilience;
- BT has not offered a product which combines access and backhaul, which would enable CPs connected only to BT's OHP nodes to reach all end-users. In order to reach end-users located beyond the maximum range of an EAD circuit from an OHP, a CP needs currently to purchase a high bandwidth EBD circuit and install aggregation equipment at the appropriate ASN to connect EAD circuits serving end-users to the EBD circuit. This may not be a cost-effective proposition for a CP which serves a low volume of circuits, and connection to BT's OHP nodes may have limited benefit for such CPs;
- local Ethernet switches provide CPs with an opportunity to reduce backhaul costs by aggregating traffic at local exchanges. This may have further increased their incentive to use local exchanges as hubs for their networks; and
- CPs are incentivised to locate their POPs in BT's fibre-serving exchanges because BT's EAD Local Access service, can offer significantly lower tariffs than other EAD services.

11.40 It is currently unclear whether the differences between the approach adopted by BT and CPs is due to enduring factors such as differences in scale and scope or whether they are primarily a function of strategies adopted by CPs during the early stages of market development. Several of the factors discussed above suggest the latter may be the case. Also, as discussed in more detail below, CPs' approach is evolving as evidenced by the product development requests that have submitted by BT.

Relevance of the Undertakings to the AI market

11.41 BT's Undertakings, given to Ofcom under Section 155 of the Enterprise Act in lieu of a market reference to the Competition Commission, require BT to comply with a series of regulatory obligations to apply to some of its wholesale access and backhaul services. Some of BT's commitments in its Undertakings relate to specific products in the AISBO markets, including:

- to provide WES and BES services on the basis of Equivalence of Input (EOI); and

- to provide new WES Access, WES Backhaul and WEES products on the basis of EOI.⁵⁴

11.42 The Undertakings established the principle of EOI, which means that BT provides, in respect of a particular product or service, the same product or service to all CPs (including BT) on the same timescales, terms and conditions (including price and service levels) by means of the same systems and processes, and includes the provision to all CPs (including BT) of the same commercial information about such products, services, systems and processes. In particular, it includes the use by BT of such systems and processes in the same way as other CPs and with the same degree of reliability and performance as experienced by other CPs.⁵⁵

11.43 The Undertakings were designed to ensure that BT does not discriminate between its own downstream divisions (including, for example, BT Retail, BT Wholesale and BT Global Services) and competitors when offering access services. The set of remedies set out in the Undertakings were particularly designed to address non-price discrimination.

11.44 As set out further below, as part of the suite of SMP remedies we propose to include an obligation on BT to provide Ethernet services on an EOI basis.

Development of AISBO products

Developments for general application

11.45 In 2009, we agreed to relax some of BT's commitments in its Undertakings which related to operational support systems separation which had been affected by Openreach resource constraints in product development. In conjunction with this change, Openreach gave a firm commitment as part of the Undertakings to deliver a set of important product and systems developments that it had agreed with the industry to prioritise. These developments, which became known as the 'Openreach Industry Commitments' (OICs), included several developments relating to AI services. Table 86 below gives a summary of these commitments and their current status.

⁵⁴ Section 3.1

⁵⁵ Section 2.1

Table 86: Summary status of Openreach Industry Commitments relating to Ethernet services

	Commitment (original due date)	Current status
1	Ethernet systems transformation – upgrades to support systems for Ethernet services, delivering a range of enhancements (in 3 software releases by March 2010).	Delivered
2	Ethernet backhaul and interconnection – launch of 10Gbit/s versions of EBD and BTL services (by March 2010).	Delivered
3	BES and WES Replacements – launch of second generation Ethernet 2.5Gbit/s and 10Gbit/s services (by Sept. 2010)	De-prioritised with industry agreement
4	Ethernet aggregation (high density handover points) – deployment of aggregation functionality at larger exchanges to allow multiple circuits to be multiplexed onto higher bandwidth circuits for handover (by Sept 2010).	In February 2012, Openreach closed this OIC on the basis that a feasibility study was conducted and concluded. It also proposed to proceed with development based on a revised proposal from industry ⁵⁶ subject to industry supplying evidence of commercial demand.
5	PPC/RBS upgrade path to Ethernet – a migration product facilitating the replacement of a PPC/RBS product with an Ethernet product whilst retaining the existing fibre connection (by Sept 2010).	In Feb 2012, Openreach proposed to abandon this development citing lack of demand, technical complexity and inability to control the transfer as PPC and RBS services are supplied by a different division within BT, i.e. BT Wholesale.
6	TDM access and backhaul – development of a disaggregated TDM access and backhaul product (by Sept 2010).	Openreach will launch this product in June 2012.

Developments in LLU backhaul

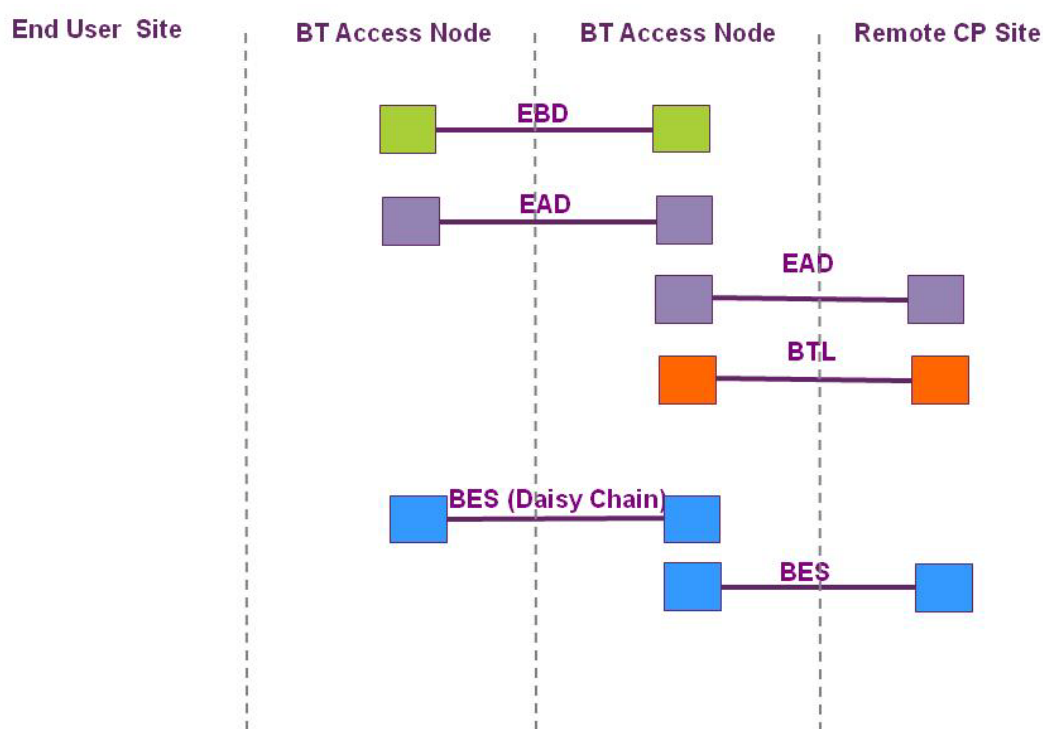
11.46 In relation to LLU backhaul services, the main development since the 2007/8 Review, as discussed in paragraph 11.27, has been the launch by BT of the second generation of Ethernet products and the partial withdrawal from new supply of the first generation of products. Particularly for LLU backhaul, BT has withdrawn BES products below 2.5Gbit/s.

11.47 We also noted that bandwidth requirements for LLU backhaul are growing steadily. The increased take-up of fixed broadband combined with increasing consumers' demand for higher speed broadband connectivity has driven demand for higher bandwidth backhaul services.

⁵⁶ The industry proposal is called High Density Handover

11.48 With the introduction of the new Ethernet products, LLU providers now use both EAD and EBD for LLU backhaul. Figure 68 below provides an overview of the Openreach products most commonly used and their possible combinations.

Figure 68: Openreach LLU backhaul solutions



11.49 Typically, if an LLU operator requires backhaul connectivity of at least 1Gbit/s bandwidth from an Access Serving Node (i.e. a BT exchange which supports EBD) it would consider buying a 1Gbit/s EBD. EBDs, however, are only provided between specific BT nodes (ASNs and OHPs) and cannot reach out to the CP's remote site. Therefore, in addition to the EBD, the LLU provider must purchase a point-to-point Ethernet connection from the OHP to its remote site. Depending on the capacity requirement, the point-to-point connection can be either an EAD (available at 1Gbit/s and 10Gbit/s) or a BTL (only available at 10Gbit/s). BTL would be purchased where the CP aggregates several 1Gbit/s connections.

11.50 If, on the other hand, the serving Local Exchange is not an ASN, the LLU operator would purchase a point-to-point Ethernet connection at 1Gbit/s, i.e. 1Gbit/s EAD. In the old product portfolio, the main product used for Ethernet-based backhaul was BES, also available in its daisy chain version to connect two or more BT Local Exchanges in a chain.

Developments in mobile backhaul

11.51 Since the 2007/8 Review, MNOs have witnessed strong growth in the demand for mobile data. The growth has been fuelled by advances in mobile devices and applications (e.g. the introduction of smart phones) and the development of advanced radio access technologies which provide higher capacities. MNOs predict the increase to continue at a similar rate with additional cell capacity becoming available through the use of 900MHz and 1800MHz spectrum for 3G data services

and the deployment of 4G (LTE) services using the additional 800 MHz and 2.6 GHz spectrum that will be auctioned next year.⁵⁷

- 11.52 In response to the traffic growth, MNOs are gradually replacing TI backhaul links with Ethernet based backhaul links to benefit from the higher capacity and the lower unit cost.
- 11.53 In addition to carrying voice and data traffic, mobile backhaul services also perform another function which is essential to the operation of mobile networks. This is to distribute timing information to keep mobile base stations in accurate synchronisation with each other and other network elements. TI mobile backhaul circuits can perform this function because they operate on synchronous networks that are synchronised to a highly stable common reference clock. As a result, timing information is present in the synchronous data stream carrying the traffic on every circuit. This capability is not available with generic carrier Ethernet services as the transmission technology is asynchronous in nature.
- 11.54 In the short term, MNOs are likely to retain some TI circuits at each mobile base station for synchronisation purposes or use TI circuit emulation techniques over Ethernet services, but in order to complete the transition to Ethernet backhaul, MNOs are also making alternative arrangements for synchronisation.
- 11.55 The two technologies preferred by MNOs for synchronisation over carrier Ethernet services are the IEEE 1588 and SyncE protocols. It is currently unclear whether a single solution will prevail or whether both protocols will be required.
- 11.56 SyncE requires a variant of carrier Ethernet but IEEE 1588 uses a packet layer approach that can operate over generic carrier Ethernet services. Both technologies are designed to transmit timing information over carrier Ethernet services. Unlike TI services, the timing information is not already present in the network and must be derived from an external reference clock specifically for mobile backhaul and distributed across the network.
- 11.57 Openreach is preparing to introduce later this year a SyncE variant of its EAD product in response to a request from BT Wholesale and other CPs.
- 11.58 In our assessment in paragraphs 11.80-11.82 we discuss this issue in more detail and consider whether there is a need for any additional formal intervention from Ofcom in this area. In particular we consider whether BT should be required to provide CPs with access to a reference clock at its local exchanges for synchronisation purposes.

Responses to the Call for Inputs

- 11.59 In this sub-section we set out responses we received from our Call for Inputs, as well as issues that have been raised with us informally in meetings with stakeholders. We explain the issues and set out our considerations of them. We then distil these considerations into a set of specific issues which we seek to address in proposing remedies in the AISBO markets. We then set out our remedy proposals.

⁵⁷ <http://stakeholders.ofcom.org.uk/binaries/consultations/award-800mhz/summary/combined-award-2.pdf>

General points

11.60 In relation to the development of the AI market the main points made by stakeholders were:

- UKCTA noted that the business connectivity market is changing rapidly, particularly in relation to the transition from TI to AI services and the growth of end-user bandwidth requirements. UKCTA noted that the capacity of leased lines being supplied to end-users has increased significantly. At the time of the 2007/8 Review, 10Mbit/s Ethernet circuits were replacing 2Mbit/s TI access circuits. CPs are now commonly supplying 100Mbit/s access circuits and the transition to 1Gbit/s access circuits appears to have commenced;
- UKCTA argued that Ofcom should put in place a framework that is sufficiently forward looking to accommodate this rapidly evolving market in which products could be introduced, achieve mass take-up and possibly even be superseded within the 3 year timescale of the market review. UKCTA suggested that rather than put in place remedies based on specific technologies and bandwidths, Ofcom should specify remedies in terms of the underlying bottleneck assets namely BT's access and backhaul cable networks which CPs are unable to economically replicate;
- UKCTA and others indicated that to be competitive with BT, CPs now need to locate their network POPs in BT local serving exchanges in order to take advantage of EAD Local Access pricing. As a result:
 - inter-exchange connectivity is becoming increasingly important because many CPs are building mesh networks to link together POPs rather than construct 'broadband style' hub and spoke networks which require connectivity back to a core network; and
 - the availability of co-location space is more important than in the past. UKCTA noted there are 179 exchanges where co-location space is not available to CPs (at least in the short term). UKCTA was concerned that BT lines of business have preferential access to exchange space as they are not restricted to the shared areas (Access Locate and MUA areas). C&WW argued that exchange space should be provided on an EOI basis.

11.61 We consider the first two points above relate to the potential need for regulation of services with bandwidths above 1Gbit/s – i.e. the Wholesale market for MISBO in the UK excluding the WECLA and the Hull area. In light of our proposed SMP finding in this market, we are proposing to introduce remedies for MI services at all bandwidths above 1Gbit/s in the UK excluding Hull and the WECLA areas. We discuss our proposals for remedies in Section 12. The last point about the availability of co-location space is discussed in Section 13.

11.62 In relation to the existing AI remedies and the regulated services provided by BT, the main points made were:

- BT has not supplied an integrated Ethernet access and backhaul product and therefore CPs are not able to achieve national coverage by establishing themselves at the 56 TANS unless they also deploy aggregation equipment in the 1,100 ASN exchanges to connect access circuits to backhaul circuits.

- BT has unnecessarily restricted EAD circuit routings by applying inter-TAN routing restrictions to EAD circuits;⁵⁸
- there was dissatisfaction about the Statement of Requirements processes by which CPs request new products from Openreach. There is a perception that BT operates this process in a discriminatory manner, rejecting most CP requests and taking much longer to evaluate requests than its regulatory obligations permit;
- C&WW and Verizon discussed migration and switching processes in their CFI responses. Verizon was particularly concerned about the lack of a viable migration path from PPCs to Ethernet services, which it considered is hampering migration. C&WW was also concerned about PPC to Ethernet migration but thought that a new regulatory focus is required on migration and switching arrangements for business connectivity services more generally; and
- concerns were raised about Project Services which is a premium project management service offered by Openreach. This service is available to all CPs but is apparently used mainly by BT. CPs were concerned that this service may be unregulated and that it may offer much better terms than available with the standard AI products and that as BT is the main user those terms may be discriminatory.

11.63 A number of more wide ranging points were made about Ofcom's approach to remedies and the relationship between the remedies and the Undertakings. These were:

- UKCTA and C&WW argued for a more prescriptive approach to remedies compared with the 2007/8 Review arguing that Ofcom had not been sufficiently clear about some of the remedies in the 2007/8 Review and not put in place specific obligations with implementation dates. As a result BT had not implemented all of the remedies that CPs expected and had implemented other remedies such as AI TANs in an unsatisfactory manner;
- UKCTA suggested that Ofcom could clarify the role of the Undertakings and the SMP Conditions in the business connectivity market. Occasionally, BT has argued that the Undertakings take precedence over SMP Conditions; and
- C&WW argued that EOI services would only address competition concerns in cases where BT consumes the same inputs as CPs and would be ineffectual if for example BT mainly purchased 40Gbit/s backhaul circuits and CPs 10Gbit/s circuits. C&WW argued that Ofcom should consider the implications of the bandwidth pricing on competition.

Synchronisation of mobile Ethernet backhaul

11.64 In response to the CFI, Fujitsu commented that the only differentiator of mobile backhaul from generic Ethernet access is the requirement for synchronisation. This view was supported by all the MNOs and some of the major CPs (BT, C&WW, and [X X]) during our subsequent discussions.

⁵⁸ BT has temporarily removed these restrictions awaiting clarification from this market review.

Ofcom's considerations of the issues

11.65 Based on the analysis of the current context of competition, the CFI responses, and our discussions with stakeholders, we consider that the specific issues that need to be addressed in relation to AISBO remedies are:

- in relation to refusal to supply:
 - provision of Ethernet access, Ethernet backhaul and Ethernet end-to-end specific products;
 - provision of integrated Ethernet access and backhaul;
 - provision of new forms of Ethernet interconnection (high-density handover product);
 - provision of specific backhaul products for mobile networks, e.g. SyncE;
 - availability of space and power available in BT's exchanges.
- in relation to non-price discrimination:
 - potential restriction of circuit routing rules so that CPs are forced to adopt inefficient network topologies;
 - design of adequate switching and migrations processes;
 - potential adoption of delaying tactics in product development processes;
 - potential discriminatory behaviour through Openreach Project Services.
- in relation to pricing:
 - concerns about excess construction charges.

11.66 We discuss these points in turn below.

Whether specific remedies for Ethernet access, backhaul and end-to-end are required

11.67 At the time of Ofcom's Telecoms Strategic Review⁵⁹, there was a prospect that convergence brought about by NGN deployment might in future generate additional opportunities for competition in backhaul since CPs would be able to aggregate different types of traffic, hitherto carried on service specific platforms, onto common backhaul circuits from BT local exchanges. In particular, we envisaged that by combining LLU backhaul with backhaul for other services, CPs might gain sufficient scale to support sustainable investment in competing infrastructure to provide backhaul circuits to BT exchanges.

11.68 We sought to promote such investment, and therefore, BT's Undertakings committed BT to introduce separate Ethernet access and backhaul services to allow CPs to aggregate leased lines and broadband traffic at BT's local exchanges. We continued

⁵⁹ See for example Ofcom final statement of the Strategic review of Telecommunications <http://stakeholders.ofcom.org.uk/binaries/consultations/752417/statement/statement.pdf>

to support investment in competing backhaul infrastructure in the 2007/8 Review, although we did not place specific SMP obligations on BT in this respect.

- 11.69 Our analysis in the current review indicates that convergence has not developed to the extent envisaged. This is because most CPs, with the notable exception of BT, tend to specialise in either the consumer or the business markets and thus have fewer opportunities to aggregate different types of traffic.⁶⁰
- 11.70 In the Telecom Strategic Review we have also set out our intention to promote infrastructure competition where it is effective and sustainable. On this basis our regulations have favoured the provision of separate regulated access and backhaul products so that CPs have the possibility to exploit economies of scale of their networks and, where sustainable, invest in their own backhaul.
- 11.71 In light of the above, we consider it is appropriate to require BT to provide Ethernet access and Ethernet backhaul and we are proposing to introduce specific SMP conditions in this regard. The aim of these requirements would be to ensure that BT continues to supply disaggregated Ethernet access and backhaul. Due to pre-existing regulation, CPs have developed their business models around the availability of disaggregated Ethernet services and their withdrawal would be extremely disruptive to CPs and consumers.
- 11.72 For similar reasons, we also consider it is appropriate to require BT to provide short range end-to-end wholesale services. BT already supplies such services, subject to a 25km radial distance limit (as set out in the Undertakings). Such services provide a more efficient solution for short range services than constructing services using terminating segments and consequently their withdrawal would be disruptive for CPs. We consider that the 25km limit is reasonable as CPs can use other access products efficiently to deliver longer range services.

Whether an integrated access and backhaul Ethernet product is required

- 11.73 As noted in paragraph 11.62, one of the concerns about the current low bandwidth AISBO product set cited by CFI respondents is that Openreach has not provided an integrated access and backhaul product that would allow CPs to achieve national coverage by interconnecting with BT at the 56 TANS. Currently, CPs must establish POPs at ASN exchanges and install aggregation equipment in order to use EBD circuits.
- 11.74 The unit cost of EBD backhaul is significantly lower than point-to-point fibre based services such as EAD so we would be concerned if the lack of an integrated product created a scale barrier that prevents CPs from making use of EBD services to the same extent as BT should they wish to do so. However, this does not appear to be the case. For example, EBD 1Gbit/s rental charges are either lower or are comparable with EAD 10Mbit/s and 100Mbit/s rental charges in typical deployment scenarios. This suggests that there is a strong case for using EBD services for backhaul rather than EAD services.
- 11.75 On this basis, it is not clear to us that there is a significant scale barrier that would prevent CPs using the disaggregated products to achieve national coverage and therefore there does not seem to be a strong case for requiring BT to introduce one, particularly as CPs are likely to prefer to deploy their own aggregation equipment as it gives them additional flexibility to define service characteristics. More generally,

⁶⁰ We give an overview of the CPs active in this market in section 2.

since all of the regulated products in this market are currently available on the basis of EOI, there do not appear to be any other barriers to CPs making greater use of EBD services with the exception of the accommodation and circuit routing issues, which we discuss further in Section 13 and paragraphs 11.84 to 11.95 respectively.

New forms of Ethernet Interconnection (high-density handover)

- 11.76 CPs have submitted several requests to BT for new forms of Ethernet interconnection. These include the Ethernet aggregation development that was part of the OICs, a more recent development request known as ‘high density handover’⁶¹ for IBH interconnection⁶² and also a request for an ISH interconnection⁶³ option. All of these requests have a common theme which is a requirement for aggregation of Ethernet circuits for handover. This would enable multiple Ethernet circuits to be handed over to CPs on a single high bandwidth handover link rather than as individual circuits. This functionality is the standard method of handover for TI services but is not currently available for BT’s AI services.
- 11.77 Aggregated handover has the potential to make interconnection more efficient by reducing the overall amount of equipment required (and as a result reduce the amount of space and power consumed) and therefore to reduce costs. It could also help reduce pressure on space in BT exchanges which as noted in paragraph 11.60 is a concern for CPs. An aggregated ISH handover option would be better suited to CPs with extensive network infrastructure and would enable CPs to interconnect at BT exchanges where no space is available.
- 11.78 Two of the three solutions analysed in the Openreach feasibility study propose to aggregate multiple CPs’ EAD circuits by means of an Ethernet switch deployed and managed by Openreach. Openreach would then deliver multiple EADs to each CP aggregated onto high bandwidth links.
- 11.79 Given the potential benefits we consider it important that Openreach works with CPs to develop these new forms of interconnection as soon as reasonably possible so that deployment could proceed and CPs could begin to benefit from these enhancements.

Whether there a need for any further intervention to support mobile backhaul

- 11.80 We do not consider it necessary to introduce a specific obligation requiring BT to provide mobile backhaul. As discussed in paragraphs 11.51, MNOs will use either generic carrier Ethernet services or variants that support synchronisation capabilities, both of which fall within the scope of the wholesale low bandwidth AISBO markets. We consider that the proposed Ethernet Access and Backhaul obligations together with the obligation for BT to provide services on an EOI basis will be sufficient to address any competitive concerns. As noted above, Openreach is preparing to launch a SyncE variant of EAD that will be available to other CPs on an EOI basis.
- 11.81 Some CPs have expressed concern that BT has refused them access to reference clock sources at local exchanges. They argue that they should also have access to these timing sources from which BT derives the timing information that it adds to

⁶¹ Statement of Requirements 8166

⁶² i.e. for interconnection at collocation space rented by a CP in a BT exchange

⁶³ i.e. interconnection in a manhole adjacent to a BT exchange

mobile backhaul services (at BT local exchanges) for onward transmission to mobile base stations for synchronisation purposes.

- 11.82 We would be concerned if CPs were unable to self-provide timing information in a manner that would allow them to compete effectively with BT. However, from the information available to us it is not clear why CPs could not reasonably self provide timing information at their POPs at BT local exchanges (for example by distributing timing information across their own backhaul networks). We also note that Openreach is working with CPs to resolve any contractual issues with co-location space that may impede timing distribution. Consequently there does not seem to be a strong case for requiring BT to provide access to timing information. However we would welcome stakeholder views about this.

Availability of space and power in BT's local exchanges

- 11.83 We acknowledge that accommodation services such as space and power in BT's local exchanges are an important element of the regulated services that BT provides in the AI market. In Section 13 we discuss stakeholders' concerns about the availability and allocation of accommodation services in more detail.

Circuit routing restrictions

- 11.84 In defining remedies to address BT's market power in the 2007/8 Review, we reflected on how competition downstream of the AISBO market could develop further.
- 11.85 We considered that operators could benefit from economies of scale by building networks in a manner designed to exploit opportunities to aggregate traffic. In our view, CPs could realise economies of scale in the core of their networks to a much greater extent than in the access segments.
- 11.86 A number of CPs had built core networks by establishing points of presence in main population centres and had connected them with high-capacity resilient links. We considered that a CP's choice of location for a point of presence would be driven by the number and concentration of customers it served in the area. Similarly, the design of a core network connecting those points of presence would be driven by the scale of traffic to be transmitted between the different areas. We observed that BT's network design had then established 106 main core nodes, which aggregated traffic from all the different services.
- 11.87 Our inference on how competition would work in the AI market was mainly based on the observations of the TI market. For the TI market, we noted that, in most circumstances, a CP would not locate (i.e. interconnect with BT) at more than one Tier 1 node in close proximity to another Tier 1 node within the same urban area. A CP would do so only if there was a sufficient volume of traffic within a particular urban centre to justify additional interconnection and therefore opportunities to exploit the economies of scale.
- 11.88 Therefore, our decision on the boundary between trunk and terminating segments in AI services was based on CPs' typical choice of interconnection, rather than on the location of core nodes in BT's network. In particular, we considered that it would be sustainable for a CP to reach national coverage in the AI market by interconnecting its core network with BT at just 56 different points, rather than at all 106 of BT's core nodes. For this purpose we grouped BT's 106 core nodes into 56 regional groups known as Trunk Aggregation Nodes (TANs).

- 11.89 When BT subsequently introduced its EAD service it defined geographic catchment areas for each TAN based on the exchanges 'served' by each ASN (strictly those exchanges that can be reached from each ASN by EAD circuits subject to the distance limits imposed by BT). It then initially barred EAD circuit routings that crossed the boundaries of these TAN areas except for end-to-end circuits (i.e. those between two end-user premises). Following discussions with CPs, these restrictions were subsequently suspended. However, CPs regard them as unduly restrictive and remain concerned that BT may reintroduce them.
- 11.90 The basis for the restrictions applied by BT is that EAD circuit routings that cross one of the TAN boundaries, as defined by BT, contain a trunk segment, which BT is not obliged to provide.
- 11.91 Having carefully considered this issue, we think we should clarify the rules concerning routing between trunk aggregation nodes in the AI market.
- 11.92 For AI services, we define trunk segments as circuits between aggregation nodes rather than circuits routed between the catchment areas served by those aggregation nodes. Thus circuits that cross a catchment area boundary do not necessarily contain a trunk element. This differs from the approach in TI markets (as discussed in Section 6). On this basis, we believe it is inappropriate to bar EAD circuits or other point-to-point circuits such as WES & BES from crossing the TAN boundaries. These are indeed point-to-point circuits that do not use any trunk element.
- 11.93 Furthermore, restrictions on point-to-point Ethernet circuits crossing catchment areas are likely to limit CPs' freedom to aggregate circuits in locations other than the ASN exchanges that BT has chosen for its own backhaul network and may therefore limit their ability to utilise their own network assets for backhaul. Such an outcome would be contrary to our objective of encouraging competition in backhaul. Therefore in our view, the TAN crossing restrictions should not be reintroduced in their current form.
- 11.94 In our view, the technical transmission limits which limit circuit radial distances (currently to 25km for the standard products and 35km for the extended reach products) should be sufficient to ensure that those products are not used to provide trunk connections. However we consider that it may be unnecessarily restrictive to specify distances limits in the SMP conditions since the technical capabilities of the equipment may change from time to time. We therefore propose to adopt a more flexible approach and to require BT to provide circuits within TAN areas and between adjacent TAN areas.
- 11.95 In the interest of transparency, we have clarified the circuit routing rules in the SMP conditions. In particular we have:
- i) Defined access segments, backhaul segments, end-to-end segments and trunk segments;
 - ii) Specified that BT is required to provide access segments, backhaul segments, end-to-end segments but not trunk segments; and
 - iii) Specified that BT is required to provide access segments and backhaul segments that cross boundaries between adjacent TAN areas.

Migration and switching processes

- 11.96 Given the likely volume of migration from TI to AI services over the next few years, we have considered whether migration arrangements could smooth this transition by minimising service interruptions and migration costs. However it appears to us that the opportunities to do this may be fairly limited. First, many businesses are likely to prefer the conventional approach, whereby a new service is installed alongside the existing service as it provides the greatest assurance that the service interruption will be kept to a minimum. Secondly, whilst some aspects of migration arrangements might offer savings (for example through reuse of access network fibre) other aspects might be more costly than standard provision/cessation arrangements (for example simultaneous intervention at multiple points in a circuit to minimise service interruption).
- 11.97 We consider that Openreach should continue to explore opportunities for TI to AI migration processes in conjunction with CPs, and provide further explanation about its reasons for rejecting the PPC/RBS to Ethernet upgrade path development that was part of the OICs.

Openreach's product development process

- 11.98 Several CPs have told us that they are concerned about the operation of Openreach's product development process for AISBO services. They have the following specific concerns:
- CPs consider that Openreach has been slow to develop its product set to meet CPs' requirements and, in particular, has not delivered Ethernet aggregation and TI migration products as originally requested by industry as part of the OICs;
 - there is a widespread view amongst CPs that Openreach operates the product development process in a discriminatory manner, favouring the developments required by BT's downstream divisions over those required by other CPs;
 - the product development process, and particularly the initial evaluation of product development requests, is regarded as too slow. CPs consider that Openreach incorrectly classifies requests as commercial requests and consequently does not process them in accordance with the timetable and notification requirements specified in its regulatory obligations;
 - CPs consider that Openreach has unreasonably refused product development requests on the grounds that forecast product volumes would be insufficient or that developments would not be financially viable; and
 - CPs consider that Openreach has unreasonably refused product developments on grounds that BT Wholesale already provides unregulated services with similar functionality.
- 11.99 During the last few years, the industry, in cooperation with the OTA, has made significant improvements to the operational aspects of the product development process, particularly in relation to the coordination of requests by CPs to develop a shared vision of the developments that industry requires. For example, the SoR process has recently become more transparent: authorised CPs are now able to access the SoRs submitted by other CPs, decide to support them or simply follow Openreach's progress on each requirement. According to current arrangements, the industry discusses SoRs related to Ethernet products and systems in industry fora

where CPs can engage with Openreach, articulate the rationale and details of their requirements and follow up on Openreach progress and conclusions. The OTA attends these meetings to facilitate discussion among industry stakeholders and help find solutions where issues arise.

11.100 The OTA has recently completed a review of Openreach's SOR process, covering all SORs submitted in 2010 and 2011 across all products managed by Openreach (i.e. including products outside the business connectivity markets such as WLR as well as Ethernet products). In relation to Ethernet-related SoRs, the OTA noted that there were similarities in the number of SoRs submitted by BT and CPs. However, there were differences in the time taken to process requests. In particular the OTA noted that SoRs from CPs that are still open, i.e. either being discussed or 'in development' have been in this state for an average of 479 days compared with 365 days for BT downstream businesses. To some extent, the differences appear to relate to the subject matter of the requests; however, the OTA has recommended Openreach some changes to improve the SoR process.

11.101 Whilst we acknowledge there are concerns about the operation of the product development process for AISBO services, they appear to be mostly operational in nature, relating to how individual requests are processed. We therefore consider that generally these concerns could not easily be addressed by changes to the SMP conditions. In our view, the New Network Access obligations together with the obligation not to discriminate unduly (which as we discuss in paragraph 11.135 will require EOI) already provide a clear framework under which BT must operate.

11.102 We therefore consider these concerns are best addressed at an operational level in the industry fora and in cooperation with the OTA. In cases where this proves unsuccessful, concerns can be escalated to Ofcom either informally or formally through the disputes and complaints processes.

11.103 However, we consider it would be useful to clarify that we do not regard it as appropriate for Openreach to process some product development requests in accordance with its commercial process which has a more flexible timetable than that specified in the New Network Access SMP conditions. This condition, both in its existing and proposed form, applies generally to requests for new product developments in the low bandwidth AISBO markets and we would therefore expect that all requests relating to services within this market (such as an Ethernet access or backhaul service or an associated interconnection/handover service at bandwidths up to 1Gbit/s) to be processed in accordance with this obligation, even where they may be some overlap with unregulated services provided by other parts of BT. We would therefore expect Openreach to process requests in accordance with the timetable specified in the condition. In particular, if there is no need to carry out a feasibility study BT must respond within 15 working days. If a feasibility study is required BT must provide a response within 60 working days or exceptionally 85 working days. BT may only extend the timescale beyond 85 working days with agreement of the requestor or Ofcom.⁶⁴

Openreach Project Services

11.104 Project Services is a project coordination and management service provided by Openreach. It can be used to coordinate the provision of business connectivity

⁶⁴ The condition provides for an extended timeline in cases where the need for a feasibility study is identified later in the process.

services and also other Openreach services including projects containing a mix of services.

11.105 As Project Services is available to BT and CPs on an EOI basis, it seems unlikely that the current arrangements are discriminatory. We note that in 2011, in response to a request from industry, the Equivalence of Access Office (EAO) investigated Project Services, concluding that BT had complied with its EOI obligations in the Undertakings in respect of Project Services.

11.106 Although some aspects of Project Services are generic project management and coordination activities, it is unlikely that CPs could fully replicate the service as they would not have the internal knowledge of Openreach processes or have access to Openreach systems and personnel which Project Services is able to draw on. We therefore consider that when purchased in conjunction with regulated business connectivity services Project Services should be regarded as a provisioning option for the service being purchased rather than downstream activity. Consequently when Project Services are provided in such circumstances they will be subject to the SMP conditions that we are proposing for this market, including the EOI requirement that we are proposing as part of the obligation for BT not to discriminate unduly.

Excess construction charges

11.107 UKCTA, C&WW and Verizon raised concerns about Excess Construction Charges (ECCs) which are levied by BT whenever customer-specific network construction work is required in association with an order. The issues fall into four categories:

- i) level of ECCs – CPs are concerned that ECCs may be overpriced as ECCs are higher than commercial construction rates;
- ii) accounting treatment – CPs are concerned there may be an element of double counting if BT capitalises the assets which have been charged to CPs in ECCs;
- iii) efficient design – CPs argue that BT's current practice of serving business sites from remote fibre flexibility points is inefficient and BT should install internal fibre flexibility points in business sites as a matter of course; and
- iv) unequal treatment – One CP was concerned that BT may not treat internal orders in the same manner as external orders.

11.108 We will cover the first two points in the LLCC Consultation, which we intend to publish shortly.

Efficient design

11.109 BT levies ECCs for access network extensions that are specific to an individual customer. In the case of fibre based services such as Ethernet services this generally equates to network extensions between the serving fibre flexibility point (analogous to a Distribution Point (DP) in BT's copper access network) and the customer premises. Fibre flexibility points may be external (located in underground structures in the access network) or internal (located within business premises). Extensions to the common parts of BT's network, such as the installation of a new fibre flexibility point, are not charged as ECCs even when undertaken to fulfil a customer order.

11.110 We have sought information from BT about its network design policy. BT has explained that it extends its fibre access network on a reactive basis (i.e. in response

to customer orders) and that its design policy is to adopt an efficient design that maximises the common parts of the network. Thus, a new flexibility point would be considered where there is likely to be future demand for fibre based services in a particular locality. In practice, when deciding whether a new fibre flexibility point is warranted, planners are expected to exercise their judgment about future demand for fibre based services.

11.111 Until recently, BT had not routinely installed internal fibre flexibility points in multi-floor and multi-tenant buildings. CPs argue that it would be more efficient for BT to install fibre flexibility points as further orders are likely in such buildings. BT has supplied us with analysis which appears to demonstrate that historically at least; it was uncommon for BT to receive orders from more than one customer at business sites.⁶⁵

11.112 BT has recently changed its policy about internal fibre flexibility points. This now specifies that they should be installed at multi-floor and multi-tenanted buildings where a secure common area is available to site the flexibility point and permission can be obtained from the building owner to use it.^{66, 67}

11.113 We welcome the changes that BT has made to its network design policy which we consider should go some way to addressing CPs concerns.

Unequal treatment

11.114 We have sought further information from BT about the incidence of ECCs and have focused our analysis on Ethernet services as they account for the bulk of new orders. Information provided by BT for the period April to September 2011 shows that 30% of EAD orders incurred ECCs and that both the incidence and average value of ECCs incurred by BT are slightly higher than for CPs. This does not suggest that ECCs are being applied in a discriminatory manner.

Proposed Remedies

11.115 In this sub-section we set out our proposed remedies for the AISBO markets.

Interconnection and accommodation services

11.116 In order to use the wholesale AISBO services that BT provides in these markets CPs also require certain interconnection and accommodation services. To achieve an overall solution we consider that it is necessary to regulate the provision of these ancillary services, in the absence of which, we consider BT would have an incentive to refuse to supply or to supply in a discriminatory manner, for example by charging excessive prices.

11.117 Network access is defined in sections 151(3) and (4) of the Act and includes interconnection services and/or any services or facilities that would enable another CP to provide electronic communications services or electronic communication networks. We consider that a requirement to provide network access would,

⁶⁵ This analysis examined a sample of sites where a fibre bundle was installed in 2005. In the following 5 years a further fibre bundle was installed in only around 10% of these sites.

⁶⁶ This policy applies to all multi-floor/multi-tenant buildings, including those already served with fibre without a flexibility point. New flexibility points are installed when an order is received.

⁶⁷ BT has provided us with a copy of its planning policy for reactive provision of access network fibre for point-to-point services which appears consistent with this approach.

therefore, include any ancillary services as may be reasonably necessary for a Third Party to use the services. Consequently, each of the obligations that we propose below for these markets also applies to the provision of accommodation and interconnection services that are reasonably required by CPs in connection with the provision of the regulated services.

11.118 In section 13 we discuss whether BT should be required to provide specific types of interconnection services.

Requirement to provide network access

Aim of regulation

11.119 As a result of its SMP, we consider that it is appropriate to impose a requirement for BT to meet reasonable requests for network access. We consider that, in the absence of such a requirement, BT would have an incentive not to provide such access, and would be able to monopolise the provision of services in the downstream markets.

Legal tests

11.120 We set below how we consider we have satisfied the relevant legal tests, both for the general requirement for providing network access and for the two further specific network access obligations we propose to impose.

Specific remedies for the provision of Ethernet access, backhaul and end-to-end services

Aim of regulation

11.121 In addition to the general requirement of providing network access, we propose to introduce the following specific network access obligations:

- a requirement to provide Ethernet access;
- a requirement to provide Ethernet backhaul; and
- a requirement to provide short range end-to-end services.

11.122 We propose to introduce these new specific remedies as part of the SMP obligations to ensure that BT keeps supplying wholesale disaggregated access and backhaul Ethernet services and short range end-to-end services. In view of the concerns about the circuit routing restrictions (discussed above) we have also specified in more detail the circuits that BT is required to provide.

11.123 In the absence of these requirements, we consider BT would have an incentive to withdraw or no longer supply disaggregated products and make different products available under the general requirement of network access. In our view, this would be significantly disruptive to industry which, due to pre-existing regulation has developed its business models around the availability of disaggregated Ethernet access and backhaul.

Legal tests

Section 87 of the Act

11.124 Section 87(3) of the Act authorises the setting of an SMP services condition requiring the dominant provider to provide such network access as we may, from time to time, direct. These conditions may, pursuant to Section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and for securing that the obligations in the conditions are complied with within periods and at the times required by or under the conditions.

11.125 When considering the imposition of such conditions in a particular case, we must take into account six factors set out in Section 87(4) of the Act, including *inter alia*:

- the technical and economic viability of installing and using other facilities, including the viability if other network access products whether provided by the dominant provider⁶⁸ or another person⁶⁹, that would make the proposed network access unnecessary;
- the feasibility of the proposed network access; and
- the need to secure effective competition, including where it appears to us to be appropriate, economically efficient infrastructure based competition, in the long term.

11.126 In proposing the general, and specific, network access conditions set out above, together with the directions we consider are necessary to impose, we have taken all these six factors into account.

11.127 The definition of access and the way in which we might assess reasonable demands for access are set out in our Access Guidelines.⁷⁰ We consider it is appropriate in cases where we propose a CP has SMP (such as BT in this case) to impose an access obligation on that provider requiring it to meet all reasonable requests for network access within the relevant wholesale market, irrespective of the technology required, on fair and reasonable terms, conditions and charges.

11.128 As discussed in our SMP assessment, there are considerable sunk costs associated with building networks to provide leased lines services. We consider it is unlikely to be economically viable or efficient to build competing access networks on a sufficient scale to provide effective constraint on BT's SMP in the downstream markets.

11.129 Therefore, we are currently of the view that requirements for BT to provide general and specific network access are appropriate. They facilitate competition in downstream markets by enabling CPs to compete without the need to invest in a network, an investment which we consider, on the basis of our market analysis, represents a structural barrier to entry and expansion in the AISBO markets. Consequently, we consider these requirements are necessary for securing effective

⁶⁸ i.e. in this instance BT.

⁶⁹ i.e. other CPs.

⁷⁰ *Imposing access obligations under the new EU directives*, Ofcom, 13 September 2002, available at http://www.ofcom.org.uk/static/archive/ofcom/publications/ind_guidelines/acce0902.pdf

competition including economically efficient infrastructure based competition, in the long term. The requirements for BT only to meet reasonable network access requests also ensures that due account is taken of the technical and economic viability of installing and using other facilities, the feasibility of the proposed network access, and of the investment made by BT initially in providing the network.

Statutory duties under sections 3 and 4 of the Act

11.130 In addition to taking into account the six factors in section 87(4) of the Act, we consider these proposed network access obligations:

- further the interests of citizens in relation to communications matters and further the interests of consumers in the AISBO markets by promoting competition, in accordance with our general duty under section 3(1) of the Act;
- seek to achieve the objective of securing the availability throughout the UK of a wide range of electronic communications services, in accordance with our duty under section 3(2) of the Act;

11.131 In proposing these network access obligations, in accordance with our duty under section 3(4) of the Act, we have also had regard to:

- the desirability of promoting competition in relevant markets;
- the desirability of encouraging investment and innovation in relevant markets; and
- the desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom

11.132 We also consider the proposed network access obligations accord with the six European Community requirements for regulation, in particular by:

- promoting competition in the provision of electronic communications networks and services, associated facilities and the supply of directories; and
- encouraging the provision of network access and service interoperability, namely securing efficient and sustainable competition, efficient investment and innovation, and the maximum benefit for customers of CPs.

Statutory duties under sections 47 and 49 of the Act

11.133 Sections 47 and 49 of the Act require conditions and directions respectively to be objectively justifiable, non-discriminatory, proportionate and transparent. We consider the proposed conditions and directions are:

- objectively justifiable, in that they facilitate and encourage access to BT's network and therefore promotes competition to the benefit of consumers;
- not unduly discriminatory, as they are proposed only for BT and no other operator has been found to hold a position of SMP in this market;
- proportionate, since they are targeted at addressing the market power that we propose BT holds in this market and does not require it to provide access if it is not technically feasible or reasonable; and

- transparent in that the condition is clear in its intention to ensure that BT provides access to its networks in order to facilitate effective competition.

11.134 For all the reasons set out above, we consider that the proposed general and specific network access conditions are appropriate to address the competition concerns identified, in accordance with section 87(1) of the Act.

Requirement not to unduly discriminate and Equivalence of Input

Aim of regulation

Provision of Ethernet services on an Equivalence of Input basis

11.135 We consider that it is appropriate to impose a requirement on BT, as a result of our proposed finding of SMP in the AISBO markets, not to discriminate unduly in the provision of network access. In particular, we consider it appropriate to require that Ethernet services are supplied to competitors on an Equivalence of Input (EoI) basis.

11.136 Article 8(1) of the Access Directive⁷¹ requires Member States to ensure that national regulatory authorities are empowered to impose certain obligations where an operator is designated as having SMP. These include, under Article 10 of the Access Directive, obligations of non-discrimination. Article 10(1) provides that a national regulatory authority may: *“impose obligations of non-discrimination, in relation to interconnection and/or access”*. Article 10(2) further provides *“[o]bligations of non-discrimination shall ensure, in particular, that the operator applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services, and provides services and information to others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners”*.

11.137 Article 10 of the Access Directive is implemented into UK law by section 87(6)(a) of the Act which gives us a power to impose *“a condition requiring the dominant provider not to discriminate unduly against particular persons, or against a particular description of persons, in relation to matters connected with network access to the relevant network or with the availability of the relevant facilities”*. We consider any conditions imposed pursuant to this power require equivalence as per Article 10(2)⁷².

11.138 A non discrimination obligation is intended as a complementary remedy to the network access obligation, principally to prevent the dominant provider from discriminating in favour of its own downstream divisions and to ensure that competing providers are placed in an equivalent position. Without such an obligation, the dominant provider is incentivised to provide the requested wholesale network access service on terms and conditions that discriminate in favour of its own downstream divisions. For example, BT may decide to charge its competing providers more than the amount charged to its own downstream units or it might strategically provide the same services but within different delivery timescales. Both these behaviours could have an adverse effect on competition.

⁷¹ Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities.

⁷² This position is supported by our 2005 guidance on Undue discrimination by SMP operators where we state at paragraph 1.1 that *“in wholesale markets Requirements not to unduly discriminate (under the Act) have the same meaning, and describes the same concept, as an obligation of non-discrimination (under the [Access] Directive)”*.

11.139 Non discrimination can however have different forms of implementation.⁷³ A strict form of non discrimination – i.e. a complete prohibition of discrimination – would result in the SMP operator providing exactly the same products and services to all CPs (including its own downstream divisions) on the same timescales, terms and conditions (including price and service levels), by means of the same systems and processes and by providing the same information. Essentially, the inputs available to all CPs (including the SMP operators' own downstream divisions) would be provided on a truly equivalent basis, an arrangement which has become known as Eol. The concept of Eol was first identified in the Strategic Review of Telecoms in 2004/5⁷⁴ as one of our key policy principles to ensure that regulation of the telecommunication markets is effective. Following on from that review, a specific form of Eol was implemented in 2005 by means of the BT Undertakings.⁷⁵

11.140 On the other hand, a less strict interpretation of non discrimination may allow for flexibility and result in a more practical and cost-effective implementation of wholesale inputs in cases where it is economically justified. For example, we are proposing a less strict interpretation for the wholesale TISBO markets under which BT would be required to ensure that any discrimination is not undue and we are proposing to interpret this obligation in accordance with our guidelines of November 2005 on Undue discrimination by SMP providers (the Discrimination Guidelines).⁷⁶

11.141 We consider that Article 10 of the Access Directive as implemented by section 87(6)(a) of the Act provides a basis for imposing both Eol and a less strict interpretation of non-discrimination which prevents discrimination that is undue.

11.142 Determining which type of non-discrimination obligation would be appropriate to propose depends on the particular circumstances of the market under review. Clearly, requiring Eol in all cases could in certain circumstances lead to inefficiencies and, therefore, might in some cases be considered disproportionate. For example, in order to comply, the dominant provider may need to re-engineer existing products and processes, which could be both costly and disruptive. In our most recent Wholesale Local Access market review⁷⁷, we imposed Eol in relation to Virtual Unbundled Local Access (VULA). In summary, this remedy was considered appropriate and proportionate because:

- VULA was deemed to be the primary focus of competition in Next Generation Access;

⁷³The European Commission has recently undertaken a project with the aim to publish some guidelines on how to interpret and enforce non-discrimination obligations. The Commission's work is taking into account how non-discrimination obligations are currently implemented in the different member states and in Autumn 2011, on EC's request, Ofcom has filled a questionnaire on these topics.

⁷⁴http://stakeholders.ofcom.org.uk/binaries/consultations/telecoms_p2/summary/maincondoc.pdf

⁷⁵ Definition of Eol in the BT Undertakings: 'Equivalence of Inputs' or 'EOI' means that BT provides, in respect of a particular product or service, the same product or service to all Communications Providers (including BT) on the same timescales, terms and conditions (including price and service levels) by means of the same systems and processes, and includes the provision to all Communications Providers (including BT) of the same Commercial Information about such products, services, systems and processes. In particular, it includes the use by BT of such systems and processes in the same way as other Communications Providers and with the same degree of reliability and performance as experienced by other Communications Providers.

⁷⁶ <http://stakeholders.ofcom.org.uk/consultations/undsm/contraventions/>

⁷⁷ http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf

- it was a new product and did not require re-engineering of existing processes; and
- it provided an appropriate balance against the price flexibility allowed.

11.143 In the case of Ethernet services, we believe it is appropriate to require that Ethernet services are delivered to competitors on an Eol basis. This is because:

- Ethernet access and backhaul products are upstream inputs to two major retail telecommunication markets – the broadband market and the retail AI leased lines market. Our wholesale regulation must aim at ensuring there is a level playing field for competitors in both these markets. The availability of wholesale inputs on an Eol basis would seek to prevent BT engaging in discriminatory practices that could adversely affect competition and ultimately cause detriment to citizens and consumers;
- prohibiting undue discrimination while stopping short of Eol could result in BT providing competitors with a different set of products to those it provides to itself, potentially using different processes and systems for their development, delivery, maintenance and repair. While this may not be unduly discriminatory (depending on the precise circumstances), it would fall short of true equivalence and could undermine effective competition. For example, it may act as an impediment to improved products being made available equally promptly to BT and to its competitors. It is therefore necessary, in our view, to require provision on an Eol basis in addition to the prohibition of undue discrimination;
- Openreach Ethernet services are still subject to further product development and quality enhancements and we consider Eol consumption provides the right incentives on BT to implement the changes and make better product variants available to both its downstream divisions and competitors. Discrimination in favour of downstream divisions is not necessarily related to setting different prices for the same wholesale inputs. There are other forms of discrimination which are often referred to as *non-price discrimination*. Without Eol, the dominant provider may be incentivised to supply products with different levels of quality – e.g. different SLAs and SLGs, providing fault repair of products on different timescales, creating new variants to fulfil the requirements of its downstream division, and taking longer to address, or avoiding addressing, the requirements of its competitors. All these aspects are crucial to compete in the Ethernet business connectivity market and we consider Eol can address any such potential issue; and
- due to the current requirements in the Undertakings, it is BT's current practice to supply Ethernet access and backhaul circuits on an Eol basis by means of its access division Openreach. We therefore consider that imposing a very similar requirement in the market review would not be onerous as it would not require BT to re-engineer existing systems and processes.

11.144 In light of the above, we consider requiring BT to provide Ethernet services on an Eol basis is proportionate in that:

- it addresses BT's ability and incentive to engage in discriminatory practices that could adversely affect competition and ultimately cause detriment to citizens and consumers;
- it is necessary to address this competition problem;

- we do not consider imposing a less strict interpretation of non-discrimination would be effective in addressing this competition problem; and
- we do not consider that imposing EoI would have adverse effects which might be disproportionate to the aim this requirement would be intended to achieve.

No undue discriminatory discounts

11.145 The obligation not to discriminate unduly will also apply to pricing discounts.

11.146 First, in relation to volume discounts we recognise that these would very often in practice constitute undue discrimination since BT's retail arm would almost inevitably be the main beneficiary and there is therefore a strong potential for anti-competitive effects. However, we believe that this point is well understood by CPs and do not consider a change in the obligation is required specifically to reflect this.

11.147 Secondly, in relation to geographic discounts:

- as discussed in Section 5, we have conducted a detailed geographic analysis of each of the retail and wholesale product markets. Our analytical framework for this analysis focused on the presence of common pricing constraints and geographic variations in competitive conditions. On the basis of this analysis, we note that for the geographic markets where we have found SMP, the underlying costs and competitive conditions will not be completely homogenous throughout the UK (even outside the WECLA). This suggests that some freedom to charge in a way that reflects more accurately the costs incurred and to respond to the local characteristics of competition that exist in these markets would be efficient. Moreover, given the level of cost differences that may exist and the extent of competition in some areas, BT's ability to compete could be limited if it were required to maintain nationally uniform prices. Hence, geographically differentiated prices may reflect BT responding legitimately to cost differences in the face of competition; and
- we therefore consider that geographic discounts may or may not be unduly discriminatory depending on the circumstances. In the event of an allegation of offering unduly discriminatory geographic discounts, we would judge each alleged breach of the no undue discrimination obligation on a case by case basis.

11.148 In the LLCC Consultation we will consider how geographic discounts should be treated in the proposed charge controls and in particular whether it is appropriate to place any constraints on the geographic discounts that BT may offer.

11.149 Thirdly, in relation to term discounts:

- in principle, we consider this form of discount could raise competition concerns – for example if BT's downstream operations were at an advantage compared to downstream competitors. In principle, the largest beneficiary of term discounts could be BT's downstream operations, as they may see no commercial disadvantage in being contractually tied to BT's wholesale services for a lengthy period of time. If so, it could provide BT with the ability to undercut downstream competitors in ways that they could not match (where those competitors rely on wholesale services from BT, but do not wish to sign up to the discounts);

- term discounts may increase the barriers to entry/growth for upstream competitors to Openreach, if purchasers of wholesale services are tied into longer term contracts (and so increasing the switching costs);
- it is not necessarily the case, however, that we should automatically view all forms of term discount as harmful to consumers; and
- we therefore consider that term discounts may or may not be unduly discriminatory depending on the circumstances. In the event of an alleged breach we would judge each alleged breach on a case by case basis.

11.150 In the LLCC Consultation we will consider whether there should be any restrictions on the term discounts that BT may offer and how they might be taken into account in setting the price control.

Legal tests

11.151 We are satisfied that the proposed conditions (as set out in Annex 14) meet the relevant tests set out in the Act.

11.152 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the conditions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by preventing BT from leveraging its SMP into related downstream markets.

11.153 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions are:

- objectively justifiable, in that they provide safeguards to ensure that competitors, and hence consumers, are not disadvantaged by BT discriminating unduly in favour of its own downstream activities or between different competing providers;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate since it only seeks to prevent discrimination that would adversely affect competition and ultimately cause detriment to end-users; and
- is transparent in that the conditions are clear in what they are intended to achieve.

Direction relating to service level guarantees

Aim of regulation

11.154 As a consequence of BT's control of wholesale infrastructure in these markets, CPs depend on BT for the provision of wholesale services which are able to support efficient and reliable end-user services. Whilst EOI requirements give BT some incentive to deliver efficient and reliable services to CPs (as its own downstream

divisions must also use them), in previous work we have concluded that further measures are required to incentivise good performance.⁷⁸

11.155 In particular, we think it is important that the contractual arrangements for the wholesale products CPs buy from BT in this market are such that:

- they incentivise the efficient provision of reliable services to BT's wholesale customers;
- they set out fair and reasonable compensation payments for delays in delivery and repair of such services; and
- they allow BT and its wholesale customers to monitor effectively the performance of BT's provision and repair of wholesale regulated products.

11.156 In order to achieve these objectives, contractual arrangements need to include:

- a set of Service Level Agreements (SLAs) which reflects the commercial SLAs provided to end users of Alternative Interface leased lines; and
- a set of Service Level Guarantees (SLGs) which sets out fair and reasonable compensations for delays in delivery and repair of such services.

11.157 In support of these objectives, in the 2007/8 Review we issued a direction under the network access condition specifying the SLG compensation arrangements for services BT provides in this market. The direction applied principles established in earlier SLG work.⁷⁸ We consider that these principles are still valid and therefore that it is appropriate to reapply the direction. The direction would require BT to:

- pay compensation for orders not delivered by the Contractual Delivery Date (CDD) or the Customer Requirements Date (whichever is later);
- pay compensation for faults not repaired within 5 hours;
- pay SLG compensation payments proactively;
- not to apply any limits to compensation payments; and
- make compensation payments without prejudice to any right of CPs to claim for additional losses.

Legal tests

11.158 We are satisfied that the proposed direction (as set out in Annex 15) meet the relevant tests set out in the Act.

11.159 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the conditions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by the implementation of an SLG regime that will incentivise BT to provide good quality of service to CPs.

⁷⁸ Service level guarantees: incentivising performance
http://www.ofcom.org.uk/media/news/2008/03/nr_20080320

11.160 Secondly, section 49 of the Act requires directions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions are:

- objectively justifiable, in that it requires BT to adopt an SLG regime that will incentivise it to deliver good quality of services to CPs;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate since it only seeks to incentivise good quality of service that would adversely affect competition and ultimately cause detriment to end-users; and
- is transparent in that the conditions are clear in what they are intended to achieve.

Price controls

Aim of regulation

11.161 We propose to impose a charge control condition to address BT's ability and incentive to charge excessive prices.

11.162 Section 87(9) of the Act authorises the setting of an SMP services condition setting price controls for network access and relevant facilities. Section 88 of the Act specifies that Ofcom are not to set a price control unless it appears to Ofcom that there is a risk of adverse effects due to pricing distortions and it appears to Ofcom that setting a price control would promote efficiency, sustainable competition and confer the greatest benefits on the end users.

11.163 A price control can take a variety of forms⁷⁹ including but not limited to a charge control, cost orientation and/or safeguard cap.

11.164 In a competitive market, the charges for services would be set on the basis of the commercial judgements of individual companies and could be expected to deliver cost reflective prices. However, where a provider has SMP, competition cannot be expected to provide effective constraints and ex-ante regulation may be desirable to prevent charges from being set at an excessive level. Such intervention could also have as its objectives the aim of promoting efficiency and of allowing the development of effective competition in downstream markets.

11.165 In these markets BT has SMP and has an incentive and the ability to charge excessive prices. Excessive prices at the wholesale level could make it difficult for third party CPs to compete at the retail level with BT and in the long term, may result in market exit. Unjustifiably high wholesale charges are also likely to result in high retail prices – i.e. consumers would be paying more for a service than they should expect if wholesale prices were constrained by effective competition.

We propose to impose a charge control

11.166 Having identified this relevant risk of an adverse effect arising from price distortion in our market analysis, we consider that this risk should be addressed by the imposition of an appropriate charge control condition to apply for a period of 3 years following the completion of this market review and the charge control consultation process.

⁷⁹ As suggested by Recital 20 of the Access Directive.

11.167 Under Ofcom's preferred method of charge control regulation – RPI+/-X – incentives are created on the dominant provider to increase its efficiency, thereby imitating the effect of a competitive market. The charge control would result in prices being based on the projected costs for the provision of the services at the end of the period, taking into account efficiency improvements and possible future investment by BT that would be of benefit to consumers and citizens. If the firm can reduce its costs below the level expected when the cap was set, then the firm retains the increased profits, at least for the period the control is in place.

11.168 In this review we are proposing to define two distinct geographic markets outside Hull for wholesale low bandwidth AISBO services: the WECLA and the rest of the UK and we are proposing that BT has SMP in both markets. We consider that some form of price control is appropriate in both geographic markets. However, we also recognise that, due to the existence of alternative access infrastructure in the WECLA, there are better prospects for the development of competition in this market. On this basis, in determining what form of charge control to impose in each of these two geographies, we consider it appropriate to take account of the different competitive conditions. The form, scope and level of the charge control will be considered in the LLCC Consultation and will therefore be the subject of further consultation through that process.

11.169 Our initial view is that the scope of the charge control should encompass, with a few exceptions, charges for all of the services BT currently offers in these markets and would therefore include:

- charges for low bandwidth AISBO services in the UK excluding the Hull area and the WECLA;
- charges for low bandwidth AISBO services in the WECLA;
- mobile backhaul services such as the SyncE variant of EAD that BT is preparing to introduce (in the WECLA and in the UK excluding the WECLA and the Hull area);
- the interconnection and accommodation services that BT provides in connection with wholesale AISBO services in the WECLA and in the UK excluding the Hull area and the WECLA; and
- ancillary services including excess construction charges in the WECLA and in the UK excluding the Hull area and the WECLA.

11.170 Under our preferred method of charge control regulation we make provision for new services that substitute, wholly or substantially, existing services in a charge control basket to be added to the basket. This ensures that the dominant provider has an incentive to ensure that substitute services are at least as efficient as the ones they replace.

11.171 The scope of the proposed charge control is such that it would cover most of the services that BT provides in these markets during the three year period of this review. If however, BT were to introduce new services that fall outside the scope of the proposed charge control (i.e. services that do not wholly or substantially replace existing services) we would consider whether a price control obligation would be appropriate for those services.

Legal tests for charge control

11.172 We will set out the legal tests for the charge controls in the LLCC Consultation.

11.173 Nevertheless, we consider that in principle a charge control would meet the criteria set out in section 47(2) of the Act, since it is objectively justifiable, non-discriminatory, proportionate and transparent. This is for the reasons below. However, we will consult on this again when we consult on our specific charge control proposals shortly. At this time, we consider that a charge control is, in principle:

- objectively justifiable in that BT has SMP in these markets and we consider it is unlikely to be incentivised to reduce its costs and set prices at the competitive level;
- not unduly discriminatory in that BT is the only operator to have SMP in these markets;
- proportionate in that we will ensure that it will allow BT to make a return on investment whilst acting to constrain BT's ability to set prices above the competitive level which may result in consumers paying higher retail prices; and
- transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention.

11.174 For the reasons set out above, we consider that the imposition of a charge control would in particular further the interests of citizens and further the interests of consumers in relevant markets by the promotion of competition, in accordance with section 3 of the Act. Further, we consider that, in accordance with section 4 of the Act, a charge control obligation in particular promotes competition in relation to the provision of electronic communications networks and encourages the provision of network access for the purpose of securing efficiency and sustainable competition in downstream markets for electronic communications networks and services, resulting in the maximum benefit for retail consumers.

We propose not to impose cost orientation

11.175 In the 2007/8 Review we applied a cost orientation obligation for each of the wholesale AISBO services. The cost orientation obligations were intended to complement the charge controls by providing an additional safeguard about the level of individual charges, guarding against both excessive pricing and predatory pricing. Specifically BT was required to ensure that each and every charge was set on a cost-oriented basis, where the costs included in the charges are:

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

11.176 We consider that in this market we can address the risk of BT engaging in excessive pricing practices with a charge control. In particular, we can design charge control baskets and sub caps so that they constrain only charges about which we have particular concerns about excessive pricing. This would provide BT with greater

freedom to set individual charges subject to the constraints imposed by the basket and sub-caps. We will set out our reasoning in more detail in the LLCC Consultation.

11.177 We therefore propose not to apply a cost orientation obligation.

Transparency and notification obligations

Aim of regulation

11.178 BT is currently subject to the following SMP obligations, aimed at promoting transparency and ensuring non-discrimination:

- an obligation to publish a reference offer, including terms and conditions of provisioning and repair;
- an obligation to give 28 days' notice of price reductions and to give 90 days' notice of all other changes to prices, terms and conditions for existing AISBO services;
- an obligation to give 28 days' notice of the introduction of prices, terms and conditions for new AISBO services;
- a requirement to notify technical information with 90 days notice;
- an obligation to publish quality of service information, as directed by Ofcom; and
- obligations relating to requests for new network access.

11.179 These requirements are designed to support the non-discrimination obligation. These forms of discrimination are particularly relevant when dealing with a vertically integrated incumbent, as in BT's case. They are designed to ensure that BT does not use non-price discrimination to restrict competition in downstream markets.

11.180 In our view, since their imposition as a result of the 2007/8 Review these SMP obligations have been on the whole effective in supporting the non-discrimination obligation to address BT's ability and incentive to engage in anti-competitive discriminatory practices.

11.181 We therefore consider it appropriate to apply these obligations to BT.

Legal tests

11.182 Section 87(6)(a) of the Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons, or against a particular description of persons, in relation to matters connected with the provision of network access. Section 87(6) also authorises the setting of SMP services conditions that require the dominant provider to publish information about network access to ensure transparency and to publish terms and conditions.

11.183 We discuss each of the transparency obligations in more detail in the sub sections below.

Requirement to publish a Reference Offer

Aim of regulation

11.184 We propose that BT should be required to publish a Reference Offer (RO) for products in these markets.

11.185 A requirement to publish an RO has two main roles, namely:

- to assist transparency for the monitoring of potential anti-competitive behaviour; and
- to give visibility to the terms and conditions on which other providers will purchase wholesale services.

11.186 This helps to ensure stability in markets without which we consider incentives to invest might be undermined and market entry less likely.

11.187 The publication of a RO has an additional role in potentially allowing for speedier negotiations, avoiding possible disputes and giving confidence to those purchasing wholesale services that they are being provided on non-discriminatory terms. Without this, market entry might be deterred to the detriment of the long-term development of competition and hence consumers.

11.188 We consider the requirement to publish an RO imposed as a result of the 2007/8 Review has been effective in carrying out the three roles explained above. Therefore we consider it appropriate to impose the same requirement on BT in this market review.

11.189 The proposed condition requires the publication of a RO and specifies the information to be included in that RO (set out below) and how the RO should be published. It prohibits the dominant provider from departing from the charges, terms and conditions in the RO and requires it to comply with any directions Ofcom may make from time to time under the condition. The published RO must set out (at a minimum) such matters as:

- a clear description of the services on offer including technical characteristics and operational process for service establishment, ordering and repair;
- the locations of points of network access and the technical standards for network access;
- conditions for access to ancillary and supplementary services associated with the network access including operational support systems and databases etc;
- contractual terms and conditions, including dispute resolution and contract negotiation/renegotiation arrangements;
- charges, terms and payment procedures;
- service level agreements and service level guarantees; and
- to the extent that BT uses the service in a different manner to CPs or uses similar services, BT is required to publish a reference offer for in relation to those services.

Legal tests

11.190 We are satisfied that the proposed condition (as set out in Annex 14) meets the relevant tests set out in the Act.

11.191 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition firstly by ensuring that providers have the necessary information to allow them to make informed decisions about purchasing AISBO services in order to compete in downstream markets and by providing transparency in order to assist in the monitoring of anticompetitive behaviour.

11.192 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it requires that terms and conditions are published in order to encourage competition, provide stability in markets and monitor anti-competitive behaviour;
- not unduly discriminatory in that it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate in that only information that is considered necessary to allow providers to make informed decisions about competing in downstream markets is required to be provided; and
- transparent in that it is clear in its intention to ensure that BT publishes details of its service offerings.

Requirement to notify charges and terms and conditions

Aim of regulation

11.193 We propose that BT should be subject to an obligation to notify changes to its charges, terms and conditions.

11.194 Notification of changes to services at the wholesale level can assist competition by giving advanced warning to CPs purchasing wholesale services that also compete with the dominant provider in downstream markets. It also supports the non-discrimination obligation by ensuring that BT does not notify changes in a discriminatory manner. Notification of changes to charges therefore helps to ensure stability in markets without which we consider incentives to invest might be undermined and market entry made less likely. However, there may be some disadvantages to notifications, particularly in markets where there is some competition. It can lead to a 'chilling' effect where OCPs follow BT's prices rather than act dynamically to set competitive prices.

11.195 Currently the notification period for changes to prices, terms and conditions of existing products and services in these markets is 90 days and 28 days for new network access reflecting the lower administrative impact of the introduction of new services.

11.196 As discussed in section 10, BT's view is that the notice period should be reduced to 28 days, to align it with the notice period Ofcom applies in the wholesale broadband access market. BT argues that 28 day notice is now standard commercial practice for

wholesale services and would therefore not inconvenience CPs. BT also argues that reduced notice periods would make it easier for it to comply with its charge control obligations by enabling it to alter its charges more quickly, for example after RPI figures are published.

11.197 We need to ensure that the regulatory approach that we adopt in each market adequately addresses the competition issues which we have identified. In the WBA market we concluded that a 28 day notice period was appropriate but in other markets such as the WLA market, we concluded that the competition issues warranted maintaining a 90 day notice period for LLU services. We therefore, do not accept BT's argument that because we have given BT more commercial freedom in a particular economic market we should do the same in other economic markets.

11.198 The investment required to use wholesale AISBO services is significantly greater and requires CPs to build more complex networks than for most of the services to which we have applied a 28 day notice period. In this market there is also often a longer / more complex supply chain of network operators, resellers and systems integrators supporting multiple downstream services. This means that changes to wholesale AISBO services are likely to have a greater impact on CPs than changes to downstream services where we apply a 28-day notice period and will also be more complex to assess. Typically this might involve modelling the impact of the new charges on the cost of providing downstream services, securing internal approval for a pricing revisions and finally notifying end-users (which may be subject to a minimum notice period, typically 28 days). With a shorter notification period, there is a risk that CPs would have insufficient time to react to changes to wholesale terms and could for instance be left financially exposed by changes to wholesale prices. For these reasons we consider that the advantages of a 90 day notice period outweigh the disadvantages and that a 90 day notice period is therefore still generally appropriate.

11.199 However, we also recognise that industry and end users could benefit from shorter notification times when prices are being reduced. For example, there may be advantages in having a shorter notification period for price incentives to encourage migration to newer or more efficient AISBO services. There should also not be a risk of financial exposure for CPs if prices are being reduced. We therefore consider there is scope to reduce the notification period for price reductions to 28 days. Often price reductions are given as part of a special offer to which conditions are attached so the shorter notice period would also need to apply to such conditions.⁸⁰

11.200 We note that in the last year, we have consented to a request from BT to waive the notice period for price reductions for Ethernet services. We could maintain the 90 day notice period and grant waivers if we receive similar requests in future. However, in our view there is a likelihood that such requests would be granted, and we therefore consider that it would be more proportionate and less administratively burdensome to reduce the notice period for price reductions to 28 days.

11.201 We therefore propose that the following notification periods should apply:

- 28 day notice for prices, terms and conditions relating to new service introductions;

⁸⁰ For example, we have recently granted a notification waiver for Openreach's special offer for EAD to WES migration. This offered a discount on connection charges and a waiver of early termination charges on condition that customers upgraded to higher bandwidth circuits.

<http://stakeholders.ofcom.org.uk/binaries/consultations/ethernet-waiver/statement/statement.pdf>

- 28 days notice for price reductions and associated conditions (for example conditions applied to special offers); and
- 90 days notice for all other changes to prices terms and conditions.

Legal tests

11.202 We are satisfied that the proposed condition (as set out in Annex 14) meets the various tests set out in the Act.

11.203 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that CPs have the necessary information about changes to terms, conditions and charges sufficiently in advance to allow them to make informed decisions about competing in downstream markets.

11.204 Section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, in that there are clear benefits from the notification of changes in terms of ensuring that providers are able to make informed decisions within an appropriate time frame about competing in downstream markets;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in this market;
- proportionate, as 90 days is considered the minimum period necessary to allow competing providers to plan for changes to existing network access and 28 days would be sufficient for new network access and price reductions; and
- transparent in that it is clear in its intention to ensure that BT provides notification of changes to their charges and terms and conditions.

Requirement to notify technical information

Aim of regulation

11.205 We propose that changes to technical information should be published in advance, so that competing providers have sufficient time to prepare for them.

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

11.207 For example, a competing provider may have to introduce new equipment or modify existing equipment to support a new or changed technical interface. Similarly, a competing provider may need to make changes to their network in order to support changes to wholesale services offered by BT.

11.208 Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of network access and technical standards (including any usage restrictions and other security issues).

11.209 We consider the requirement to notify technical information imposed as a result of the 2007/8 Review has been effective in allowing providers sufficient time to prepare for such changes. Therefore we consider it is appropriate to impose the same requirement in this market review.

11.210 The condition requires the notification of new technical information within a reasonable time period but not less than 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. We consider that 90 days is the minimum time that competing providers need to modify their network to support a new or changed technical interface or support a new point of access or network configuration.

11.211 Longer periods of notification may also be appropriate in certain circumstances. For example, if BT were to make a major change to their technical terms and conditions, a period of more than the 90 day minimum notification period may be necessary. We consider that regulations are not necessary to address such circumstances, because they are likely to be sufficiently rare for us to address them on a case-by-case basis.

Legal tests

11.212 We are satisfied that the proposed condition (as set out in Annex 14) meets the relevant tests set out in the Act.

11.213 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that providers have sufficient notification of technical changes to AISBO services to enable them to compete in downstream markets.

11.214 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it enables providers to make full and effective use of network access to be able to compete in downstream markets;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate in that 90 days is the minimum period that Ofcom considers is necessary to allow competing providers to modify their networks; and
- transparent in that it is clear in its intention that BT notify changes to technical information in advance.

Requirement to publish quality of service information

Aim of regulation

11.215 We propose that BT should be required to publish specific quality of service information.

11.216 Vertically integrated operators have the ability to favour their own downstream businesses over third party CPs by differentiating on price or terms and conditions. This discrimination could also take the form of variations in quality of service (either

in service provision and maintenance or in the quality of network service provided by the dominant provider to external providers compared to its own retail operations). This has the potential to distort competition at the retail level by placing third party CPs at a disadvantage in terms of the services they can offer consumers to compete with the downstream retail business of the vertically integrated operator.

11.217 We consider the requirement to publish quality of service information imposed as a result of the 2007/8 Review has been effective in mitigating the risk of this type of discrimination. Therefore we consider it is appropriate to impose the same requirement on BT in this market review.

11.218 We propose that for each of the AISBO markets, BT should be subject to an obligation to publish information about the quality of service of the network access it provides. The obligation would require BT to publish information as directed by Ofcom, rather than requiring BT to publish specific information from the date of the imposition of the obligation.

11.219 The main benefit of this obligation is that BT could be required to publish information that would enable other CPs to determine whether the service they receive from BT is equivalent to that provided by BT to its own retail divisions.

11.220 BT already publishes a detailed set of Key Performance Indicators (KPIs) that are shared and discussed with industry and the OTA. Recently, BT has also agreed with Ofcom and the OTA to start publishing a summary of key metrics aimed at demonstrating how its performance reflects on the end user experience, for example in terms of provisioning and fault repair for different levels of care. These metrics are intended to also include key products provided in the AISBO market. Given this agreement we do not consider it necessary to issue a direction specifying the quality of service information that BT should publish. This obligation will therefore function as a backstop that would allow Ofcom to require BT to publish specific information if satisfactory agreements cannot be reached in future

Legal tests

11.221 We are satisfied that the proposed condition (as set out in Annex 14) meets the relevant tests set out in the Act.

11.222 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that providers have visibility of the quality of service that BT provides to itself and to other providers.

11.223 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it aims to prevent undue discrimination in the provision of service by requiring BT to publish quality of service information about the service it provides to itself and to other providers;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate because it only requires BT to publish information as directed by Ofcom in the event we consider such information is required to monitor BT's

compliance with its other obligations, which is the minimum condition to ensure the desired objective; and

- transparent in that it is clear in its intention that BT is required to publish quality of service information.

Requests for new network access

Aim of regulation

11.224 We propose that BT should be subject to obligations that determine how requests for new types of network access should be handled.

11.225 Section 87(3) of the Act authorises the setting of SMP services conditions in relation to the provision of network services. Under section 87(5)(a) such conditions may include conditions that secure fairness and reasonableness in the way in which requests for new network access are made and responded to.

11.226 Vertically integrated operators have the ability to favour their own downstream business over third party CPs by differentiating on price or terms and conditions. One form of discrimination is in relation to the handling of requests for new types of network access. This has the potential to distort competition at the retail level by placing third party CPs at a disadvantage compared with the downstream retail business of the vertically integrated operator in terms of their ability to introduce new services to meet their customer needs and in terms of their ability to offer innovative services in order to compete more effectively.

11.227 Subject to our views expressed above in relation to Openreach's product development process, we consider the obligations imposed on BT determining how requests for new types of network access should be handled have been effective in mitigating the risk of this type of discrimination. Therefore we consider it is appropriate to impose the same obligations on BT in this market review. These obligations include:

- a requirement for BT to publish reasonable guidelines specifying the required content and form of requests for new network access and how they will be handled;
- a requirement for BT to provide sufficient technical information to CPs to allow them to draft product specifications that are efficient and which satisfy the reasonable requirements; and
- timescales within which BT must acknowledge and process requests.

Legal tests

11.228 We are satisfied that the proposed conditions (as set out in Annex 14) meets the relevant tests set out in the Act.

11.229 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the conditions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by facilitating the development of competition in downstream markets.

11.230 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that its purpose is to prevent undue discrimination in the processing of requests for new network access;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate as it continues to provide a SOR process based on the currently implemented process, while allowing scope for industry to be involved in agreeing process improvements; and
- transparent in that the condition is clear in its intention to set requirements for the processing of requests for new network access.

Impact on stakeholders

11.231 We consider not applying ex-ante remedies would fail to meet our general duty under section 3 of the Act of furthering the interests of citizens and consumers. In addition, not applying ex-ante remedies would be inconsistent with our statutory obligation to impose appropriate SMP remedies to address the competition problems we have identified in those markets in which we propose BT has SMP and in which we consider competition is not effective.

11.232 In terms of impact on other stakeholders, we consider not applying ex-ante remedies would benefit BT by reducing the competitive pressure on its activities in the downstream retail markets for AI leased lines. BT's competitors are likely to be disadvantaged because they may not be given non-discriminatory access to BT's SMP services, and would therefore be less able to compete effectively in the retail market.

11.233 The proposed remedies will facilitate competition in the AISBO markets and the downstream retail markets by ensuring that CPs can access BT's SMP services on non-discriminatory terms. Competition will bring benefits to consumers from greater choice, lower prices and improved service quality at the retail level.

Practical Implementation of remedies across separate AI markets

11.234 As outlined above, our remedies intend to reflect the different competitive conditions identified in the two separate geographic markets for wholesale low bandwidth AISBO services, i.e. the WECLA and the rest of the UK excluding the WECLA and Hull. In particular, as part of our LLCC Consultation, we intend to propose that prices in the two geographic markets are subject to different controls. This is to ensure that we do not apply unnecessary stringent regulation in the WECLA where prospects for competition are better.

11.235 In this context, we have considered what regulation and in particular what price control obligation should apply to a wholesale AISBO leased lines linking two sites located in different geographic markets.

11.236 For charges that relate to the local ends of an AISBO circuit, the approach is straightforward. In such circumstance, we expect BT to apply the 'outside WECLA' charge for the local end located outside the prospectively competitive area and the 'WECLA charge' for the local end within the WECLA. In the case of charges which

are not location specific, e.g. distance-related charges, we think it is appropriate to provide BT and industry with some further guidance on how we expect obligations to apply.

11.237 Having carefully considered the possible options, we consider that for circuits that cross the boundaries between the two separate geographic markets, BT should apply charges no higher than the charges subject to the regulation outside the WECLA. It is difficult to predict whether charges inside the WECLA will be lower or higher than the fully regulated charges outside the WECLA. In our view, BT charges within the WECLA are likely to become lower than those outside. However, the level of charges will depend on a number of factors including how competition will develop in this area. Therefore, in the event that competition in the WECLA has failed to develop and BT's charges outside the WECLA fall below its charges inside the WECLA, we aim to constrain the charges end-users face with the price controls that would apply outside the WECLA. On the other hand, if charges within the WECLA are lower than outside because as a result of increasing competition BT sets its charges to recover its efficiently-incurred costs, we would aim to ensure that BT is able to recover its costs for circuits supplied across the different markets. Our current view is therefore that charges related to leased lines provided across the two geographic markets should be subject to the regulation outside the WECLA. It is worth noting that BT currently adopts the same approach for TI circuits that cross the deregulated CELA area.

Question 16: Do you agree with the remedies that we propose for BT in the wholesale AISBO markets in the UK excluding the Hull area?

Section 12

Remedies for the wholesale MI Markets

Introduction

- 12.1 In this section we set out the SMP remedies we propose to impose on BT in the following wholesale market:
- Wholesale market for Multiple Interface Symmetric Broadband Origination (MISBO) in the UK excluding the Hull area and the WECLA.
- 12.2 In Section 4 we propose to define a new combined market for AI services with bandwidth greater than 1Gbit/s and services of any bandwidth delivered using WDM at the end-user's premises. We refer to these services as Multiple Interface Symmetric Broadband Origination (MISBO), and to the defined market as the MISBO market. Further, we propose in Section 7 that BT has SMP in the provision of these services in the geographic market comprising the UK except the WECLA and the Hull area.
- 12.3 These proposed SMP remedies are based on the nature of the competition problems we have identified in our market analysis, in particular our SMP assessment, in the MISBO market. We set out these competition problems in this section.
- 12.4 We consider that these remedies would achieve our statutory duties and would satisfy the relevant legal tests. In reaching these proposals we have also taken account of recent developments in the MISBO market (which is a relatively new market), views expressed by stakeholders in response to the Call for Inputs (CFI) and expected developments over the course of the review period of three years.

Summary

- 12.5 The proposed remedies are summarised in the table below:

Competition Issues	Proposed remedies
<ul style="list-style-type: none"> Refusal to supply 	<ul style="list-style-type: none"> Requirement to provide network access on reasonable request, including (without prejudice to the generality of the network access requirement): <ul style="list-style-type: none"> disaggregated single-service Ethernet access and backhaul; end-to-end single-service Ethernet products end-to-end services with WDM equipment at the customer's premises
<ul style="list-style-type: none"> Price discrimination Non-price discrimination, e.g. different terms and conditions, delaying tactics (different delivery timescales for provision and fault repair); strategic design of products; exclusive dealing; quality discrimination; different SLAs and SLGs 	<ul style="list-style-type: none"> No undue discrimination in relation to the provision of network access. In addition, a requirement to provide all network access on the basis of Equivalence of Inputs (except for certain accommodation services and unless we consent) Rules governing response to requests for new network access Transparency, including <ul style="list-style-type: none"> Obligation to publish a reference offer Obligation to publish changes to charges and to terms and conditions Obligation to notify technical information Obligation to publish quality of service as required by Ofcom Obligation to publish regulatory accounting information
<ul style="list-style-type: none"> Excessive pricing Cross subsidisation 	<ul style="list-style-type: none"> Price control on single-service Ethernet products

12.6 The rest of this section is structured as follows:

Sub-section	Content
Assessment of competition issues in the MISBO market	<p>Discussion of stakeholders' comments relevant to the MISBO market in their responses to our call for inputs, and of our considerations of those comments.</p> <p>Discussion of the characteristics of the market, of possible models of competition and of prospects for and impediments to the development of competition using those models.</p> <p>Our preliminary conclusions on the form of remedies we should set in the MISBO market</p>
Remedy proposals	In relation to each remedy proposal, statement of its aim and of the legal tests we have applied to it.

Assessment of competition issues in the MISBO market

Competition problems identified in the MISBO market

12.7 In light of our SMP assessment, we consider that, in the absence of *ex-ante* regulation, BT would have the incentives, and its market power would afford it the ability, to do the following:

- refuse to supply access at the wholesale level and thus restrict competition in the provision of services in the retail leased lines market and in the residential fixed broadband market;
- engage in undue discriminatory practices in relation to prices, for example by charging its competitors more than it charges its own downstream divisions;

- Engage in undue non-price discriminatory practices – e.g. by supplying the same products on different terms and conditions, different timescales for provision of fault and repair, quality discrimination, different SLAs and SLGs, creating new variants to fulfil the requirements of its downstream division and taking longer to address, or avoiding addressing, the requirements of its competitors; and
- charge excessively high prices and/or engage in anti-competitive cross subsidisation.

12.8 We consider BT would have the incentive to engage in these practices in order to adversely affect the development of competition in the related downstream retail markets and thus enable it to act independently of competitors, customers and ultimately of consumers in those markets.

Insufficiency of national and Community competition law remedies

12.9 We consider national and Community competition law remedies would be insufficient to address the competition problems we have identified. In reaching this view, we have had regard our general assessment of the sufficiency of competition law set out in our Approach to remedies section (Section 8) and in Annex 6 on the Regulatory Framework as relevant to addressing the competition problems in the MISBO market. In particular:

- we do not consider appropriate remedies could be imposed under competition law – e.g. requiring the provision of access at the wholesale level;
- we consider the requirements of intervening are extensive – e.g. the need to ensure that network access is provided without undue discrimination, the need to assess costs for the imposition of proposed price controls, the need to monitor terms and conditions;
- we consider providing certainty in the MISBO market is of paramount concern, both to BT and to other CPs, and we consider this is best achieved through ex ante regulation which, in comparison to competition law remedies, would:
 - provide greater clarity on the types of behaviour that is/is not allowed;
 - be easier to enforce in that it would allow for timely intervention through a process with which the market in general is familiar and which is set out in the Act.

Result of our assessment of the competition problems

12.10 In light of our market analyses, in particular our SMP assessment, and our assessment of the insufficiency of national and Community competition law remedies to address the competition problems we have identified, we consider over the course of the review period of three years that competition would be ineffective in the combined market for services with bandwidth greater than 1Gbit/s and services of any bandwidth delivered using WDM at the end-user's premises in the UK (excluding the WECLA and the Hull Area).

12.11 In order to address the competition problems, we now turn to our assessment of the appropriate remedies.

Assessment of appropriate remedies

- 12.12 In order to address these concerns, we propose remedies in this review which would require BT to provide its competitors with wholesale access to its network and would define the rules that would apply to its provision of such access.
- 12.13 To assess the appropriate nature and form of the remedies that we should propose, we have considered views expressed by stakeholders in response to the CFI and analysed current competition in the MISBO market.
- 12.14 In summary, we consider that the remedies we propose in the MISBO market strike an appropriate balance between the following considerations:
- maintaining CPs' incentives to invest in infrastructure where it is effective and sustainable for them deliver services without any reliance on BT's network;
 - promoting CPs' incentives to invest effectively in core conveyance infrastructure where such investment is efficient and sustainable;
 - ensuring that CPs can provide downstream services using BT's wholesale MISBO services where use of or investment in alternative infrastructure is unlikely to be effective and sustainable; and
 - protecting users from potential exploitation through excessive pricing.
- 12.15 In the following paragraphs we set out our assessment in detail.

Responses to the CFI

Stakeholders' views

- 12.16 In the CFI we sought stakeholders' views on to the likely evolution of MISBO services, and their responses have helped focus the analysis as set out below. We consider that the following points made by stakeholders in response to our CFI were of particular relevance to remedies in the MISBO market:
- UKCTA noted that the business connectivity market is changing rapidly, particularly in relation to the transition from TI to AI services and the growth of end-user bandwidth requirements. UKCTA noted that the capacity of leased lines being supplied to end-users has grown rapidly. At the time of the 2007/8 Review, 10Mbit/s Ethernet circuits were replacing 2Mbit/s TI access circuits. CPs are now commonly supplying 100Mbit/s access circuits and the transition to 1Gbit/s access circuits appears to have commenced;
 - With high bandwidth access circuits now in widespread use, stakeholders argued for regulation of the high bandwidth AI market and the introduction of new access and backhaul remedies supporting all bandwidths above 1Gbit/s including interfaces such as Fibre Channel required to support the rapidly expanding demand for bandwidth in data centres. There was general agreement that the remedies should include a requirement to provide WDM circuits;
 - UKCTA argued that Ofcom should put in place a framework that is sufficiently forward looking to accommodate this rapidly evolving market in which products could be introduced, achieve mass take-up and possibly even be superseded within the three year timescale of the market review. UKCTA argued that rather

than put in place remedies based on specific technologies and bandwidths, Ofcom should specify remedies in terms of the underlying bottleneck assets namely BT's access and backhaul cable networks which CPs are unable to replicate economically; and

- BT argued that our approach should have flexibility to treat a large business site with competitive supply of services differently from the rest of the postcode sector in which it is located, in order to avoid results that would otherwise “*..fly in the face of market realities*”. It followed up its response to the CFI with a number of submissions arguing that we should identify a separate competitive market for connections at datacentres, using a specific list of existing datacentre sites.

Ofcom's considerations

- 12.17 We recognise that the leased lines market is changing rapidly, that end-users' demand for bandwidth is growing, and that WDM could play an important role alongside other technologies to fulfil some of that growing demand in downstream services, including retail leased lines, residential fixed broadband and mobile broadband services.
- 12.18 We agree with UKCTA's comments that our proposals for remedies should be sufficiently forward looking to accommodate the evolution of the market in the next few years, in which products and technologies could evolve rapidly. We discuss below our specific objectives in proposing remedies in light of the likely models of competition and of the prospects for and impediments to their development.
- 12.19 BT has framed its argument that we should treat data centres differently as a point which goes to market definition. We understand that it is appropriate to consider the position of data centres, and set out our considerations of this question in Annex 12. We think that the best way to address this potential issue is to consider whether a different approach to remedies may be appropriate. To the extent that we can show that there is more competition to supply data centres than other leased line users, it is appropriate to consider whether we should then apply a different set of remedies to services provided to data centres in areas where BT is found to have SMP. Our provisional conclusion is that it would be appropriate to consider such an approach only once interconnection of different networks' WDM systems becomes established, to enable more effective competition based on investment in infrastructure. However, at this stage we do not consider that there is a clearly defined category of 'datacentres' which are sufficiently homogenous and distinct from other users to justify a differential approach to remedies.

Characteristics of the market

- 12.20 We are particularly mindful that the MISBO market is developing rapidly, and that demand for MISBO services is likely to grow significantly in the next few years.
- 12.21 The very high bandwidths that can be delivered with MISBO products currently find application in data-centres, computing installations of large businesses, local and national governments, CPs' networks, and in production and broadcasting of television services.
- 12.22 Important factors in end-users' purchasing decisions are likely to include prices, delivery times and assurance of high service levels.

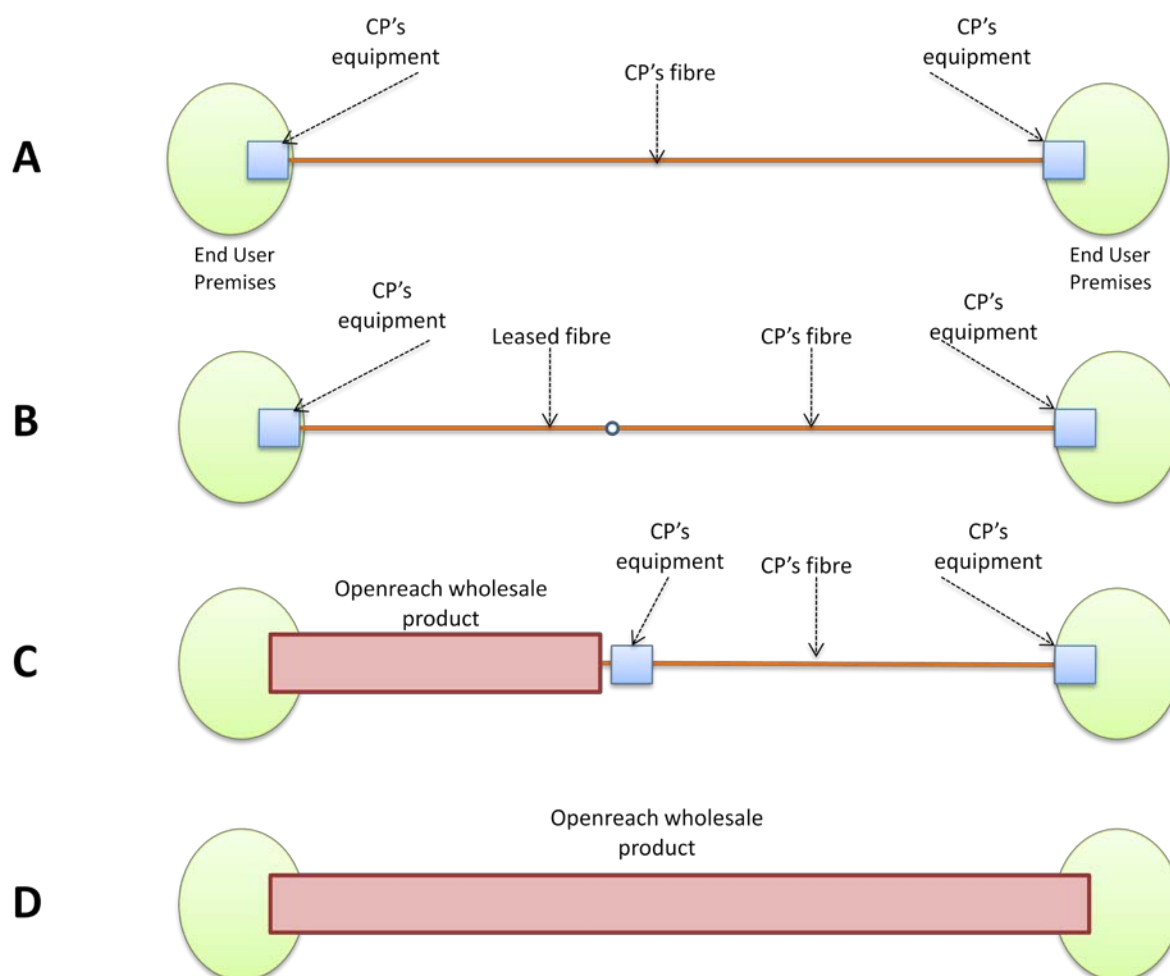
- 12.23 Reliability is a key requirement in applications that use MISBO products. It is often expressed in terms of availability, which is defined as the proportion of the time for which the service is available. A typical service requirement is likely to specify availability better than 99.999%. This is equivalent to a total of no more than about five minutes of downtime in a year.
- 12.24 In order to achieve such high levels of availability, CPs need to design resilience into their solutions. The design must take into account, among other things, that fibre anywhere along the route of the service could suffer accidental damage at any time, and that locating and repairing any such damage can take many hours. CPs often pre-provide alternative fibre routes for each service in order to address this possibility. They can then design solutions which can detect any degradation or interruption in the service in one route and, in that event, switch the service automatically to the alternative route. The resilience achievable is greater the shorter the segments in which the alternative fibre routes coincide in the same trench.
- 12.25 The MISBO market includes two technically different services:
- In the first, a CP installs WDM equipment at the customer's premises, allowing multiple services to be delivered using one pair of fibres; or
 - In the second, a CP installs equipment that only allows a single service, usually based on Ethernet, to be delivered using one pair of fibres ('single-service Ethernet').
- 12.26 We have found that CPs most often meet their customers' requirements for service bandwidths higher than 1Gbit/s by installing WDM equipment at the customer's premises and, much less often, with single-service Ethernet products. The WDM approach is more prevalent because it allows the CP to provide multiple services using one pair of fibres at the time of installation, and also to provide additional leased line services quickly and at low cost at any time subsequent to the initial installation, by adding service interface modules to the WDM equipment at both ends.

Models of competition in MISBO

- 12.27 In order to help assess appropriate remedies, we first identify different business models that could be used by BT's competitors. The models correspond to different levels of investment in infrastructure. We refer to these models later in this section in analysing current competition and its potential future development and in discussing the forms of network access that BT would need to provide in order to support them.
- 12.28 A CP can compete to supply a retail service supported by MISBO products according to one of the following models:
- A. use its own equipment and fibre exclusively; or
 - B. use its own equipment, and use fibre leased from another CP, either exclusively or in combination with its own fibre; or
 - C. fulfil a segment of the route of the service with its own equipment and fibre, and connect them to Openreach wholesale products to fulfil the remaining segment or segments; or

- D. use an Openreach wholesale product exclusively, without using any of its own equipment or fibre.

Figure 69: Models of competition



- 12.29 A CP using Model A would typically provide two alternative fibre routes between the ends of the service in order to support resilience.
- 12.30 Such a CP might use Model B in order to achieve greater geographic coverage than it could achieve with Model A alone.
- 12.31 In principle, a CP could use Model C to fulfil services for which extending its own physical network would cost too much, take too long or be practically infeasible.
- 12.32 Model D can support competition in downstream markets by allowing a CP to provide services without investing in or using any of its own infrastructure, effectively reselling Openreach's end-to-end services to its retail customers.
- 12.33 Whereas Models A-C are consistent with promotion of competition in the MISBO market and in downstream markets, Model D is only consistent with promotion of competition in downstream markets. This is a key distinction in light of the principle we adopted in our Strategic Review of Telecommunications that regulation should

promote competition at the deepest level of the infrastructure at which it is likely to be efficient and sustainable.⁸¹

Prospects for and impediments to the development of effective competition

- 12.34 We are aware of 32 sites outside the WECLA and the Hull Area at which two or more CPs currently use Model A to provide MISBO services in competition with BT. We discuss this more fully in Annex 12.
- 12.35 Model A is potentially viable for any particular CP seeking to compete to deliver a downstream service if the value of that service is sufficiently high to offset the costs of any construction that may be required to connect its network to end-users' sites, taking into account the likely need for alternative fibre routes to support resilience.
- 12.36 Some other impediments may prevent a CP from using Model A even in situations where the value of the service potentially exceeds the likely costs of construction. The delay involved in construction may exceed the lead-time required by the end-user. Furthermore, construction may not be practically possible in some cases, for example if part of the route would need to traverse property whose landlord does not agree to a wayleave.
- 12.37 The need for a CP to invest in construction of physical infrastructure, including any required alternative routes, extending to both ends of each downstream service, presents high barriers both to the entry of any new competition based on Model A and, potentially, to the expansion of MISBO services provided by any CP which currently competes with BT using Model A outside the WECLA and the Hull Area.
- 12.38 The limited coverage outside the WECLA of the networks of companies which lease their fibre to CPs restricts the increase of geographic scope that use of Model B currently offers CPs over and above that of Model A.
- 12.39 Model C is potentially important to the prospects for competition because it can present lower inherent barriers than Models A and B to the entry and expansion of competitors which invest in infrastructure. CPs using Model C can concentrate their investment in physical networks mainly along trunk and backhaul routes, in which they can aggregate traffic from many services and share the costs of their core infrastructure among those services, while relying mainly on BT's ubiquitous network to provide access to each customer's site. Our policies are designed to support Model C in the cases of TI and AI services by ensuring that a CP can compete to supply end-to-end services which fall partly within and partly outside the area covered by its network by purchasing access segments from BT to combine with its own (competitively supplied) core network. Model C can also enable CPs to extend their investment in infrastructure progressively over time, and hence to extend further the scope of infrastructure competition, in line with our objectives.
- 12.40 In order to use Model C, a CP needs to be able to hand over traffic effectively from its core network to a BT access segment. BT's single-service Ethernet MISBO products enable CPs to do so currently. However, we understand that CPs have not so far used BT's WDM-based MISBO products to hand over traffic from their own networks to a material extent, and that the ability of BT's current WDM-based products to

⁸¹ See *Final statements on the Strategic Review of Telecommunications, and undertakings in lieu of a reference under the Enterprise Act 2002*, 22 September 2005, paragraph 3.14, at <http://stakeholders.ofcom.org.uk/binaries/consultations/752417/statement/statement.pdf>.

support effective hand-over from CPs' WDM equipment is at an early stage of development. We explain this further in the paragraphs that follow.

12.41 CPs can already deliver single-service Ethernet MISBO products using Model C, for which, in accordance with BT's Undertakings, Openreach provides the following products on the basis of EOI:

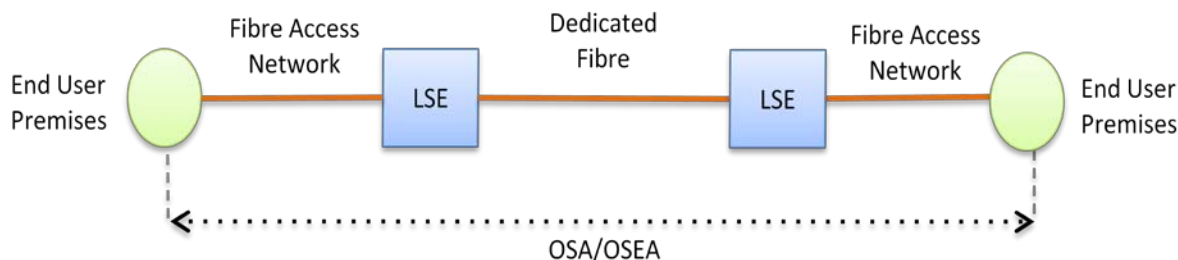
- EBD 10000;
- WES 2500, BES 2500, BES Daisy Chain 2500; and
- WES 10000, BES 10000 and BES Daisy Chain 10000.

12.42 The industry's current ability to use Model C to deliver WDM-based MISBO products is less developed. Under the terms of BT's Undertakings, Openreach offers two wholesale leased lines services on the basis of EOI in which WDM equipment is located at the customer's premises:

- Optical Spectrum Access (OSA) for circuits with route distances no greater than 103km; and
- Optical Spectrum Extended Access (OSEA) for circuits of longer distances.

12.43 The most common use of OSA and OSEA is to provide end-to-end services, in accordance with Model D, as shown in the figure below.

Figure 70: Optical Spectrum Access and Optical Spectrum Extended Access



12.44 In principle, a CP could use OSA or OSEA to link an end-user site to its network node, and hence to provide a downstream service using Model C. In practice, however, interconnecting different networks' WDM-based leased lines services is currently uncommon, both because doing so can be costly and because available technology would not, at least until recently, have allowed the CP to assure reliability of the resulting service to the level often required by the end-user. To the extent that these limitations persist, CPs are not likely to use OSA or OSEA to provide services using Model C.

12.45 Pursuant to a commitment Openreach made to the industry, it has recently enhanced OSA and OSEA by providing interface options which comply with OTN technical standards.^{82,83} These standards are designed, among other things, to facilitate interconnection of different networks' WDM systems while supporting assurance of high reliability to the end-user.

⁸² The background to this commitment is described in Annex 10

⁸³ ITU Standard G.709 is commonly called Optical Transport Network (OTN). It is defined as set of Optical Network Elements connected by optical fibre links, able to provide functionality of transport, multiplexing, switching, management, supervision and survivability of optical channels carrying client signals.

- 12.46 We understand that Openreach launched OTN interface options for OSEA on 29 April 2011 and for OSA on 31 January 2012. Openreach's recent release of these interface options could therefore help support development of competition using Model C in WDM-based services.
- 12.47 However, the extent to which CPs will adopt Model C in future to deliver services with WDM equipment at customers' premises is not certain. Firstly, it is too early to assess how effectively Openreach's new OSA and OSEA variants will support competition based on Model C. Secondly, the extent to which CPs are likely in future to aggregate traffic from MISBO services into shared trunk routes in their core infrastructure is not clear. Some CPs have contributed to Openreach's development of the OSA and OSEA variants which could support Model C, and this suggests that they may be considering using this model in future.
- 12.48 Openreach currently provides end-to-end services that support Model D, including WEES 2500 and WEES 10000 for single-service Ethernet applications, and OSA and OSEA for services delivered using WDM at customers' premises.
- 12.49 While Model D supports competition in downstream markets, it offers more limited scope for competitive differentiation or for price competition than the other models because all CPs which use Model D in effect resell the same inputs which they purchase from Openreach.

Implications on our proposals for remedies for the MISBO market

- 12.50 We expect growth in demand for bandwidth from users of downstream services to continue in the next few years, and therefore consider that the demand for MISBO services is likely to increase significantly in that period.
- 12.51 We found provisionally that BT has SMP in MISBO services outside the WECLA and the Hull Area. We also found that, nevertheless, BT's competitors provide MISBO services to several sites outside the WECLA using Models A and B, reflecting the relatively high value of the downstream retail services.
- 12.52 While we recognise the significant barriers to entry and expansion inherent in Models A and B, it is possible that continued increase in demand for very high bandwidth services will increase BT's competitors' incentives to use Models A and B. This could stimulate competition based on investment in infrastructure, particularly if new demand will be concentrated in geographic areas close to BT's competitors' networks. We promote competition at the deepest level at which it is economic, and therefore consider that any remedies we impose in the MISBO market should not diminish CPs' incentives to invest in infrastructure (using Models A and B) to provide MISBO services outside the WECLA where it is efficient.
- 12.53 We recognise that, in principle, Model B could increase the geographic scope of effective competition in the MISBO market beyond that possible with Model A. We understand that currently companies that are both able and willing to make dark fibre available to CPs do not have extensive coverage outside the WECLA area. We discuss in Section 8 the case for requiring BT to provide access to its dark fibre or to its ducts and poles, and explain in that section why we currently do not propose to require BT to do so.
- 12.54 We propose to continue to support Model D because we consider that it enables competition in downstream markets in situations in which other models are not effective. We consider, however, that this model is likely to limit the benefits that

competition could deliver to consumers through differentiation of services or through pressure on upstream costs.

- 12.55 We consider that the prospects for competition in the MISBO market could improve to a material extent if Model C could become an effective way to deliver services with WDM equipment at customers' premises. This model would present inherently lower barriers to entry and expansion than Models A and B, and hence promote competition at the deepest level at which it is likely to be efficient and sustainable, while providing CPs with more options to compete on price and service features than are possible with Model D.
- 12.56 However, noting that the extent to which CPs will adopt solutions based on Model C is uncertain, we recognise that it is possible that competition based on Model C could fail to develop effectively. In that case, we consider that the prospects for effective competition in the MISBO market outside the WECLA are likely to be poor, and that there would be a greater risk that end-users and consumers could be exposed to excessive pricing.
- 12.57 Overall, the remedies that we propose in the MISBO market, in our analysis, strike an appropriate balance between the following considerations:
- Maintaining CPs' incentives to invest on the basis of Models A and B;
 - Promoting greater competition by supporting effective development of Model C;
 - Ensuring that Model D is available to BT's competitors where other models are not likely to be effective; and
 - Protecting users from potential exploitation through excessive pricing.
- 12.58 The remedies we propose below for the MISBO market are intended to secure the achievement of an appropriate balance between those considerations. In particular:
- in seeking to address BT's ability to refuse to supply, we propose to impose, to the extent that it would be proportionate to do so, clear obligations on BT to provide specific forms of network access that support Model C and Model D; and
 - in seeking to address BT's incentives to charge excessive prices, we should bear in mind, among other things, the need to maintain CPs' incentives to invest on the basis of Models A and B and to promote their incentives to invest on the basis of Model C.
- 12.59 In light of the discussion above, we go on to assess the remedies which we consider are required to ensure CPs are able to obtain the forms of network access that support Models C and D, whilst maintaining their incentive to invest on the basis of Models A and B.

Addressing BT's ability to refuse to supply network access

- 12.60 In order to address BT's ability to refuse to supply network access to its competitors in the MISBO market outside London and the Hull area, we propose (as set out below) that it should be subject to a general obligation to provide network access on reasonable request. In addition, we consider that clear obligations on BT to provide specific network access that support Model C and Model D would help promote competition.

- 12.61 It is noted that Openreach currently provides types of MISBO product, pursuant to BT's Undertakings, which support competition on the basis of Model C and Model D:
- Openreach currently provides single-service Ethernet MISBO products supporting Model C and Model D, specifically Openreach's current portfolio of single-service Ethernet products faster than 1Gbit/s includes disaggregated wholesale access and backhaul services as well as wholesale end-to-end services.
 - Openreach currently provides OSA and OSEA, which support Model D for services delivered with WDM equipment at the customer's premises.
- 12.62 We consider it is appropriate that these products continue to be provided pursuant to specific obligations, and this is what our proposals seek to achieve. In our view, the only way to achieve the aim of preventing refusal to supply (which would jeopardise Models C and D) is to impose a specific obligation on BT to supply, and we consider there is no less onerous way of doing so.
- 12.63 We note that Openreach has recently launched variants of OSA and OSEA which seek to support Model C (in addition to the existing variants supporting Model D as noted above). It is too early to take a view about the extent to which CPs will adopt such variants or such other variants as may be developed.
- 12.64 Developments in WDM-based uses of Model C are at an early stage, and there is not yet a product which we can be confident supports Model C in this context. In the absence of clarity as to the specifications of an appropriate product, we consider that it would be premature to impose on BT an explicit requirement to provide such a product at this stage. We consider that we could not have confidence that it would achieve its aim, and that it could be more onerous than necessary.
- 12.65 However, in light of the potential for such products to improve the prospects of competition at a deep level in this market in the medium term, we will monitor Openreach's development of products which could support competition based on Model C in services delivered using WDM equipment in customers' premises. In addition, we will monitor CPs' adoption of solutions consistent with Model C for WDM-based services, including the number of relevant retail services delivered using Model C and the degree to which CPs adopt network architectures which aggregate traffic from services delivered with WDM equipment at customers' premises.

Addressing BT's ability to discriminate

- 12.66 We propose to address BT's ability to discriminate, both in the prices it charges and in other ways, by imposing requirements designed to provide assurance that CPs and BT's downstream business will compete on a level playing field in providing services which use products in the MISBO market outside the WECLA and the Hull Area. We consider that requiring BT to provide network access on the basis of EOI could provide such assurance.
- 12.67 We consider that such a requirement is necessary to achieve the aim of addressing BT's ability to discriminate and note that, at least to the extent that BT's services downstream of the MISBO market currently consume products provided by its Openreach division on the basis of EOI, is not likely to be more onerous than necessary to achieve that aim in the MISBO market outside the WECLA and the Hull Area because it would not require additional development costs to be incurred.

- 12.68 We recognise however that, exceptionally, it may be onerous to require BT to consume an Openreach MISBO product on the basis of EOI in the case of some of the older leased lines of radial distance greater than 70km which it currently provides with WDM equipment at end-users' premises. We explain the background to the supply arrangements that have led to these exceptions in Annex 10.
- 12.69 In all other circumstances, we would expect BT to consume Openreach MISBO products on the basis of EOI in providing any downstream services, and to continue to do so as it develops its services, evolves its network and adopts new technology, unless we specifically direct otherwise.
- 12.70 However, EOI can have limited effect in cases where BT has no need to consume an upstream input needed by its competitors. We consider that such a case may arise in the development of competition based on Model C with WDM equipment at end-users' premises. A CP providing such services and seeking to compete with BT using Model C would need a product from Openreach that would allow it to hand over traffic between its own network and BT's. The downstream businesses of BT, on the other hand, currently have no need to consume such a product from Openreach because they do not aggregate traffic from those services, and therefore do not need to hand over their traffic between different parts of BT's network.
- 12.71 BT's downstream businesses currently use Model D and consume Openreach's OSA and OSEA products. Openreach recently launched versions of OSA and OSEA with OTN interfaces which, as described at paragraph 12.45, could allow CPs to hand over traffic to BT's network, and could support development of competition based on Model C. We note that the two sets of variants of OSA and OSEA are likely to be very similar. We understand, for example, that they use the same WDM equipment and are distinguished from their Model D counterparts in that Openreach provides them with OTN interfaces rather than with end-user service interfaces such as Ethernet.
- 12.72 We propose to address BT's ability to discriminate in relation to matters other than the price of these products by requiring BT to provide the Model C variants on the basis of EOI relative to their Model D counterparts in respect of every matter other than price. In addition, we propose to require BT not to discriminate unduly between the prices it charges for Model C and Model D variants. This means that the difference in price between Model C and Model D variants of the same product and of the same radial distance should be no greater⁸⁴ than the difference between their long-run incremental costs, so as to incentivise a CP to choose the option which minimises overall costs, including its own costs. Since the benefits of the additional competition enabled by Model C would flow to all users of MISBO services, we also propose that the development costs of the Model C variants should be recovered from all Openreach's MISBO services.

Protecting end-users from the risk of excessive charges – a price control on BT's single-service Ethernet MISBO products

- 12.73 Without some intervention on pricing, a dominant provider would have the ability to charge excessive prices in order to maximise profits by increasing its revenues. Excessive prices at the wholesale level could make it difficult for third party CPs to compete at the retail level with BT and, in the long term, may result in market exit. Unjustifiably high wholesale charges are also likely to result in high retail prices i.e.

⁸⁴ We note that the incremental cost of the OTN interface needed for use with model C is likely to be greater than that of the standard interface used with model D.

consumers would be paying more for a service than they should expect if wholesale prices were constrained by effective competition.

- 12.74 Price controls which can take a number of forms (charge control, cost orientation, safeguard cap) are intended to ensure that dominant operators do not price excessively. At the same time, we recognise that the MISBO market is still relatively small and that the technology is likely to develop rapidly, and consider that we should be cautious in proposing price controls which could reduce incentives to innovate and to invest.
- 12.75 We propose a price control limited in scope to single-service Ethernet products only, and excluding services delivered with WDM equipment at customers' premises. In our view, such a control would strike an appropriate balance between constraining BT's ability to charge high prices on the one hand and minimising the risk of harming competition on the other. We explain our rationale below
- 12.76 In our view, imposing no price control in the MISBO market outside the WECLA and the Hull area would not be appropriate at present because the market power we currently consider that BT enjoys could allow it to charge excessive prices, which are likely to flow through to excessive charges to end-users. BT could also have relatively weak incentives to provide its products more efficiently without any price control.
- 12.77 Most MISBO products are currently delivered with WDM equipment at customers' premises. The technology and market for services delivered with WDM equipment at customers' premises are still developing rapidly, so imposing price controls directly on such services could be too intrusive and prove harmful. In particular, some CPs compete with BT in this market using and investing in their own infrastructure to deliver such services, and a direct control on BT's prices for such services may diminish CPs' incentives for further investment.
- 12.78 We consider that CPs competing with BT in the MISBO market are less likely to invest in extending their own infrastructure to deliver single-service Ethernet products than to deliver services with WDM at the customers' premises, because the latter can be expanded at low additional cost.
- 12.79 Although demand for single-service Ethernet products is likely to grow over the period covered by this review, the volume of those products is likely to continue to represent a relatively small proportion of the MISBO market. Nevertheless, providers of fixed and mobile broadband services are likely to use them increasingly as consumers' demand for bandwidth grows, so despite their relatively low volume, we consider that controlling BT's prices for them would be proportionate because those prices would flow through to the prices many consumers pay.
- 12.80 A price control on the single-service Ethernet MISBO products would constrain BT's ability to raise prices for those products and, in addition, may impose some constraint on its prices for the WDM MISBO products as well, because the two product sets are, to some extent, mutually substitutable by BT's customers.
- 12.81 In addition, we consider that the combination of the limited competition from other CPs to provide MISBO products with WDM at customers' premises and our proposed obligations requiring BT to publish a reference offer and to provide its products on the basis of EOI, together with the proposed price control on single-service Ethernet products, are likely to constrain BT's incentives to raise its prices for all MISBO products to an appropriate extent.

12.82 The LLCC consultation which we will be publishing shortly will set out detailed proposals for the price control we propose here.

Remedy proposals

12.83 In this sub-section we set out our proposed remedies for the MISBO market.

Interconnection and accommodation services

12.84 In order to use the wholesale MISBO services that BT provides in these markets CPs also require certain interconnection and accommodation services. To achieve an overall solution we consider that it is necessary to regulate the provision of these ancillary services, in the absence of which, we consider BT would have an incentive to refuse to supply or to supply in a discriminatory manner, for example by charging excessive prices.

12.85 Network access is defined in sections 151(3) and (4) of the Act and includes interconnection services and/or any services or facilities that would enable another CP to provide electronic communications services or electronic communication networks. We consider that a requirement to provide network access would, therefore, include any ancillary services as may be reasonably necessary for a Third Party to use the services. Consequently, each of the obligations that we propose below for these markets also applies to the provision of accommodation and interconnection services that are reasonably required by CPs in connection with the provision of the regulated services.

12.86 In section 13 we discuss whether BT should be required to provide specific types of interconnection services.

Requirement to provide network access

Aim of a general obligation to provide network access

12.87 In proposing that BT be required to meet reasonable requests for network access, we aim to address BT's incentive to deny such access to CPs seeking to deliver services in the MISBO market (outside the WECLA and the Hull Area) and in related downstream markets. Absent such access, a CP other than BT would be restricted to compete either using its own fibres exclusively and/or the fibres of any other CPs which may be willing to lease to it the use of their fibres.

Aim of obligations to provide specific types of network access

12.88 In proposing that BT be required to meet reasonable requests for network access by providing wholesale products with specified characteristics (in addition to proposing that it be required to meet any reasonable requests for network access) we aim to address the ability and incentive that BT has to disrupt or restrict competition by refusing to supply types of wholesale products which can enable its competitors to deliver services effectively in ways which we consider important. In particular, we consider that BT should be subject to clear obligations to provide specific wholesale access products which support competition consistent with Model D (noting that it is not clear whether OSA and OSEA variants support Model C effectively at this point), as described in paragraph 12.28.

Legal tests

Section 87 of the Act

- 12.89 Section 87(3) of the Act authorises the setting of an SMP services condition requiring the dominant provider to provide such network access as we may, from time to time, direct. These conditions may, pursuant to Section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and for securing that the obligations in the conditions are complied with within periods and at the times required by or under the conditions.
- 12.90 When considering the imposition of such conditions in a particular case, Ofcom must have regard to the six factors set out in Section 87(4) of the Act, including, *inter alia*, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access. In relation to these, we note that it would not be economically viable for CPs to replicate BT's physical network infrastructure to provide competing facilities and that the proposed network access would be feasible insofar as any requests for such access would need to be reasonable.
- 12.91 The definition of access and the way in which Ofcom might assess reasonable demands for access are set out in the Access Guidelines. Ofcom considers that it is appropriate in cases where a CP has SMP to impose an access obligation on that provider requiring it to meet all reasonable requests for network access within the relevant wholesale market, irrespective of the technology required, on fair and reasonable terms, conditions and charges.
- 12.92 As discussed in the SMP assessment in Section 7, there are considerable sunk costs associated with building networks to provide leased lines services. It is unlikely to be economically viable to build competing access networks of a sufficient scale to provide effective constraint on BT's SMP in the MISBO market outside the WECLA and the Hull Area.

Statutory duties under sections 3 and 4 of the Act

- 12.93 In addition to taking into account the six factors in section 87(4) of the Act, we consider these proposed network access obligations:
- further the interests of citizens in relation to communications matters and further the interests of consumers in the MISBO markets by promoting competition, in accordance with our general duty under section 3(1) of the Act;
 - seek to achieve the objective of securing the availability throughout the UK of a wide range of electronic communications services, in accordance with our duty under section 3(2) of the Act;
- 12.94 In proposing network access obligations which enable us to carry out our general duty under section 3 of the Act, we have also had regard to the following (these appearing to us to be relevant in the circumstances)⁸⁵:
- the desirability of promoting competition in relevant markets;

⁸⁵ In accordance with our duty under section 3(4) of the Act.

- the desirability of encouraging investment and innovation in relevant markets; and
- the desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom.

12.95 We also consider the proposed network access obligations accord with the six European Community requirements for regulation, in particular by:

- promoting competition in the provision of electronic communications networks and services, associated facilities and the supply of directories; and
- encouraging the provision of network access and service interoperability, namely securing efficient and sustainable competition, efficient investment and innovation, and the maximum benefit for customers of CPs.

Statutory duties under sections 47 of the Act

12.96 Sections 47 of the Act require conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. We consider the proposed conditions and directions are:

- objectively justifiable, in that they facilitate and encourage access to BT's network and therefore promotes competition to the benefit of consumers;
- not unduly discriminatory, as they are proposed only for BT and no other operator has been found to hold a position of SMP in this market;
- proportionate, since they are targeted at addressing the market power that we propose BT holds in this market and does not require it to provide access if it is not technically feasible or reasonable and in particular, for the reasons set out above, the particular forms of access being required are considered necessary to address concerns over refusal to supply and no more onerous than necessary to achieve that aim; and
- transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention and implementation.

12.97 For all the reasons set out above, we consider that the proposed general and specific network access conditions are appropriate to address the competition concerns identified, in accordance with section 87(1) of the Act.

Non-discrimination and, unless we specifically direct otherwise, EOI

Aim of regulation

12.98 In proposing to require BT not to discriminate unduly we seek to address its ability to discriminate in favour of its own downstream businesses. We consider that BT has the incentive to discriminate unduly, because BT competes in markets downstream of the MISBO market, including, for example, retail leased lines faster than 1Gbit/s and fixed broadband services. In addition, we consider that BT's market power (outside the WECLA and the Hull Area) would enable it to so discriminate, with the likely effect that competition would be distorted.

12.99 Therefore, we propose to require BT to provide the required network access outside the WECLA and the Hull Area on a basis which is not unduly discriminatory and, additionally, on an EOI basis. Prohibiting undue discrimination while stopping short of EOI could result in BT providing competitors with a different set of products to those it provides to itself, potentially using different processes and systems for their development, delivery, maintenance and repair. While this may not be unduly discriminatory (depending on the precise circumstances), it would fall short of true equivalence and could undermine effective competition. For example, it may act as an impediment to improved products being made available equally promptly to BT and to its competitors. It is therefore necessary, in our view, to require provision on an EOI basis in addition to the prohibition of undue discrimination.

12.100 We recognise that it may be that there are some older WDM circuits over 70km which it may be onerous to require to be provided on an EOI basis and, consequently, we propose that we should be able to direct particular circuits need not be provided on this basis.

12.101 We consider that EOI would be an effective and proportionate non-discriminatory basis on which BT could provide the required network access, because it would provide a high level of assurance that BT and its competitors will compete fairly in markets downstream of the MISBO market.

12.102 We therefore propose that where BT provides to CPs network access to enable them to provide services downstream of the MISBO market outside the WECLA and the Hull Area it should do so on the basis of EOI unless we specifically direct otherwise.

No unduly discriminatory discounts

12.103 The obligation not to discriminate unduly will also apply to pricing discounts.

12.104 First, in relation to volume discounts we recognise that these would very often in practice constitute undue discrimination since BT's retail arm would almost inevitably be the main beneficiary and there is therefore a strong potential for anti-competitive effects. However, we believe that this point is well understood by CPs and do not consider a change in the obligation is required specifically to reflect this.

12.105 Secondly, in relation to geographic discounts:

- as discussed in Section 5, we have conducted a detailed geographic analysis of each of the retail and wholesale product markets. Our analytical framework for this analysis focused on the presence of common pricing constraints and geographic variations in competitive conditions. On the basis of this analysis, we note that for the geographic markets where we have found SMP, the underlying costs and competitive conditions will not be completely homogenous throughout the UK (even outside the WECLA). This suggests that some freedom to charge in a way that reflects more accurately the costs incurred and to respond to the local characteristics of competition that exist in these markets would be efficient. Moreover, given the level of cost differences that may exist and the extent of competition in some areas, BT's ability to compete could be limited if it were required to maintain nationally uniform prices. Hence, geographically differentiated prices may reflect BT responding legitimately to cost differences in the face of competition; and
- we therefore consider that geographic discounts may or may not be unduly discriminatory depending on the circumstances. In the event of an allegation of

offering unduly discriminatory geographic discounts, we would judge each alleged breach of the no undue discrimination obligation on a case by case basis.

12.106 In the LLCC Consultation we will consider how geographic discounts should be treated in the proposed charge controls and in particular whether it is appropriate to place any constraints on the geographic discounts that BT may offer.

12.107 Thirdly, in relation to term discounts:

- in principle, we consider this form of discount could raise competition concerns – for example if BT’s downstream operations were at an advantage compared to downstream competitors. In principle, the largest beneficiary of term discounts could be BT’s downstream operations, as they may see no commercial disadvantage in being contractually tied to BT’s wholesale services for a lengthy period of time. If so, it could provide BT with the ability to undercut downstream competitors in ways that they could not match (where those competitors rely on wholesale services from BT, but do not wish to sign up to the discounts);
- term discounts may increase the barriers to entry/growth for upstream competitors to Openreach, if purchasers of wholesale services are tied into longer term contracts (and so increasing the switching costs);
- it is not necessarily the case, however, that we should automatically view all forms of term discount as harmful to consumers; and
- we therefore consider that term discounts may or may not be unduly discriminatory depending on the circumstances. In the event of an alleged breach we would judge each alleged breach on a case by case basis.

12.108 In the LLCC Consultation we will consider whether there should be any restrictions on the term discounts that BT may offer and how they might be taken into account in setting the price control.

Legal tests

12.109 We are satisfied that the proposed conditions (as set out in Annex 14) meets the various tests set out in the Act.

12.110 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by preventing BT from leveraging its SMP into downstream markets.

12.111 Second, section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, in that it would provide safeguards to ensure that competitors, and hence consumers, are not disadvantaged by BT supplying other than on an EOI basis or otherwise discriminating unduly in favour of its own downstream activities or between different competing providers;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;

- proportionate since it seeks to prevent undue discrimination and secure supply on an EOI basis, and would apply to products provided by Openreach, which is already set up to provide wholesale products on a strictly non-discriminatory basis; and
- transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention and implementation.

Transparency

12.112 In order to ensure BT is complying with the obligations to provide network access and not unduly to discriminate, additional obligations related to ensuring transparency are also required. Transparency obligations would also provide third parties with access to the information they need in order to make informed decisions about purchasing BT's wholesale products. Without these obligations, not only would it be difficult for third parties to assess whether BT was meeting its obligations to provide network access and to not discriminate unduly, it may also be the case that third parties do not have sufficient information in order to decide whether, or how, to enter the downstream market by purchasing BT's wholesale products. This could ultimately result in fewer providers, and therefore less choice, for end users. We therefore consider it appropriate to propose the following transparency obligations on BT:

- requirement to publish a reference offer;
- an obligation to give 28 days' notice of price reductions and to give 90 days' notice of all other changes to prices, terms and conditions for existing MISBO services;
- an obligation to give 28 days' notice of the introduction of prices, terms and conditions for new MISBO services;
- a requirement to publish quality of service information;
- a requirement to notify technical information with 90 days notice; and
- obligations relating to requests for new network access.

12.113 Section 87(6) also authorises the setting of SMP services conditions that require the dominant provider to publish information about network access to ensure transparency and to publish terms and conditions.

12.114 We discuss each of the transparency obligations in more detail in the sub sections below.

Requirement to publish a reference offer

Aim of regulation

12.115 A requirement to publish an RO has two main purposes, namely, to assist transparency for the monitoring of potential anti-competitive behaviour and to give visibility to the terms and conditions on which other providers will purchase wholesale services. This helps to ensure stability in markets and, without it incentives to invest might be undermined and market entry less likely.

12.116 The publication of a RO potentially allows for speedier negotiations, avoid possible disputes and give confidence to those purchasing wholesale services that they are being provided on non-discriminatory terms. Without this, market entry might be deterred to the detriment of the long-term development of competition and hence consumers.

12.117 The proposed condition requires the publication of a RO and specifies the information to be included in that RO (set out below) and how the RO should be published. It prohibits the dominant provider from departing from the charges, terms and conditions in the RO and requires it to comply with any directions Ofcom may make from time to time under the condition. The published RO must set out (at a minimum) such matters as:

- a clear description of the services on offer including technical characteristics and operational process for service establishment, ordering and repair;
- the locations of points of network access and the technical standards for network access;
- conditions for access to ancillary and supplementary services associated with the network access including operational support systems and databases etc;
- contractual terms and conditions, including dispute resolution and contract negotiation/renegotiation arrangements;
- charges, terms and payment procedures;
- service level agreements and service level guarantees; and
- to the extent that BT uses the service in a different manner to CPs or uses a similar services, BT is required to publish a reference offer in relation to those services.

Legal tests

12.118 We are satisfied that the proposed condition (as set out in Annex 14) meets the various tests set out in the Act.

12.119 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition firstly by ensuring that providers have the necessary information to allow them to make informed decisions about purchasing MISBO services in order to compete in downstream markets and by providing transparency in order to assist in the monitoring of anticompetitive behaviour.

12.120 Second, section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it requires that terms and conditions are published in order to encourage competition, provide stability in markets and monitor anti-competitive behaviour;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;

- proportionate, as only information that is considered necessary to allow providers to make informed decisions about competing in downstream markets is required to be provided; and
- transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention and implementation.

Requirement to notify charges, terms and conditions

Aim of regulation

12.121 Notification of changes to services at the wholesale level can assist competition by giving advanced warning of charge changes to providers purchasing wholesale services in order to compete with the dominant provider in downstream markets. It also supports the non-discrimination obligation by ensuring that BT does not notify changes in a discriminatory manner. Notification of changes to charges therefore helps to ensure stability in markets without which we consider incentives to invest might be undermined and market entry made less likely. However, there may be some disadvantages to notifications, particularly in markets where there is some competition. It can lead to a 'chilling' effect where CPs follow BT's prices rather than act dynamically to set competitive prices. On balance, however, we do not consider that this consideration would undermine the proposed imposition of this obligation. Competitors rely to a significant degree on the provision of wholesale services to enable them to compete in downstream markets. The advantages of notifying charges are therefore likely to outweigh any potential disadvantages.

12.122 We believe that prior notification of changes to charges or other relevant terms and conditions is important to ensure that competing providers have sufficient time to plan for such changes, as they may want to restructure the prices of their downstream offerings in response to changes to charges at the wholesale level.

12.123 We consider that the notification period should allow sufficient time for downstream providers to make necessary changes to their downstream products and services. We believe that 90 days would ordinarily be an appropriate notification period for existing products and services. However, we also recognise that the industry and end-users could benefit from shorter notification times when prices are being reduced. For example, there may be advantages in having a shorter notification period for price incentives to encourage migration to newer or more efficient MISBO services. There should also not be a risk of financial exposure for CPs if prices are being reduced. We therefore consider 28 days is an appropriate notification period for price reductions. Often price reductions can be part of a special offer to which conditions are attached so the shorter notice period would also need to apply to such conditions.⁸⁶

12.124 In addition, we consider that the prior notification period for new products and services should reflect the lesser administrative impact of changes to charges for new products and services. We consider that 28 days would therefore be an appropriate notification period for new products and services.

12.125 We therefore propose that the following notification periods should apply:

⁸⁶ For example, we have recently granted a notification waiver for Openreach's special offer for EAD to WES migration. This offered a discount on connection charges and a waiver of early termination charges on condition that customers upgraded to higher bandwidth circuits.

<http://stakeholders.ofcom.org.uk/binaries/consultations/ethernet-waiver/statement/statement.pdf>

- 28 day notice for prices, terms and conditions relating to new service introductions;
- 28 days notice for price reductions and associated conditions (for example conditions applied to special offers); and
- 90 days notice for all other changes to prices terms and conditions.

Legal tests

12.126 We are satisfied that the proposed condition (as set out in Annex 14) meets the various tests set out in the Act.

12.127 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that CPs have the necessary information about changes to terms, conditions and charges sufficiently in advance to allow them to make informed decisions about competing in downstream markets.

12.128 Section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable, in that there are clear benefits from the notification of changes in terms of ensuring that providers are able to make informed decisions within an appropriate time frame about competing in downstream markets;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate, as 90 days is considered the minimum period necessary to allow competing providers to plan for changes to existing network access and 28 days for new network access and price reductions; and
- transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention and implementation.

Requirement to notify technical information

Aim of regulation

12.129 We propose that changes to technical information should be published in advance, so that competing providers have sufficient time to prepare for them.

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

12.131 For example, a competing provider may have to introduce new equipment or modify existing equipment to support a new or changed technical interface. Similarly, a competing provider may need to make changes to their network in order to support changes to wholesale services offered by BT.

12.132 Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of network access and technical standards (including any usage restrictions and other security issues).

12.133 The condition requires the notification of new technical information within a reasonable time period but not less than 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. We consider that 90 days is the minimum time that competing providers need to modify their network to support a new or changed technical interface or support a new point of access or network configuration.

12.134 This does not rule out that there may be circumstances in which longer periods of notice may be appropriate, but in the absence of particular situations that can be anticipated now this cannot be reflected explicitly in conditions.

Legal tests

12.135 We are satisfied that the proposed condition (as set out in Annex 14) meets the various tests set out in the Act.

12.136 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that providers have sufficient notification of technical changes to MISBO services to enable them to compete in downstream markets.

12.137 Second, section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it enables providers to make full and effective use of network access to be able to compete in downstream markets;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate in that 90 days is the minimum period that Ofcom considers is necessary to allow competing providers to modify their networks; and
- transparent in that it is clear in its intention that BT notify changes to technical information in advance.

Requirement to publish quality of service information

Aim of regulation

12.138 Vertically integrated operators have the ability to favour their own downstream business over third party CPs by differentiating on price or terms and conditions. This discrimination could also take the form of variations in quality of service (either in service provision and maintenance or in the quality of network service provided by the dominant provider to external providers compared to its own retail operations). This has the potential to distort competition at the retail level by placing third party CPs at a disadvantage in terms of the services they can offer consumers to compete with the downstream retail business of the vertically integrated operator.

12.139 In order to mitigate this risk we propose that, for each of the wholesale MISBO products, BT should be subject to an obligation to publish information about the quality of service of the network access it provides. The main benefit of this in wholesale markets is that other CPs could ensure that the service they receive from BT is equivalent to that provided by BT to its own retail divisions.

12.140 The obligation will require BT to publish information as directed by Ofcom, rather than requiring BT to publish specific information from the date of the imposition of the obligation.

Legal tests

12.141 We are satisfied that the proposed condition (as set out in Annex 14) meets the various tests set out in the Act.

12.142 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that providers have visibility of the quality of service that BT provides to itself and to other providers.

12.143 Second, section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that it aims to prevent undue discrimination in the provision of service by requiring BT to publish quality of service information about the service it provides to itself and to other providers;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate because it only requires BT to publish information as directed by Ofcom in the event we consider such information is required to monitor BT's compliance with its other obligations, which is the minimum condition to ensure the desired objective; and
- transparent in that it is clear in its intention that BT is required to publish quality of service information.

Requests for new network access

Aim of regulation

12.144 Vertically integrated operators have the incentive to favour their own downstream business over third party CPs by discriminating on price or terms and conditions. Where such an operator has SMP it also has the ability to discriminate. One form of potential discrimination is in relation to the handling of requests for new types of network access. This has the potential to distort competition at the retail level by placing third party CPs at a disadvantage compared with the downstream retail business of the vertically integrated operator in terms of their ability to introduce new services to meet their customer needs and in terms of their ability to offer innovative services in order to compete more effectively.

12.145 In order to ensure that BT does not discriminate in this way, we consider that BT should be subject to a set of obligations that specify how it should handle requests

for new types of network access. These obligations would support the obligation not to unduly discriminate by specifying how requests should be handled.

12.146 We consider that the obligations which are currently applied in other leased lines markets are fit for purpose and should be applied to the MISBO market. These obligations include:

- A requirement for BT to publish reasonable guidelines specifying the required content and form of requests for new network access and how they will be handled;
- A requirement for BT to provide sufficient technical information to CPs to allow them to draft product specifications that are efficient and which satisfy the reasonable requirements; and
- Timescales within which BT must acknowledge and process requests.

Legal tests

12.147 As noted above, section 87(3) of the Act authorises the setting of SMP services conditions in relation to the provision of network services. Under section 87(5)(a) such conditions may include conditions that secure fairness and reasonableness in the way in which requests for new network access are made and responded to.

12.148 We are satisfied that the proposed conditions (as set out in Annex 14) meets the various tests set out in the Act.

12.149 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the conditions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by facilitating the development of competition in downstream markets.

12.150 Second, section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is:

- objectively justifiable in that its purpose is to prevent undue discrimination in the processing of requests for new network access;
- not unduly discriminatory, as it is proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate as it continues to provide a SOR process based on the currently implemented process, while allowing scope for industry to be involved in agreeing process improvements; and
- transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention and implementation.

Price control on single-service Ethernet products

Aim of regulation

12.151 We propose to impose a charge control condition on BT's single-service Ethernet MISBO products, the purpose of which is to address BT's incentives to charge

excessive prices. Price control conditions can also be used to prevent anti-competitively low prices, though other remedies such as a prohibition on undue discrimination may be used instead.

12.152 Section 87(9) of the Act authorises the setting of an SMP services condition setting price controls for network access and relevant facilities. Section 88 of the Act specifies that Ofcom are not to set a price control unless it appears to Ofcom that there is a risk of adverse effects due to pricing distortions and it appears to Ofcom that setting a price control would promote efficiency, sustainable competition and confer the greatest benefits on the end users.

12.153 A price control can take a variety of forms⁸⁷ including but not limited to a charge control, cost orientation and/or safeguard cap.

12.154 In a competitive market, the charges for services would be set on the basis of the commercial judgements of individual companies and could be expected to deliver cost reflective prices. However, where a provider has SMP, competition cannot be expected to provide effective constraints and ex-ante regulation may be desirable to prevent charges from being set at an excessive level. Such intervention could also have as its objectives the aim of promoting efficiency and of allowing the development of effective competition in downstream markets.

12.155 In these markets BT has SMP and has an incentive and the ability to charge excessive prices. Excessive prices at the wholesale level could make it difficult for third party CPs to compete at the retail level with BT and in the long term, may result in market exit. Unjustifiably high wholesale charges are also likely to result in high retail prices – i.e. consumers would be paying more for a service than they should expect if wholesale prices were constrained by effective competition.

We propose to impose a charge control

12.156 Having identified this relevant risk of an adverse effect arising from price distortion in our market analysis, we consider that this risk should be addressed by the imposition of an appropriate charge control condition to apply for a period of 3 years following the completion of this market review and the charge control consultation process.

12.157 Under Ofcom's preferred method of charge control regulation – RPI+/-X – incentives are created on the dominant provider to increase its efficiency, thereby imitating the effect of a competitive market. The charge control would result in prices being based on the projected costs for the provision of the services at the end of the period, taking into account efficiency improvements and possible future investment by BT that would be of benefit to consumers and citizens. If the firm can reduce its costs below the level expected when the cap was set, then the firm retains the increased profits, at least for the period the control is in place.

12.158 Our initial view is that the scope of the charge control should encompass charges for all single-service Ethernet MISBO products BT currently offers in the MISBO market outside the WECLA and Hull including:

- the interconnection and accommodation services that BT provides in connection with wholesale MISBO services in the UK outside the WECLA and Hull; and

⁸⁷ As suggested by Recital 20 of the Access Directive.

- ancillary services including excess construction charges in the UK excluding the WECLA and Hull.

12.159 Under our preferred method of charge control regulation we make provision for new services that substitute, wholly or substantially, existing services in a charge control basket to be added to the basket. This ensures that the dominant provider has an incentive to ensure that substitute services are at least as efficient as the ones they replace.

12.160 The scope of the proposed charge control is such that it would cover most of the services that BT provides in these markets during the three year period of this review. If however, BT were to introduce new services that fall outside the scope of the proposed charge control (i.e. services that do not wholly or substantially replace existing services) we would consider whether a price control obligation would be appropriate for those services.

We propose not to impose cost orientation

12.161 Previously in other business connectivity markets we have imposed cost orientation obligations as a complement to the charge controls by providing an additional safeguard about the level of individual charges, guarding against both excessive pricing and predatory pricing.

12.162 We consider that in this market we can address the risk of BT engaging in excessive pricing practices with a charge control. In particular, we can design charge control baskets and sub caps so that they constrain only charges about which we have particular concerns about excessive pricing. This would provide BT with greater freedom to set individual charges subject to the constraints imposed by the basket and sub-caps. We will set out our reasoning in more detail in the LLCC Consultation.

Legal tests for charge control

12.163 We will set out the legal tests for the charge controls in the LLCC Consultation.

12.164 Nevertheless, we consider that in principle a charge control would meet the criteria set out in section 47(2) of the Act, since it is objectively justifiable, non-discriminatory, proportionate and transparent. This is for the reasons below. However, we will consult on this again when we consult on our specific charge control proposals shortly. At this time, we consider that a charge control is, in principle:

- objectively justifiable, as BT has SMP in the market, it is unlikely to be incentivised to reduce its costs and set prices at the competitive level;
- not unduly discriminatory, as BT is the only operator to have SMP in the market;
- proportionate, as we will ensure that it will allow BT to make a return on investment whilst acting to constrain BT's ability to set prices above the competitive level which may result in consumers paying higher retail prices; and
- transparent, in that the condition, when we formulate our detailed proposals, will be clear in its intention.

12.165 For the reasons set out above, we consider that the imposition of a charge control would in particular further the interests of citizens and further the interests of consumers in relevant markets by the promotion of competition in line with section 3

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

Impact on stakeholders

12.166 We consider not applying ex-ante remedies would fail to meet our general duty under section 3 of the Act of furthering the interests of citizens and consumers. In addition, not applying ex-ante remedies would be inconsistent with our statutory obligation to impose appropriate SMP remedies to address the competition problems we have identified in those markets in which we propose BT has SMP and in which we consider competition is not effective.

12.167 We consider not applying ex-ante remedies to MISBO markets would enable BT to engage in discriminatory conduct by BT, disadvantaging competitors because BT would be unlikely to provide them with non-discriminatory access to services in which it has SMP. Competitors would therefore be less able to compete effectively and this would ultimately disadvantage end users.

12.168 The proposed remedies will facilitate competition in the MISBO markets and in downstream markets by ensuring that CPs can access services in which BT has SMP on non-discriminatory terms. We expect that this will allow competition to bring benefits to consumers from greater choice, lower prices and improved service quality at the retail level.

Implementation considerations

12.169 We are not proposing that BT has SMP in the MISBO market within the WECLA, and we therefore set out here how we consider that the proposed regulations should apply to MISBO services in which one end-user site is within the WECLA and the other is outside it.

12.170 We consider that MISBO services in which one end-user site is outside the WECLA boundary (and outside the Hull Area) and the other is inside that boundary should be subject to regulations that apply outside the WECLA boundary, on the basis that, otherwise, BT would be able to leverage the market power it enjoys outside the WECLA onto such services.

12.171 For charges that relate to the local ends of a MISBO circuit, the approach is straightforward. In such circumstance, we expect BT to apply the 'outside WECLA' charge for the local end located outside the prospectively competitive area. In the case of charges which are not location specific, e.g. distance-related charges, we think it is appropriate to provide BT and industry with some further guidance on how we expect obligations to apply.

12.172 Having carefully considered the possible options, we consider that for circuits that cross the boundaries between the two separate geographic markets, BT should apply charges no higher than the charges subject to the regulation outside the WECLA. It is worth noting that BT currently adopts the same approach for TI circuits that cross the deregulated CELA area.

Question 17: Do you agree with the remedies that we propose for BT in the wholesale MISBO market?

Section 13

Interconnection and accommodation services provided by BT

Introduction

- 13.1 In order to use the regulated wholesale services that BT provides in the business connectivity markets, CPs are likely in practice also to need to purchase certain interconnection and accommodation services to interconnect their network to BT's. As these services are an essential part of the overall solution we consider it necessary to regulate their provision in order to address BT's SMP on the relevant wholesale markets.
- 13.2 In the previous sections we have set out our proposed remedies for the TISBO, AISBO and MISBO wholesale markets and have explained that these remedies will also apply to the interconnection and accommodation services that BT provides in connection with wholesale services. Consequently BT will be required to meet reasonable requests for interconnection and accommodation services under the general network access obligation that we propose for each of these markets.
- 13.3 In this section we set out our proposals for specific obligations for interconnection and accommodation services. Table 87 summarises our proposals.

Table 87: Summary of proposals for interconnection and accommodation services

Market	Proposed remedies
Wholesale low bandwidth TISBO in the UK excluding the Hull area Wholesale medium bandwidth TISBO in the UK excluding the Hull and the WECLA area Wholesale high bandwidth TISBO in the UK excluding the Hull area and the WECLA area Wholesale regional TI trunk segments in the UK excluding the Hull area and the WECLA area	An obligation to provide the following interconnection services: <ul style="list-style-type: none"> • In Span Handover (ISH); • In Span Handover Extension (ISH extension); • Customer Sited Handover (CSH); and • In Building Handover (IBH). An obligation to provide accommodation services
Wholesale low bandwidth AISBO market in the UK excluding the WECLA and the Hull Area Wholesale low bandwidth AISBO market in the WECLA	An obligation to provide the following interconnection services: <ul style="list-style-type: none"> • Customer Sited Handover (CSH); and • In Building Handover (IBH).

Wholesale MISBO market in the UK excluding the WECLA and the Hull area	An obligation to provide accommodation services
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13.4 This section is structured as follows:

- for the TISBO, AIBSBO and MISBO markets in turn we review the interconnection services that BT currently provides;
- we present the issues raised by stakeholders in response to the CFI;
- we set out our proposals for specific interconnection obligations and for accommodation services; and
- finally we address the legal tests for the obligations we propose.

Services involved

13.5 A Point of Connection (POC) or Point of Handover (POH) is the point at which another communications provider's network interconnects with BT's network. The relevant services provided at a POC can broadly be divided into equipment and links. Equipment is provided at a POC in the form of multiplexers or terminal equipment which are used for the aggregation, disaggregation and termination of partial circuits ready for onward transmission. Links are circuits which link the equipment of two interconnecting communications providers in order to allow transmission between the networks of these two communications providers.

POC for Wholesale TISBO & TI trunk interconnection services

13.6 BT currently provides the following types of interconnection service for wholesale TISBO services:

- Customer-Sited Handover (CSH): BT provides a POC at the site of the interconnecting communications provider. In order to do so, BT has to extend its network out to the point of interconnection and provide a CSH link along with CSH POC equipment;
- In-Span Handover (ISH): both BT and another communications provider build out their networks to a handover point located between their premises. The handover point is adjacent to the BT exchange and therefore most of the build is the responsibility of the interconnecting communications provider. BT provides the part of the ISH link running from the handover point to its POC, along with ISH equipment at the POC; and
- In Span Handover extension (ISH extension): similar to In-Span Handover but the handover point is located further from the BT exchange but still within the serving area of the exchange.

13.7 Each of these services support aggregated handover of terminating segments over high bandwidth links.

13.8 CSH does not involve building out to BT exchanges and the significant costs of doing so. Therefore, it is the normal mode of handover for a new communications provider

or where a handover link is expected to carry a limited volume of traffic. Regulation of CSH is essential to ensure that barriers to entry for new interconnecting CPs are low. If CPs could only interconnect using ISH and meet the significant costs of building their links up to the BT exchange, this could deter market entry and therefore affect the development of competition in these markets.

- 13.9 ISH is the preferred method of handover for CPs who have reasonably extensive network infrastructure. An interconnecting CP will aim to handover as close as possible to BT, in order to minimise the charges payable to BT. Regulation of ISH (including the ISH extension variant) is necessary to ensure that CPs have the option of building out their own networks and connecting closer to BT's exchange. This therefore assists and incentivises CPs to extend their own infrastructure.
- 13.10 In the 2007/8 Review we subjected BT to an obligation requiring it to provide CSH, ISH and ISH extension. We also concluded that BT should provide In Building Handover (IBH) i.e. a POC at collocation space rented by a CP in a BT local exchange in support of disaggregated TISBO services. As these services were still under development at the time we did not apply a specific obligation to supply IBH.

POC for wholesale AISBO services

- 13.11 BT currently provides the following types of interconnection service for wholesale AISBO services:

- Customer-Sited Handover (CSH). BT provides two types:
 - Without aggregation: BT terminates individual circuits at the CPs site without aggregation (i.e. interconnection is part of the service and there is not separate interconnection link). This method is commonly used for WES and EAD circuits;
 - With aggregation: BT supplies Bulk Transport Link (BTL) which aggregates multiple EBDs services for delivery over a single interconnection link to the CP's site. As with TISBO CSH BT provides a POC at the site of the interconnecting communications provider. In order to do so, BT has to extend its network out to the point of interconnection and provide a CSH link along with CSH POC equipment;
- In Building Handover (IBH): BT provides a POC at collocation space rented by a CP in a BT local exchange. Currently BT terminates individual circuits in the collocation space without aggregation.

- 13.12 Currently BT does not offer ISH products for AI services.

- 13.13 In the 2007/8 Review we subjected BT to an obligation requiring it to provide CSH and IBH.

- 13.14 The pattern of usage of interconnection services for AISBO services differs significantly from TISBO services. CPs generally regard BTL as too expensive and consequently CSH (without aggregation) and IBH are more popular. CSH tends to be used by CPs with existing sites but IBH appears more popular, particularly since BT introduced EAD Local Access which gives CPs an incentive to establish a Point of Presence (POP) in a BT exchange to take advantage of EAD Local Access pricing.

- 13.15 We also note that CPs have requested that Openreach develop an ISH interconnection option and also an aggregation capability to make IBH and ISH interconnection more efficient than the current practice of handing over each circuit individually. We discuss this request further below.

POC for wholesale MISBO services

- 13.16 The interconnection services that BT provides for the high bandwidth Ethernet services that fall within the MISBO market are the same as those it provides for the lower bandwidth Ethernet services that fall within the AISBO market (i.e. as discussed above).
- 13.17 BT's WDM services OSA and OSEA are generally provided on an end-to-end basis (i.e. between end user premises) but BT also offers CSH and IBH.
- 13.18 We did not find that BT had SMP in this market in the 2007/8 Review so it is not currently subject to any ex-ante obligations in relation to interconnection.

Accommodation

- 13.19 Openreach currently provides two types of regulated accommodation services: Co-mingling and Access Locate. Co-mingling is exclusively provided in support of LLU, whilst Access Locate provides accommodation for the majority of other access services supplied by Openreach, including Ethernet leased lines. A CP wishing to use disaggregated AISBO products is thus required to purchase Access Locate as that enables it to deploy its own equipment in the BT exchange space. Openreach also offers a commercial accommodation service called Access Locate Plus with fewer restrictions in terms of both customer and usage.

Cablelink services

- 13.20 In addition to the interconnection products described above BT also provides a product in support of accommodation services called Cablelink. Cablelink has both internal and external variants. The internal variant allows a communications provider to connect two remote licensed areas of the BT exchange building (i.e. two separate areas in which the communications provider has installed its equipment) or to connect equipment in the CP's licensed area to a pre-existing fibre entering the exchange building via the cable chamber. The external variant allows a communications provider's external fibre cable to be pulled into the exchange building by BT and routed to the communications provider's licensed area.
- 13.21 Cablelink is not a handover product as such as it is a passive product that does not interconnect BT equipment to the communications provider's equipment for the purposes of carrying TISBO or AISBO traffic. However, we consider that it is an essential element of the accommodation services that BT provides given that it allows CPs to connect their POP within the BT exchange with the CP's fibre outside the exchange.

Responses to the Call for Inputs

- 13.22 The main points made by respondents to the CFI in relation to interconnection and accommodation services were those made by UKCTA and CWW about accommodation services. These were:

- The introduction of the EAD LA product which terminates in a BT local exchange has made the availability of accommodation more important than in the past;
- CWW thought that the deployment by BT of “deeper network solutions” such as Ethernet in the First Mile (EFM) may have increased the consumption of exchange space;
- UKCTA felt that the ‘proactive review’ of accommodation committed to BT in the Undertakings had failed to ensure that space and power is available to CPs in exchanges. UKCTA noted that there are 179 exchanges where accommodation is not available to CPs at least in the short term; and
- There is a concern that BT lines of business might have preferential access to exchange space not available to CPs as they may not be restricted to the designated shared areas (Access Locate and MUA areas).

13.23 These concerns led CWW to suggest that BT should consume accommodation on an EOI basis.

Proposals

13.24 Section 87(3) of the Act authorises the setting of an SMP services condition requiring the dominant provider to provide such network access as Ofcom may, from time to time, direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to and for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions.

13.25 Section 87(3) includes reference to conditions requiring relevant facilities to be made available. Network access is also defined in sections 151(3) and (4) of the Act so as to include interconnection services and/or any services or facilities that would enable another CP to provide electronic communications services or electronic communication networks. We consider that a requirement to provide network access would, therefore, include any ancillary services as may be reasonably necessary for a Third Party to use the services.

13.26 In relation to price controls, Section 87(9) of the Act authorises the setting of an SMP services condition setting price controls for network access and relevant facilities. Section 88 of the Act specifies that Ofcom are not to set a price control unless it appears to Ofcom that there is a risk of adverse effects due to pricing distortions and it appears to Ofcom that setting a price control would promote efficiency, sustainable competition and confer the greatest benefits on the end users.

13.27 We consider it necessary to require BT to provide certain interconnection and accommodation services. In the absence of regulation BT would have an incentive not to supply some or all of these services or to charge excessive prices, particularly as it does not require interconnection services in order to provide its own downstream retail services. As CPs must purchase these services this would have the same effect as excessive prices for the main wholesale services BT supplies and would undermine the remedies that we are imposing.

TISBO and TI regional trunk services

- 13.28 We propose that BT should be required to provide each of the types of interconnection service discussed above, namely CSH, ISH, ISH extension which are the established means of interconnection for TISBO and TI regional trunk services. As discussed above each of these services performs a different function and facilitates competition in a different manner and we therefore consider it important that BT provide all three types of interconnection.
- 13.29 Now that BT is preparing to introduce disaggregated TISBO products we propose that BT should be required to provide accommodation services and IBH for TISBO and TI regional trunk services. We consider that the use of disaggregated TISBO products will facilitate competition and innovation in the interests of consumers by allowing CPs to expand the range of services they supply from POPs they establish in BT local exchanges, thereby enabling them to exploit economies of scale and scope in the provision of business connectivity and other services such as LLU based broadband and telephony services.
- 13.30 We consider that these services should be subject to price controls and provided on non-discriminatory and transparent terms.

AISBO services

- 13.31 We propose that BT should be required to provide each of the types of interconnection service discussed above, namely CSH and IBH. As discussed above each of these services performs a different function and facilitates competition in a different manner and we therefore consider it important that BT provide both types of interconnection.
- 13.32 As previously discussed in section 11 the ISH and interconnection aggregation (high density handover) developments requested by CPs appear to us to be sensible developments that would broadly align the interconnection options available for Ethernet services with those already available for TISBO services. They have the potential to improve the efficiency of interconnection by reducing the overall amount of equipment required (and as a result reduce the amount of equipment space required and power consumed) and also to reduce costs. Also, an ISH option would be better suited to CPs with extensive network infrastructure and would reduce the pressure on accommodation in BT exchanges (which as discussed in paragraph 13.40 is in short supply) and would enable CPs to interconnect at exchanges where no accommodation space is available. We therefore consider that the product development should be brought to a conclusion as soon as reasonably possible so that deployment could proceed and CPs can begin to benefit from these enhancements as soon as possible.
- 13.33 We consider that these services should be subject to price controls and provided on non-discriminatory and transparent terms.

MISBO services

- 13.34 We propose that BT should be required to offer CSH and IBH interconnection products which are the established interconnection services for Ethernet and WDM services in this market.
- 13.35 As with AISBO services, we consider that BT should continue to develop ISH, ISH extension and aggregation options for Ethernet services.

- 13.36 We consider that these services should be subject to price controls and provided on non-discriminatory and transparent terms.

Accommodation

- 13.37 We also propose that BT should be required to offer accommodation services in support of disaggregated services in the TISBO, AISBO and MISBO markets.
- 13.38 We consider that these services should be subject to price controls and provided on non-discriminatory and transparent terms.

Allocation of space

- 13.39 We consider that the use of disaggregated products such as EAD Local Access facilitates competition and innovation in the interests of consumers by allowing other CPs to access BT's bottleneck assets at least cost. We therefore wish to encourage the use of disaggregated AISBO and TISBO products. The availability of accommodation in BT exchanges is an important enabler to this model of competition.
- 13.40 We acknowledge that with the increasing consumption of disaggregated products such as EAD Local Access, accommodation has become more important and that pressure on accommodation space has increased.
- 13.41 The provision of space and power was identified as an area for concern in the TSR and was subsequently the subject of significant regulatory attention. This culminated in a variation to the BT Undertakings in 2008.⁸⁸ In this variation, Openreach agreed to undertake a proactive review of exchange space, to develop a multi-use accommodation product and to allocate space and power on an EOI basis.
- 13.42 The effect of this variation was to commit Openreach to assign space and power on a 'first-come-first-served' (FCFS) basis but not to consume the same accommodation products that are used by CPs. This was based on the assessment that given the scale of deployment of equipment by BT, BT's requirements are likely to be different to other CPs so that BT would be likely to use different products to other CPs even if it was required to obtain these products from Openreach.
- 13.43 We also took the view that it was appropriate that provisioning activities such as the provision of ironwork and power in BT owned buildings to be carried out by a single provider as management of an exchange where multiple CPs are all carrying out their own works would be complex and inefficient.
- 13.44 We consider that these conclusions remain valid. We think that allocation of accommodation on an EOI basis in conjunction with a set of charge-controlled accommodation products that meet CPs needs addresses the competition issue in a proportionate manner.
- 13.45 Given the importance of accommodation to CPs it is essential that space and power continue to be allocated on a First Come First Served basis. For this reason, we are minded to set appropriate SMP conditions to require that allocation of space and power is undertaken by BT on an EOI basis.

⁸⁸Variations to BT's Undertakings under the Enterprise Act 2002 in respect of BT's NGN, Space and Power and OSS separation

http://stakeholders.ofcom.org.uk/binaries/consultations/variatio ns_bt/statement/statement071008.pdf

Availability of space

- 13.46 In the last twelve months, there have been two initiatives to address the shortage of accommodation at some exchanges.
- 13.47 Firstly pursuant to section 5.49(d) of the variation to the BT Undertakings discussed above, BT Operate has recently undertaken a proactive review based on planning instructions provided by Openreach and agreed with the Ethernet Industry forum. The review has been proactively monitored by the Equality of Access Office and has involved 69 different Local Exchanges signalled by industry stakeholders as being in shortage of space. For the large majority of exchanges, the EAO was satisfied that Openreach and BT Operate had plans to accommodate further CPs' equipment. However, the EAO concluded that BT's timescales for freeing space are quite long. The current average lead time for reviewing space in an exchange building, plan appropriate actions to free space and execute the plan is 126 days. This is mainly due to resource constraints within BT Operate.
- 13.48 Secondly the Office of Telecom Adjudicators 2 (OTA2) has recently set up the 'Plan & Build' industry forum to investigate possible solutions to this problem. The role of the forum is to review operational performance in the provision of access to exchange space, power, cable infrastructure (tie cables) and Main Distribution Frames.
- 13.49 We agree with the EAO that there may be scope to reduce the lead times to fulfil new accommodation orders. We believe that the work currently undertaken by the OTA2 will help industry finalise a better process to free space in BT exchanges and thus require BT to continue engaging with industry via the OTA2 forum.
- 13.50 Noting the above developments, we consider that the proposed remedies are sufficiently flexible to address issues which may arise in relation to availability of space.

Legal tests

- 13.51 We are satisfied that that the proposed obligations (set out in Annex 14) meets the various tests set out in the Act.
- 13.52 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the obligations are aimed at promoting competition by ensuring that CPs are supplied with interconnection and accommodation services that they require in order to use the wholesale services BT supplies effectively.
- 13.53 Second, sections 47 and 49 require conditions and directions respectively to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions and directions are:
- objectively justifiable, in that they facilitate and encourage access to BT's network and therefore promotes competition to the benefit of consumers;
 - not unduly discriminatory, as they are proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
 - proportionate, in that they prevent BT from exploiting its SMP by withdrawing these interconnection and accommodation services; and

- transparent in that the condition is clear in its intention to ensure that BT provide access to its networks in order to facilitate effective competition.

Section 14

Remedies for the Hull area

Introduction

14.1 In this section we set out the SMP remedies we propose to impose on KCOM in the following retail and wholesale markets:

- wholesale market for low bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) in the Hull area at bandwidths up to and including 8Mbit/s;
- wholesale market for medium bandwidth TISBO in the Hull area at bandwidths above 8Mbit/s and up to and including 45Mbit/s;
- wholesale market for high bandwidth TISBO in the Hull area at bandwidths over 45Mbit/s and up to and including 155Mbit/s;
- wholesale market for very high bandwidth TISBO in the Hull area at 622Mbit/s bandwidth;
- wholesale market for low bandwidth Alternative Interface Symmetric Broadband Origination (AISBO) in the Hull area, bandwidths up to and including 1Gbit/s;
- retail market for low bandwidth traditional interface leased lines in the Hull area, bandwidths up to 8Mbit/s; and
- retail market for low bandwidth alternative interface leased lines in the Hull area, bandwidths up to and including 1Gbit/s.

14.2 Unless stated otherwise we refer to the low, medium, high and very high bandwidth wholesale traditional interface markets listed above collectively as the 'wholesale TISBO markets'.

14.3 These proposed SMP remedies are based on the nature of the competition problems we have identified in our market analysis, in particular our SMP assessment, in these markets. We set out these competition problems in this section.

14.4 We consider that these remedies would achieve our statutory duties and would satisfy the relevant legal tests. In reaching these proposals, we have also taken account of our regulatory experience from the two previous market reviews, recent developments in these markets, views expressed by stakeholders in response to the Call for Inputs (CFI) and expected developments over the course of the review period of three years.

Summary

14.5 Table 88 below summarises the competition issues we have identified in the relevant markets we propose to define for the Hull area and the remedies that we propose to impose in them.

Table 88: Summary of competition problems and proposed remedies

Competition problems	RETAIL remedies low bandwidth AI market low bandwidth TI market	WHOLESALE remedies low bandwidth AISBO market wholesale TISBO markets
<ul style="list-style-type: none"> Refusal to supply 	<ul style="list-style-type: none"> Requirement to supply retail leased lines 	<ul style="list-style-type: none"> Requirement to provide network access on reasonable request
<ul style="list-style-type: none"> Price discrimination Non-price discrimination, e.g. <ul style="list-style-type: none"> Different terms Delaying tactics (late provisioning etc.) Strategic design of products Exclusive dealing Quality discrimination Different SLAs & SLGs Predatory pricing; Margin squeeze; excessive pricing. 	<ul style="list-style-type: none"> Requirement not to discriminate unduly Requirement to publish a reference offer 	<ul style="list-style-type: none"> Requirement not to discriminate unduly Requirement to publish a reference offer Requirement to notify charges, terms and conditions Requirement to notify technical information

- 14.6 As in the 2007/8 Review, we do not propose to introduce charge controls in relation to markets in the Hull area at this stage. We note that customers have not expressed concerns to us in relation to pricing in the Hull area, but we recognise that, in light of our market analysis, there is a risk that KCOM could set its charges at an excessively high level. We intend to monitor this matter. If we were to receive a complaint about KCOM's prices or if we ourselves had concerns about them, we would investigate and, if the concerns were found to be justified, we would consider appropriate forms of intervention. As an initial step to inform the need for our intervention, we intend to benchmark KCOM's wholesale prices against BT's for comparable services. We would then expect KCOM's retail prices to reflect its wholesale charges plus a reasonable allowance for its retail costs.

Structure

- 14.7 This section is structured as follows:

Sub-section	Description
Proposed remedies	We summarise the remedies that currently apply in this market
RETAIL MARKETS	
Assessment of the competition problems in retail markets in Hull	High-level discussion of competition issues identified as a result of our SMP analysis
Assessment of appropriate remedies	The assessment is performed through four steps: <ol style="list-style-type: none"> 12. Assessment of current competition issues 13. Consideration of issues raised in CFI 14. Assessment of appropriate remedies for the issues 15. Summary of proposed approach
Proposed remedies	Proposal of the appropriate remedies based on the above assessment. For each remedy we clarify the aim and the legal basis.
WHOLESALE MARKETS	
Assessment of the competition problems in wholesale markets in	High-level discussion of competition issues identified as a result of our SMP analysis

Hull	
Assessment of appropriate remedies	The assessment is performed through four steps: <ol style="list-style-type: none"> 1. Assessment of current competition issues 2. Consideration of issues raised in CFI 3. Assessment of appropriate remedies for the issues 4. Summary of proposed approach
Proposed remedies	Proposal of the appropriate remedies based on the above assessment. For each remedy we clarify the aim and the legal basis.
Other considerations	Consideration of the requirement for a specific obligation on KCOM with respect to interconnection and accommodation services related to wholesale AISBO and TISBO markets

Assessment of the competition problems in retail markets in the Hull area

14.8 The competition problems and the appropriate remedies are very similar in each identified retail market, and we therefore consider both the retail low bandwidth TI market and the retail low bandwidth AI market together in our assessment below.

Existing remedies

14.9 In the 2007/8 Review, we did not find KCOM to have SMP in the retail AI and TI business connectivity markets and consequently there are currently no *ex ante* remedies in these markets.

Competition problems identified in the Hull area retail markets

14.10 In light of our SMP assessment, we now consider that, in the absence of *ex ante* regulation, KCOM would have the incentives, and its market power would afford it the ability to:

- refuse to supply some retail low bandwidth TI or AI leased lines, for example by restricting the range of products available to end-users;
- charge excessively high prices;
- engage in unduly discriminatory pricing practices, for example by charging certain groups of end-users more than others, in order to restrict retail competition or for other reasons; and
- engage in unduly discriminatory practices relating to non-price aspects of retail leased lines for example by offering certain groups of users different terms and conditions than others, different quality of service or different provision or repair timescales. This may be in order to restrict retail competition or for other reasons.

14.11 To assess the appropriate remedies to address these competition problems, we have carried out an analysis of current competition in the retail TI low bandwidth and retail AI low bandwidths markets in the Hull area and we have taken into account views expressed by stakeholders in response to our CFI.

Insufficiency of national and Community competition law remedies

15.11 We consider that national and Community competition law remedies would be insufficient to address the competition problems we have identified. In reaching this

view, we have regard to our general assessment of the sufficiency of competition law set out in Section 8 (on our approach to remedies) and in Annex 6 (on the market review process) as relevant to addressing the competition problems in Hull area retail markets. In particular:

- we do not consider appropriate remedies could be imposed under competition law – e.g. a requirement to supply;
- we consider the requirements of intervening could be extensive – e.g. the need to monitor imposed terms and conditions;
- we consider providing certainty in the Hull area retail markets is of paramount concern, both to KCOM and to any prospective competitors, and we consider this is best achieved through *ex ante* regulation which, in comparison to competition law remedies, would:
 - provide greater clarity on the types of behaviour that is/is not allowed;
 - be easier to enforce in that it would allow for timely intervention through a process with which the market in general is familiar and which is set out in the Act.

Insufficiency of wholesale regulation

14.12 We apply regulation at the wholesale level where this is sufficient to address competition in downstream markets. Indeed, under section 91(2) of the Act (and Art. 17(1)(6) of the USD), we may only impose retail remedies where wholesale regulation is insufficient fully to perform our duties in relation to the market situation in the relevant market.

14.13 Our analysis leads us to the view that the remedies imposed in the relevant upstream markets in the Hull area would not address the identified competition problems over the period of the review. As discussed below, we consider that KCOM's share of these retail markets is likely to remain high over the period of this review despite the availability of regulated upstream wholesale services. In the retail low bandwidth TI market there is little incentive for CPs to invest in order to compete with KCOM given the declining nature of this market (even leaving aside the size of the potential customer base). The retail low bandwidth AI market is growing but, due to the small size of the potential customer base in Hull, in our view it offers insufficient potential for revenue and profit to attract a significant amount of entry over the three year forward looking period even in the presence of regulated access to upstream wholesale inputs.

Result of our assessment of the competition problems

15.12 In light of our market analyses, in particular our SMP assessment, and our assessment of the insufficiency of national and Community competition law remedies and upstream wholesale regulation to address the competition problems we have identified, we consider over the course of the forward-looking review period of three years that competition would be ineffective in:

- the retail market for low bandwidth TI leased lines in the Hull area, bandwidths up to and including 8Mbit/s; and

- the retail market for low bandwidth AI leased lines in the Hull area, bandwidths up to and including 1Gbit/s.

14.14 In order to address the competition problems, we now turn to our assessment of the appropriate remedies.

Assessment of appropriate remedies

Analysis of current competition

14.15 We estimate that KCOM's share of the retail low bandwidth TI market is 67% compared to 76% in the 2003/04 Review. Some of the other CPs' share of low-bandwidth TI retail services in the Hull area is likely to be accounted for by circuits that cross the Hull area boundary, provided to customers with a national footprint of sites which includes some sites located in Hull. We consider that CPs are more likely to compete to supply circuits of this nature than to compete to sell to customers whose connectivity requirements are entirely within the Hull area.

14.16 We note in Section 7 of this consultation document that we had in the 2007/8 Review found that KCOM had a market share of only 25% in the retail low bandwidth TI market and we therefore did not determine that KCOM had retail market power. However, we now consider that this was an error as a result of incomplete data and we have now found that KCOM's retail market share has been relatively stable over time. This suggests that its retail market power has persisted, despite the existence of regulated access to upstream wholesale inputs.

14.17 We consider that the small and shrinking size of the retail TI market is likely to mean that incentives for CPs to invest in order to compete in this market are limited. Consequently, we consider that there is little prospect of increased competition during period of this review.

14.18 For the retail low bandwidth AI market, we estimate KCOM's share of this market to be no lower than 75% and possibly over 90%. We consider that this provides strong evidence that the market is not effectively competitive, despite the availability of a regulated upstream wholesale service.

14.19 Although this market is growing, we consider that the Hull area does not offer sufficient potential for growth to attract a significant amount of new entry.

14.20 While we believe that the prospects for competition in these retail markets can be improved through better terms and conditions for regulated wholesale inputs (discussed in the wholesale sub-section below), we consider that even with improved regulated wholesale inputs, KCOM is unlikely to be effectively constrained by its competitors in the retail market over the forward-looking period.

Consideration of issues raised in the CFI responses

14.21 Only KCOM discussed retail markets in the Hull area in its CFI response. The main points it raised were:

- KCOM was not found to have SMP in the provision of any retail leased lines in the last market review and that it does not believe there has been a change in position since then;

- KCOM suggested that in view of the fact that the retail leased lines markets are no longer on the list of markets susceptible to *ex ante* regulation in the Commission's list, we should not apply retail remedies; and
- the removal of regulatory obligations from TI services, particularly the obligation to supply would be likely to significantly ease migration as TI services reach the end of their lives.

Ofcom's comments

14.22 As discussed in Section 7, we have reviewed the market situation for retail leased lines services in the Hull area for this review. We propose that KCOM has SMP in the retail market for low bandwidth TI services and the retail market for low bandwidth AI services for reasons explained.

14.23 Our Community law obligation is to define relevant markets appropriate to national circumstances in accordance with competition law principles, whilst taking the utmost account of the EC Recommendation. The fact that retail leased lines no longer appear on the Commission's list is therefore something we have considered. However, as the EC Recommendation itself makes clear, national regulatory authorities may identify markets where *ex ante* regulation may be warranted (based on specific national circumstances) other than those on the Commission's list of markets susceptible to *ex ante* regulation. In Section 7, we discuss the three criteria test that the EC Recommendation specifies for the identification of such markets.

14.24 We discuss the withdrawal of TI services below.

Consideration of specific competition issues

14.25 We consider below how the competition problems that we have identified should be addressed.

Refusal to supply

14.26 As noted above, competitive entry has not to date occurred to any significant extent and we consider it to be unlikely during the period of this review. As a result, retail customers in the Hull area are largely dependent upon KCOM's continued willingness to supply products appropriate to their needs. Our analysis suggests that KCOM has SMP and, if so, it would have the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers. Consequently, we consider that there is a risk that KCOM might unreasonably refuse to supply certain types of service or customer groups if such a strategy would serve its commercial interests. We therefore consider that, in order to address this concern, KCOM should be subject to an obligation to meet reasonable requests for supply of retail leased lines in these markets.

Withdrawal of retail low bandwidth TI services

14.27 Unlike BT, KCOM has not announced any plans to withdraw retail low bandwidth TI leased lines. However, given that similar considerations apply to the Hull area as to the rest of the UK, we recognise that KCOM may wish to consider how best to manage a withdrawal process in the coming years, and possibly in the course of the forward-looking period.

- 14.28 We acknowledge that, to the extent the situation in the Hull area mirrors that elsewhere in the UK, these services may be approaching the end of their life. However, as with the corresponding BT services, we consider that end users will require sufficient notice of the withdrawal of these services, particularly for critical applications.
- 14.29 As KCOM has not yet formulated plans to withdraw these services, we consider it appropriate to maintain the obligation to supply these services in order to prevent them from being withdrawn prematurely. Once KCOM has formulated plans to withdraw these services and we are satisfied that KCOM has provided sufficient notice to address end-users' concerns, we will consider any steps which may be appropriate in relation this proposed obligation. For example, we could alter the obligation to supply to facilitate withdrawal, by removing the obligation for KCOM to supply new services.

Excessive pricing

- 14.30 In a competitive market, prices could be expected to be cost reflective. However, where a provider has SMP, competition cannot be expected to provide effective constraints and *ex ante* regulation may be desirable to prevent charges from being set at an excessive level.
- 14.31 In these markets, we propose KCOM has SMP and as previously discussed there is limited likelihood of significant competitive entry and we consider that KCOM would have the ability to charge excessive prices to the detriment of end users.
- 14.32 The prohibition on undue discrimination and requirement to publish a reference offer only do a limited amount to address the incentive to charge excessive prices, and we have considered, in light of our current understanding of the scale of the potential issue in Hull and the costs of intervention, whether further measures would be appropriate in the Hull area.
- 14.33 One possible solution to address the risk of excessive pricing would be to impose a charge control. Under an RPI +/-X form of charge control regulation, incentives are normally created for the dominant provider to increase efficiency, thereby imitating the effect of a competitive market.
- 14.34 We have considered whether a charge control would be appropriate at this point. Our proposal is that it would not be appropriate to impose this remedy at this stage. In reaching this view, we consider in particular that it would not be proportionate to impose such a remedy. While a charge control is in principle likely to be effective to address the risk of any excessive pricing by KCOM, we also need to consider what is the minimum necessary remedy to achieve the aim pursued in light of available evidence. In this regard, to start with, we note that KCOM has not previously been subject to a charge control in these markets. Also, we have neither received any complaints from customers and competitors, nor have we received responses to the CFI expressing concerns in this regard. We also consider that a charge control could at this stage produce adverse effects which are disproportionate to the aim that would be pursued by any such control, in particular taking account of the significant costs to Ofcom and KCOM of formulating a charge control.
- 14.35 We have also considered the alternative of imposing a cost orientation obligation to address the possible risk of excessive pricing. However, we believe that a cost orientation obligation in the present circumstances would be disproportionate for similar reasons discussed above in relation to a charge control. We consider, in

addition, that such an obligation, if used as the primary control on KCOM's charges, would not address the lack of incentive properties that we think would be required in relation to KCOM for this remedy to be effective.

- 14.36 Another possible alternative that could have better incentive properties, whilst imposing a lower regulatory burden, would be to monitor prices against a suitable benchmark for competitive prices.
- 14.37 As we discuss later in this section, we consider that BT's wholesale prices could provide an initial suitable benchmark against which to assess KCOM's wholesale charges. In the wholesale low bandwidth TISBO market in the UK (excluding the Hull area) and in the wholesale medium and high bandwidth TISBO markets and the wholesale low bandwidth AISBO market in the UK (excluding the WECLA and the Hull area), we are proposing that BT's wholesale charges should be subject to RPI-X charge controls such that charges will be brought to a level approximating to those of a competitive market.
- 14.38 We consider that KCOM's wholesale charges with a reasonable allowance for KCOM's gross retail margin (to cover retail costs including a reasonable rate of return) would be a suitable candidate for a benchmark against which to assess KCOM's retail prices. In order to preserve incentives, we may also use BT's retail costs as a benchmark for a reasonable level of retail costs.
- 14.39 Below we consider whether there is a need for an SMP obligation to enable the benchmarking of KCOM's wholesale charges. At the retail level, we consider that for now the appropriate and proportionate approach is for KCOM to provide greater transparency about its retail leased lines charges. Accordingly, we propose that KCOM should be obliged to publish a reference offer including prices terms and conditions.

Undue discrimination

- 14.40 As noted above, our analysis suggests that KCOM has SMP and, if so, it would have the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers in these retail markets. We therefore consider that KCOM would have the incentive to discriminate unduly against particular groups of retail customers, for example by charging excessive prices, imposing unfair terms or providing inferior service quality. KCOM also has the incentive to discriminate unduly against particular groups of retail customers in order to restrict competition e.g. by charging higher prices where competition is weak and lower prices where it is stronger. In order to address this risk, we propose that KCOM should be subject to an obligation not to discriminate unduly.
- 14.41 To provide transparency and to support the proposed obligation, we consider that KCOM should also be required to publish a reference offer specifying prices, terms and conditions. As noted above, we have taken into account the need for this proposed obligation in assessing the appropriateness of a specific pricing remedy.

Pricing

- 14.42 Often, in conjunction with obligations not to discriminate unduly, we require the dominant provider to publish its prices in a reference offer and not to deviate from them in order to reduce the risk of unduly discriminatory pricing.

- 14.43 In these markets, there is relatively little competition, particularly for large local institutions whose business connectivity requirements are mostly within the Hull area where it appears that KCOM is the only supplier. Given this, the main impact of requiring KCOM not to deviate from published prices would be to restrict its ability to offer discounts to large local users which might lead to higher prices for them. We therefore propose that KCOM should have some flexibility to price discriminate so that it may offer discounts where it is efficient to do so.
- 14.44 In order to provide the necessary transparency about retail prices, we propose that KCOM should be required to publish the maximum charges that it offers for retail services in these markets (i.e. the prices before any bespoke discounts for larger users). These prices would be used as the basis for the pricing benchmarks discussed above in order to ensure that the comparison reflects the prices available to all users.
- 14.45 This does not mean that KCOM would have complete flexibility to price discriminate, as discounts that are offered purely to forestall competition would still be considered unduly discriminatory. In the event of an alleged breach we would judge each alleged breach on a case-by-case basis.

Summary of proposed approach

- 14.46 We propose that KCOM should be subject to the following obligations in the retail low bandwidth TI leased lines market in the Hull area and the retail low bandwidth AI leased lines market in the Hull area:
- a requirement to supply retail leased lines on fair and reasonable terms and conditions including charges;
 - a requirement not to discriminate unduly; and
 - a requirement to publish a reference offer including maximum charges, terms and conditions.
- 14.47 We are not proposing a charge control for these markets. If in future we had concerns about the reasonableness of KCOM's retail prices, we intend as an initial step to inform the need for our intervention by assessing them against KCOM's wholesale charges plus a reasonable allowance for KCOM's retail costs. As we describe below, we propose to benchmark KCOM's wholesale charges against BT's wholesale prices for comparable services. Given that the services have the same technical characteristics, we would expect KCOM's wholesale prices to be fairly closely aligned with BT's wholesale prices for broadly comparable charge-controlled products. If we found KCOM's prices to be excessive on that initial analysis, we will consider what alternative steps might be appropriate to deal with such concerns.

Proposed remedies for the retail markets in Hull

- 14.48 The competition problems and the appropriate remedies are very similar in each identified market and we therefore consider the retail low bandwidth TI market and the retail low bandwidth AI market together below.

Requirement to supply retail leased lines

Aim of regulation

14.49 Our analysis suggests that KCOM has SMP and, if so, it would have the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers in these markets. Consequently, we consider that there is a risk that it might unreasonably refuse to supply certain types of service or customer groups if such a strategy served its commercial interests. We therefore consider it appropriate to impose an obligation for KCOM to supply retail leased lines on reasonable request and to supply them on fair and reasonable terms, conditions and charges as Ofcom may from time to time direct.

Legal tests

14.50 We are satisfied that the proposed conditions (as set out in Annex 14) meet the various tests set out in the Act.

14.51 We have had regard for our duties under the Act, including our general duties under section 3 and duties for the purposes of fulfilling Community obligations (including under the EC framework for telecommunications regulation. We have also taken into account all relevant guidelines published by the European Commission, ERG (now BEREC), Oftel and ourselves. We note, in particular, that we consider the proposed condition furthers the interests of citizens and consumers in relation to communications matters by ensuring the availability of retail leased lines services in these markets.

14.52 Section 47 of the Act requires conditions to be objectively justifiable, proportionate and transparent. The proposed condition are:

- objectively justifiable, in that, absent this obligation, there is a risk KCOM might not supply retail leased lines to some or all end-users;
- not unduly discriminatory, as only KCOM and no other operator has been found to hold a position of SMP in these markets and would therefore have the ability and incentive to exploit customers not supplying end users;
- proportionate since it is the least onerous obligation which addresses this particular risk of harm to end-users and citizens and will otherwise allow KCOM to refuse to supply these services. In particular, wholesale remedies alone would be insufficient because there is little prospect that alternative suppliers would step in using wholesale inputs were such services withdrawn by KCOM; and
- transparent in that the condition is clear in its intention and because the purpose and meaning of the obligation and the reasons for imposing it are clearly explained in this document.

Requirement not to discriminate unduly

Aim of regulation

14.53 In light of our analysis, particularly in relation to the strength of retail competition in these markets, we consider it appropriate that KCOM should be subject to a requirement not to discriminate unduly in the provision of retail services in these markets. In the absence of such a requirement, KCOM would have an incentive to

distort competition by discriminating against particular groups of retail customers e.g. through charging higher prices where competition is weaker and lower prices where it is stronger. KCOM would have an incentive to charge excessive prices, impose unfair terms or offer inadequate quality of service to particular groups of customers.

- 14.54 In the retail low bandwidth TI market and the retail low bandwidth AI market, KCOM would be obliged not to discriminate unduly against particular persons or against a particular description of persons in relation to matters connected with the supply of retail leased lines.
- 14.55 As discussed above, we propose that KCOM should be permitted to offer bespoke prices and required to publish only its maximum charges in its reference offer.
- 14.56 This does not mean that KCOM would have complete flexibility to price discriminate, and discounts that are offered purely to forestall competition would still be considered unduly discriminatory. In the event of an alleged breach we would judge each alleged breach on a case-by-case basis.

Legal tests

- 14.57 We are satisfied that the proposed conditions (as set out in Annex 14) meet the various tests set out in the Act.
- 14.58 We have had regard for our duties under the Act, including our general duties under section 3 and duties for the purposes of fulfilling Community obligations (including under the EC framework for telecommunications regulation). We have also taken into account all relevant guidelines produced by the EC, ERG, Oftel and ourselves. We note in particular that the condition is aimed at preventing the distortion of competition and harm to particular groups of end-users in the form of high prices, unfair terms or inadequate service that might occur if KCOM had the freedom to unduly discriminate in the provision of services in these markets.
- 14.59 Section 47 of the Act requires conditions to be objectively justifiable, proportionate and transparent. The proposed condition are:
- objectively justifiable, in that KCOM would otherwise be able to distort competition by discriminating against particular groups of retail customers, e.g. through charging high prices where competition is weak and lower prices where it is stronger. It also ensures that KCOM does not abuse its SMP position by charging excessive prices, imposing unfair terms or offering inadequate quality of service to particular groups of customers. The requirement therefore promotes competition and furthers the interests of consumers;
 - not unduly discriminatory, as only KCOM and no other operator has been found to hold a position of SMP in these markets and would therefore have the ability and incentive to exploit customers by charging excessive prices, imposing unfair terms or offering inadequate quality of service;
 - proportionate because it is the least onerous obligation which addresses this particular risk of harm to competition and also because we have allowed KCOM the flexibility to price discriminate where it is efficient to do so. As noted in relation to the obligation to supply, we do not consider wholesale remedies would be sufficient because there little prospect that alternative suppliers would step in using wholesale inputs were KCOM to charge excessive prices, impose unfair terms or offer inadequate quality of service; and

- transparent in that the conditions are clear in their intention and because the purpose and meaning of the obligation and the reasons for imposing it are clearly explained in this document.

Requirement to publish a reference offer (including maximum charges, terms and conditions)

Aim of regulation

14.60 We consider it appropriate that KCOM should be subject to an obligation to publish a reference offer specifying terms and conditions and maximum retail prices for its services in these markets. This obligation would provide transparency about prices, terms and conditions in support of the non-discrimination obligation and to enable KCOM's retail prices to be monitored. In the absence of such an obligation, KCOM would have an incentive not to publish this information with the result that discriminatory conduct or excessive pricing would be less visible.

14.61 KCOM would be required to publish a reference offer including at least the following:

- The technical characteristics of the services including the physical and electrical characteristics as well as the detailed technical and performance specifications which apply at the network termination point;
- maximum charges, including the initial connection charges, the periodic rental charges and other charges;
- information concerning the ordering procedure;
- contractual details; and
- any refund procedure.

14.62 The obligation would prohibit KCOM from departing from the terms and conditions in the reference offer and requires it to comply with any directions Ofcom may make from time to time under the condition.

14.63 As discussed above, KCOM would be required to publish maximum charges that must not be exceeded and would be permitted to offer bespoke discounts that are not published in the reference offer.

Legal tests

14.64 We are satisfied that the proposed conditions (as set out in Annex 14) meet the various tests set out in the Act.

14.65 We have had regard for our duties under the Act, including our general duties under section 3 and duties for the purposes of fulfilling Community obligations (including under the EC framework for telecommunications regulation). We have also taken into account all relevant guidelines produced by the EC, ERG, Ofcom and ourselves. We note that the condition is aimed in particular at preventing BT from varying terms and conditions in a way which would harm citizens and consumers and at providing transparency about the highest prices that KCOM charges to enable us to monitor retail prices.

14.66 Section 47 of the Act requires conditions to be objectively justifiable, proportionate and transparent. The proposed conditions are:

- objectively justifiable, in that they provide certainty to operators and prevent KCOM from withholding information from customers and competitors, or misusing information in a way which could harm competition, which would be a real risk in the absence of the conditions. In addition the conditions facilitate monitoring of KCOM's retail prices and monitoring compliance with the other obligations, notably the obligation not to unduly discriminate;
- not unduly discriminatory, as only KCOM and no other operator has been found to hold a position of SMP in these markets and would therefore have the ability and incentive to exploit customers by withholding or misusing information;
- proportionate, since they are targeted at addressing the market power that we propose that KCOM holds in these markets. This obligation supports the other conditions imposed to address KCOM's SMP in this market. It provides transparency on retail pricing as a safeguard against excessive pricing and it ensures that CPs have access to information they need to compete fairly with KCOM. As noted in relation to the obligation to supply, we do not consider wholesale remedies would be sufficient because there is little prospect that alternative suppliers would step in using wholesale inputs were KCOM to withhold or misuse information. Additionally, a wholesale remedy would not be capable of supporting the other obligations at the retail level referred to above; and
- transparent in that the conditions are clear in their intention and because the purpose and meaning of the obligation and the reasons for imposing it are clearly explained in this document.

Assessment of the competition problems in the wholesale markets in the Hull area

14.67 The competition problems and the appropriate remedies are very similar for the wholesale markets for low bandwidth TISBO, medium bandwidth TISBO, high and very high bandwidth TISBO and low bandwidth AISBO in the Hull area and we therefore consider them together in our assessment below.

Competition problems identified in the Hull area wholesale markets

14.68 In light of our SMP assessment, we set out below the competition problems we have identified in the wholesale TISBO markets and the low bandwidth AISBO market in the Hull area. In the absence of *ex ante* regulation, we consider KCOM would have the incentive, and its market power would afford it the ability to:

- refuse to supply access at the wholesale level and monopolise the provision of services in the retail TI and AI leased lines;
- engage in undue price discriminatory practices – e.g. by charging its competing providers more than the amount charged to its downstream divisions;
- engage in undue non-price discriminatory practices – e.g. by supplying the same products on different terms and conditions, different timescales for provision and fault repair, quality discrimination, different SLAs and SLGs, creating new

variants to fulfil the requirements of its downstream division and taking longer to address, or avoiding addressing the requirements of its competitors;

- charge excessively high prices;
- refuse to supply, or engage in delaying tactics in the provision of, new network access services requested by its competitors.

14.69 We consider KCOM would have the incentive to engage in these practices in order adversely to affect the development of competition in the related downstream retail markets and thus enable it to act independently of competitors, customers and ultimately of consumers in those markets.

Insufficiency of national and Community competition law remedies

14.70 We consider national and Community competition law remedies would be insufficient to address the competition problems we have identified. In reaching this view, we regard our general assessment of the sufficiency of competition law set out in Section 8 (on our approach to remedies) and in Annex 6 (on the market review process) as relevant to addressing the competition problems in Hull area wholesale markets. In particular:

- We do not consider appropriate remedies could be imposed under competition law – e.g. a requirement to supply;
- We consider the requirements of intervening are extensive – e.g. the need to monitor imposed terms and conditions;
- We consider providing certainty in the Hull area wholesale markets is of paramount concern, both to KCOM and to any prospective competitor, and we consider this is best achieved through *ex ante* regulation which, in comparison to competition law remedies, would:
 - Provide greater clarity on the types of behaviour that is/is not allowed;
 - Be easier to enforce in that it would allow for timely intervention through a process with which the market in general is familiar and which is set out in the Act.

Result of our assessment of the competition problems

14.71 In light of our market analyses, in particular our SMP assessment, and our assessment of the insufficiency of national and Community competition law remedies to address the competition problems we have identified, we consider over the course of the review period of three years that competition would be ineffective in:

- the wholesale market for low bandwidth TISBO in the Hull area at bandwidths up to and including 8Mbit/s;
- the wholesale market for medium bandwidth TISBO in the Hull area at bandwidths above 8Mbit/s and up to and including 45Mbit/s;
- the wholesale market for high bandwidth TISBO in the Hull area at bandwidths over 45Mbit/s and up to and including 155Mbit/s;

- the wholesale market for very high bandwidth TISBO in the Hull area at 622Mbit/s bandwidth;
- the wholesale market for low bandwidth AISBO in the Hull area, bandwidths up to and including 1Gbit/s.

14.72 In order to address the competition problems, we now turn to our assessment of the appropriate remedies.

Assessment of appropriate remedies

Existing remedies

14.73 In the 2007/8 Review, we found KCOM to have SMP in the following markets:

- wholesale market for low bandwidth TISBO in the Hull area, bandwidths up to and including 8Mbit/s;
- wholesale market for medium bandwidth TISBO in the Hull area at bandwidths above 8Mbit/s up to and including 45Mbit/s;⁸⁹
- wholesale market for high bandwidth TISBO in the Hull area at bandwidths over 45Mbit/s up to and including 155Mbit/s;⁹⁰ and
- wholesale market for low bandwidth AISBO in the Hull area at bandwidths up to and including 1Gbit/s.

14.74 As a result, the following regulatory obligations were imposed on KCOM in each of the markets listed above (which remedies continue to apply until we revoke them following the end of this review):

14.74.1 Requirement to supply wholesale products upon request;

14.74.2 Requirement not to discriminate unduly;

14.74.3 Requirement to publish a reference offer;

14.74.4 Requirement to publish technical information; and

14.74.5 Cost-orientation (conditional upon a failure to comply with the voluntary undertakings summarised below).

14.75 In addition, we accepted the following voluntary undertakings from KCOM:

- in relation to the pricing of TISBO products up to 155Mbit/s, that KCOM would not increase prices by more than RPI+0% for a period of four years; and
- in relation to the pricing of AISBO products up to 1Gbit/s, that KCOM would apply an RPI-16% price reduction for a period of four years.

⁸⁹ In the 2007/8 Review we called this the high bandwidth TISBO market.

⁹⁰ In the 2007/8 Review we called this the very high bandwidth <=155Mbit/s market.

Analysis of current competition

- 14.76 As discussed in Section 7, the main reasons for our SMP findings in the identified markets are that there is virtually no alternative fixed network infrastructure in the Hull area, and that KCOM's share in each of the markets is at, or very close to 100%.⁹¹ Even for very high bandwidth circuits in the wholesale TISBO markets, KCOM has a very high share, suggesting that CPs have been reluctant to build their own networks to provide these high-value services. This situation is in marked contrast to the rest of the UK where the market for very high bandwidth circuits is very competitive. Such competition that has occurred has relied on KCOM's retail products. High entry barriers mean that entry is unlikely in the review period. It is therefore unlikely to be a sufficiently credible threat to constrain KCOM's behaviour.
- 14.77 With the data available to us, we have not been able to produce market trends for the Hull area. However, in general, we believe that the trends in demand that are apparent in the rest of the UK will be representative of developments in Hull. In this regard, we understand that demand for TI circuits is declining, with the most significant falls in demand for higher bandwidth circuits. In contrast, demand for low bandwidth AISBO services has grown strongly elsewhere in the UK. In its response to the CFI and in its conversations with us, KCOM has confirmed that these trends are also evident in the Hull area.
- 14.78 Given the economies of scale, scope and density associated with fixed networks, KCOM's ubiquitous network in the Hull area, the lack of competing infrastructure and the falling demand we consider that there is no realistic prospect that effective competition in TISBO products will develop in the Hull area during the period of this review.
- 14.79 Demand for AISBO products is growing but, as Section 7 notes, the relatively small size of the potential customer base makes it unlikely that CPs will enter the market and provide effective competition in the Hull area during the review period.

Consideration of issues raised in CFI

- 14.80 KCOM was the only respondent to the CFI to comment about wholesale markets in the Hull area. The main points it made were:
- since the 2007/8 Review there had been an increase in interest in the provision of business connectivity services in the Hull area and entry by alternative infrastructure providers;
 - demand for TISBO services is subdued and there is increased interest in higher bandwidth Ethernet services;
 - the reductions in wholesale prices, in line with the voluntary commitments given to Ofcom had improved the ability of other CPs to access the Hull network profitably; and
 - the current approach to remedies in the Hull area could be simplified.

⁹¹ It is notable that we find no operator to have SMP in the very high bandwidth market in the UK excluding Hull, but find that KCOM has SMP in the equivalent market in Hull. The main reason is that we have no evidence to suggest that any other CP is willing to invest to supply these (or other TISBO services) in Hull. In contrast, in the market in the UK excluding Hull, we find a range of CPs supplying 622Mbit/s TISBO services.

Ofcom's comments

- 14.81 We have taken the impact of the new competitors referred to by KCOM into account in our SMP assessment.
- 14.82 In our assessment of the appropriate remedies, we have applied the minimum set of remedies that we consider sufficient to address the competition problems that we have identified.

Consideration of specific competition issues

- 14.83 We consider below how the competition problems that we have identified should be addressed.

Refusal to supply

- 14.84 Our analysis in Section 7 has shown that the lack of competition in the wholesale markets in the Hull area stems primarily from entry barriers, particularly the magnitude of the costs of duplicating network infrastructure relative to the revenues available from communications services. These factors mean that KCOM's cost of supply (which are largely sunk) are significantly lower than its competitors' and that, as a consequence, it is unlikely to be economically viable for KCOM's competitors to invest in the provision of network facilities on a sufficient scale to provide effective constraint on KCOM's SMP in the downstream markets. Further, competitors are unlikely to be willing to make the necessary investments in the TI wholesale markets as each of them are declining.
- 14.85 Given these entry barriers, we consider that an obligation for KCOM to meet reasonable requests for access to its network would assist in promoting competition. Such an obligation would overcome the entry barriers by allowing CPs to provide services using network components rented from KCOM. We consider that, in the absence of such a requirement, KCOM would have an incentive not to provide such access, and would be able to monopolise the provision of services in the downstream markets.

Excessive pricing

- 14.86 In a competitive market, prices could be expected to be cost reflective. However, where a provider has SMP, competition cannot be expected to provide effective constraints and ex-ante regulation may be desirable to prevent charges from being set at an excessive level. Such intervention could also have as its objective the aim of promoting efficiency and of allowing the development of effective competition in downstream markets.
- 14.87 In these markets, we propose that KCOM has SMP and as previously discussed there is little likelihood of significant competitive entry and KCOM has the ability to charge excessive prices to the detriment of end users.
- 14.88 The prohibition on undue discrimination and requirement to publish a reference offer only do a limited amount to address the incentive to charge excessive prices, and we have considered, in light of our current understanding of the scale of the potential issue in Hull and the costs of intervention, whether further measures would be appropriate in the Hull area.

- 14.89 One possible solution to address the risk of excessive pricing would be to impose a charge control. Under an RPI +/-X form of charge control regulation, incentives are normally created for the dominant provider to increase efficiency, thereby imitating the effect of a competitive market.
- 14.90 We have considered whether a charge control would be appropriate at this point. Our proposal is that it would not be appropriate to impose this remedy at this stage. In reaching this view, we consider in particular that it would not be proportionate to impose such a remedy. While a charge control is in principle likely to be effective to address the risk of any excessive pricing by KCOM, we also need to consider what is the minimum necessary remedy to achieve the aim pursued in light of available evidence. In this regard, to start with, we note that KCOM has not previously been subject to a charge control in these markets. Also, we have neither received any complaints from customers and competitors, nor have we received responses to the CFI expressing concerns in this regard. We also consider that a charge control could at this stage produce adverse effects which are disproportionate to the aim that would be pursued by any such control, in particular taking account of the significant costs to Ofcom and KCOM of formulating a charge control.
- 14.91 We have also considered the alternative of imposing a cost orientation obligation to address the possible risk of excessive pricing. However, we believe that a cost orientation obligation in the present circumstances would be disproportionate for similar reasons discussed above in relation to a charge control. We consider, in addition, that such an obligation, if used as the primary control on prices, would not address the lack of incentive properties that we think would be required in relation to KCOM for this remedy to be effective
- 14.92 Another possible alternative that could have better incentive properties, whilst imposing a lower regulatory burden, would be to monitor prices against a suitable benchmark for competitive prices.
- 14.93 In the wholesale TISBO and AISBO markets in the UK (excluding the Hull area and, except for low bandwidth TISBO, excluding the WECLA as well), we are proposing that BT's wholesale charges should be subject to RPI-X charge controls such that charges will be brought to a level approximating to those of a competitive market.
- 14.94 We therefore consider that BT's wholesale prices would be a suitable candidate for a benchmark against which to assess KCOM's wholesale prices.
- 14.95 Whilst we propose to benchmark KCOM's wholesale prices against BT's for comparable services as an initial step to inform any need for our intervention going forwards, we do not consider that a corresponding SMP obligation to that (or similar) effect would be appropriate at this stage. Instead, we consider that for now the more appropriate and proportionate approach is for KCOM to provide greater transparency about its wholesale leased lines charges. Accordingly, we propose that KCOM should be obliged to publish a reference offer including prices terms and conditions.

Undue discrimination

- 14.96 As noted above, our analysis suggests that KCOM has SMP and, if so, it would have the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers in these retail markets. We therefore consider that KCOM would have the incentive to discriminate by providing wholesale services on prices, terms and conditions that favour its own retail activities in a way that would have a material adverse effect on competition and in turn consumers. For example,

KCOM has the incentive to charge competing providers more than the amount charged to its own downstream units or it might strategically provide the same services but within different delivery timescales. In order to address this risk, we propose that KCOM should be subject to an obligation not to discriminate unduly.

- 14.97 To provide transparency and to support this obligation we consider it appropriate to require KCOM to publish a reference offer specifying prices, terms and conditions. Also to ensure that competing providers have sufficient time to prepare for changes to KCOMs wholesale services we also consider that KCOM should be required to give advance notice of changes to prices, terms and conditions and changes to technical information about its wholesale services. As noted above, we have taken into account the need for this proposed obligation in assessing the appropriateness of a specific pricing remedy.

Pricing

- 14.98 Often, in conjunction with obligations not to discriminate unduly, we require the dominant provider to publish its prices in a reference offer and not to deviate from them in order to reduce the risk of unduly discriminatory pricing.
- 14.99 In these markets, there is relatively little competition, particularly for large local institutions whose business connectivity requirements are mostly within the Hull area where it appears that KCOM is the only supplier. Given this, the main impact of requiring KCOM not to deviate from published prices would be to restrict its ability to offer discounts to large local users which might lead to higher prices for them. We therefore propose that KCOM should have some flexibility to price discriminate so that it may offer discounts where it is efficient to do so.
- 14.100 In order to provide the necessary transparency about wholesale prices, we propose that KCOM should be required to publish the maximum charges that it offers for wholesale services in these markets (i.e. the prices before any bespoke discounts). These prices would be used as the basis of the pricing benchmarks discussed above in order to ensure that the comparison reflects the prices available to smaller users.
- 14.101 This does not mean that KCOM would have complete flexibility to price discriminate, and discounts that are offered purely to forestall competition would still be considered unduly discriminatory. In the event of an alleged breach we would judge each alleged breach on a case by case basis.

Summary of proposed approach

- 14.102 We propose that KCOM should be subject to the following obligations in the wholesale TISBO markets in the Hull area and the wholesale low bandwidth AISBO market in the Hull area:
- a requirement to provide network access;
 - a requirement not to discriminate unduly;
 - a requirement to publish a reference offer including maximum charges, terms and conditions;
 - a requirement to notify charges, terms and conditions; and
 - a requirement to notify technical information.

14.103 We are not proposing a charge control for these markets. If in future we had concerns about the reasonableness of KCOM's wholesale prices, we intend as an initial step to inform the need for our intervention to benchmark them against BT's wholesale prices. Given that the services have the same technical characteristics are involved, we would expect KCOM's wholesale prices to be fairly closely aligned with BT's wholesale prices for broadly comparable charge-controlled products. If we found KCOM's prices to be excessive on that initial analysis, we will consider what alternative steps might be appropriate to deal with such concerns.

Proposed remedies for the wholesale markets in the Hull area

Requirement to provide network access

Aim of regulation

14.104 In light of our SMP assessment, we consider it is appropriate to impose a requirement for KCOM to meet reasonable requests for network access and to supply such network access on fair and reasonable terms and conditions including charges. We consider that, in the absence of such a requirement, KCOM would have an incentive not to provide such access, and would be able to monopolise the provision of services in the downstream markets.

14.105 As discussed above, given the entry barriers that exist we consider it is unlikely to be economically viable for other CPs to invest in the provision of network facilities. Such an obligation would overcome the entry barriers by allowing CPs to provide services using network components rented from KCOM.

14.106 The way in which Ofcom might assess reasonable demands for access is set out in the Access Guidelines. We consider that it is appropriate in cases where a CP has SMP to impose an access obligation on that provider requiring it to meet all reasonable requests for network access within the relevant wholesale market, irrespective of the technology required, on fair and reasonable terms, conditions and charges.

Legal tests

14.107 We are satisfied that that the proposed conditions (as set out in Annex 14) meet the various tests set out in the Act.

14.108 First, section 87(3) of the Act authorises the setting of an SMP services condition requiring the dominant provider to provide such Network Access as Ofcom may, from time to time, direct. These conditions may, pursuant to Section 87(5), include provision for securing fairness and reasonableness in the way in which requests for Network Access are made and responded to and for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions.

14.109 When considering the imposition of such conditions in a particular case we take into account the six factors set out in section 87(4), including inter alia:

- The technical and economic viability of installing and using other facilities, including the viability of other network access products whether provided by the

dominant provider⁹² or another person⁹³, that would make the proposed network access unnecessary;

- The feasibility of the proposed network access;
- The investment made by the person initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed (taking account of any public investment made); and
- The need to secure effective competition, including where it appears to us to be appropriate, economically efficient infrastructure based competition, in the long term.

14.110 In proposing the general requirement for the provision of network access, we have taken all of the six factors into account. In particular, having considered the viability of KCOM's competitors making network investments we consider that the proposed network access obligations are necessary for securing effective competition in the long term. The requirement for KCOM only to meet reasonable network access requests also ensures that due account is taken of the technical and economic viability and of the investment made by KCOM initially in providing the network.

14.111 Secondly, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the conditions and directions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by facilitating the development of competition in downstream markets.

14.112 Thirdly, sections 47 and 49 require conditions and directions respectively to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions and directions are:

- objectively justifiable, in that they facilitate and encourage access to KCOM's network and therefore promote competition to the benefit of consumers;
- not unduly discriminatory, as they are proposed only for KCOM and no other operator has been found to hold a position of SMP in these markets;
- proportionate, since they are targeted at addressing the market power that we propose KCOM holds in these markets and do not require it to provide access if it is not technically feasible or reasonable; and
- transparent in that the conditions are clear in their intention to ensure that KCOM provides access to its networks in order to facilitate effective competition.

14.113 For all the reasons set out above, we consider that the proposed conditions are appropriate to address the competition concerns identified, in line with section 87(1) of the Act.

⁹² i.e. in this instance KCOM.

⁹³ i.e. other CPs.

Requirement not to discriminate unduly

Aim of regulation

14.114 In light of our analysis, particularly in relation to the strength of wholesale competition in these markets, we consider it appropriate that KCOM should be subject to a requirement not to discriminate unduly in the provision of wholesale services in these markets. In the absence of such a requirement, KCOM would have an incentive to provide the requested network access on terms and conditions that discriminate in favour of its own downstream divisions. For example, KCOM may decide to charge competing providers more than the amount charged to its own downstream units or it might strategically provide the same services but with different delivery timescales.

14.115 As discussed above, we propose that KCOM should be permitted to offer bespoke prices and required to publish only its maximum charges in its reference offer.

14.116 This does not mean that KCOM would have complete flexibility to price discriminate, and discounts that are offered purely to forestall competition would still be considered unduly discriminatory. In the event of an alleged breach we would judge each alleged breach on a case by case basis.

Legal tests

14.117 We are satisfied that the proposed conditions (as set out in Annex 14) meet the various tests set out in the Act.

14.118 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the condition is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by preventing KCOM from leveraging its SMP into downstream markets.

14.119 Second, section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions are:

- objectively justifiable, in that they provide safeguards to ensure that competitors, and hence consumers, are not disadvantaged by KCOM discriminating unduly in favour of its own downstream activities or between different competing providers;
- not unduly discriminatory, as the conditions are proposed only for KCOM and no other operator has been found to hold a position of SMP in these markets;
- proportionate since they seek only to prevent undue discrimination whilst allowing KCOM flexibility to offer discounts where it is efficient to do so; and
- are transparent in that the conditions are clear in what they are intended to achieve.

Requirement to publish a reference offer including maximum charges, terms and conditions

Aim of regulation

14.120 We propose that KCOM should be required to publish a reference offer for products in these markets. This requirement has two main roles, namely:

- to assist transparency for the monitoring of potential anti-competitive behaviour;
- to facilitate benchmarking of KCOMs prices against BT's as discussed above; and
- to give visibility to the terms and conditions on which other providers will purchase wholesale services.

14.121 This helps to ensure stability in markets without which we consider incentives to invest might be undermined and market entry less likely.

14.122 The publication of a reference offer has an additional role in potentially allowing for speedier negotiations, avoiding possible disputes and giving confidence to those purchasing wholesale services that they are being provided on non-discriminatory terms. Without this, market entry might be deterred to the detriment of the long-term development of competition and hence consumers.

14.123 The proposed condition requires the publication of a reference offer and specifies the information to be included in that reference offer (set out below) and how the reference offer should be published. The reference offer must set out (at a minimum) such matters as:

- a clear description of the services on offer including technical characteristics and operational process for service establishment, ordering and repair;
- the locations of points of network access and the technical standards for network access;
- conditions for access to ancillary and supplementary services associated with the network access including operational support systems and databases etc;
- contractual terms and conditions, including dispute resolution and contract negotiation/renewal arrangements;
- maximum charges, terms and payment procedures;
- service level agreements and service level guarantees; and
- to the extent that KCOM uses the service in a different manner to CPs or uses a similar service, KCOM is required to publish a reference offer for in relation to those services.

14.124 The obligation prohibits the KCOM from departing from the terms and conditions in the reference offer and requires it to comply with any directions Ofcom may make from time to time under the condition.

14.125 As discussed above KCOM would be required to publish maximum charges that must not be exceeded and would be permitted to offer bespoke discounts that are not published in the reference offer.

Legal tests

14.126 We are satisfied that the proposed conditions (as set out in Annex 14) meet the various tests set out in the Act.

14.127 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the conditions are aimed at promoting competition firstly by ensuring that providers have the necessary information to allow them to make informed decisions about purchasing wholesale services in order to compete in downstream markets and by providing transparency in order to assist in the monitoring of anticompetitive behaviour.

14.128 Second, section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions are:

- objectively justifiable in that they require that terms and conditions are published in order to encourage competition, provide stability in markets and monitor anti-competitive behaviour;
- not unduly discriminatory, as they are proposed only for KCOM and no other operator has been found to hold a position of SMP in these markets;
- proportionate, as only information that is considered necessary to allow providers to make informed decisions about competing in downstream markets is required to be provided; and
- transparent in that they are clear in their intention to ensure that KCOM publishes details of its service offerings.

Requirement to notify prices, terms and conditions

Aim of regulation

14.129 We propose that KCOM should be subject to an obligation to notify changes to its charges, terms and conditions.

14.130 Notification of changes to services at the wholesale level can assist competition by giving advanced warning to CPs purchasing wholesale services that also compete with the dominant provider in downstream markets. It also supports the non-discrimination obligation by ensuring that KCOM does not notify changes in a discriminatory manner. Notification of changes to charges therefore helps to ensure stability in markets and without which we consider incentives to invest might be undermined and market entry made less likely.

14.131 Our considerations about the appropriate notification periods are the same for these markets as for the wholesale TISBO and AISBO markets in the rest of the UK where BT has SMP (as discussed in Sections 10 and 11). We therefore propose that the following notice periods should apply:

- 28 day notice for prices, terms and conditions relating to new service introductions;
- 28 days notice for price reductions and associated conditions (for example conditions applied to special offers); and
- 90 days notice for all other changes to prices terms and conditions.

Legal tests

14.132 We are satisfied that the proposed conditions (as set out in Annex 14) meet the relevant tests set out in the Act.

14.133 First, we have considered our duties under section 3, and all the Community requirements set out in section 4, of the Act. In particular, the conditions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that CPs have the necessary information about changes to terms, conditions and charges sufficiently in advance to allow them to make informed decisions about competing in downstream markets.

14.134 Secondly, section 47 of the Act requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions are:

- objectively justifiable, in that there are clear benefits from the notification of changes in terms of ensuring that providers are able to make informed decisions within an appropriate time frame about competing in downstream markets;
- not unduly discriminatory, as they are proposed only for BT and no other operator has been found to hold a position of SMP in these markets;
- proportionate, as 90 days is considered the minimum period necessary to allow competing providers to plan for changes to existing network access and 28 days would be sufficient for new network access and price reductions; and
- transparent in that the conditions are clear in their intention to ensure that KCOM provides notification of changes to their charges and terms and conditions.

Requirement to notify technical information

Aim of regulation

14.135 We propose that changes to technical information should be published in advance, so that competing providers have sufficient time to prepare for them.

14.136 Under the proposed requirement to publish a reference offer KCOM is required to publish technical information. However, advance notification of changes to technical information is important to ensure that providers who compete in downstream markets are able to make effective use of the wholesale services provided by KCOM.

14.137 For example, a competing provider may have to introduce new equipment or modify existing equipment to support a new or changed technical interface. Similarly, a competing provider may need to make changes to their network in order to support changes to wholesale services offered by KCOM.

14.138 Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of network access and technical standards (including any usage restrictions and other security issues).

14.139 The conditions require the notification of new technical information within a reasonable time period but not less than 90 days in advance of providing new wholesale services or amending existing technical terms and conditions. We consider that 90 days is the minimum time that competing providers need to modify their

network to support a new or changed technical interface or support a new point of access or network configuration.

14.140 Longer periods of notification may also be appropriate in certain circumstances. For example, if KCOM were to make a major change to their technical terms and conditions, a period of more than the 90 day minimum notification period may be necessary.

Legal tests

14.141 We are satisfied that the proposed conditions (as set out in Annex 14) meet the various tests set out in the Act.

14.142 First, we have considered our duties under section 3 and all the Community requirements set out in section 4 of the Act. In particular, the conditions are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefits for consumers by ensuring that providers have sufficient notification of technical changes to wholesale services to enable them to compete in downstream markets.

14.143 Second, section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed conditions are:

- objectively justifiable in that they enable providers to make full and effective use of network access to be able to compete in downstream markets;
- not unduly discriminatory, as is the conditions are proposed only for KCOM and no other operator has been found to hold a position of SMP in these markets;
- proportionate in that 90 days is the minimum period that Ofcom considers is necessary to allow competing providers to modify their networks; and
- transparent in that they are clear in their intention that KCOM notify changes to technical information in advance.

Interconnection and accommodation services for the wholesale TISBO and AISBO markets

14.144 As noted in Section 7, we do not expect large scale wholesale entry in these markets. Nor has there been any such demand since the commencement of wholesale obligations in the wholesale TISBO market since the 2003/04 Review. Where competition has materialised, we understand that it has done so by relying on KCOM's retail products. Thus the evidence suggests that there is very limited, if any demand, for investments in interconnection facilities and services in the Hull area.

14.145 Interconnection and accommodation services fall within the scope of the network access obligations that we propose for KCOM in these markets.⁹⁴ KCOM would be required to meet reasonable requests for interconnection and accommodation services in relation to wholesale services in these markets. We consider this is sufficient to address the identified competition problems identified. Given the lack of

⁹⁴ Network access is defined in sections 151(3) and (4) of the Act and includes interconnection services and/or any services or facilities that would enable another CP to provide electronic communications services or electronic communication networks. We consider that a requirement to provide network access would, therefore, include any ancillary services as may be reasonably necessary for a Third Party to use the services.

demand for interconnection and accommodation services, we do not propose to oblige KCOM to provide specific interconnection or accommodation products at this time.

Question 18: Do you agree with the remedies that we propose for KCOM in the retail TI and AI markets? In particular, do you agree with our proposal that KCOM should be required only to publish maximum prices and to be permitted to offer bespoke discounts?

Question 19: Do you agree with the remedies that we propose for KCOM in the wholesale TISBO and AISBO markets? In particular, do you agree with our proposal that KCOM should be required only to publish maximum prices and to be permitted to offer bespoke discounts?

Section 15

Accounting obligations

Summary

- 15.1 We propose that BT and KCOM should be subject to accounting separation obligations in relation to each of the business connectivity markets in which we have found them to have SMP.

Introduction

- 15.2 The imposition of regulatory financial reporting obligations on dominant providers is an important means of ensuring that obligations in relation to cost orientation and non-discrimination (as have been proposed in relation to BT and KCOM) can be effectively monitored for a given market. In particular, it is important that cost accounting information is provided to measure compliance with cost orientation requirements and accounting separation is maintained to provide transparency in accordance with no undue discrimination conditions.
- 15.3 The appropriateness of imposing a regulatory financial reporting obligation and the level of information required is a question to be decided on the basis of the findings of an individual market review.
- 15.4 The practical processes of cost accounting and accounting separation, on the other hand, such as cost attribution methodologies, accounting standards, audit, transparency, disaggregation, reconciliation and publication of information, are distinct from the broader question of principle on the appropriate level of regulation in the market and the remedies to be applied. We believe that the practical processes for regulatory financial reporting should be consistent across all markets susceptible to regulation to ensure that there is certainty and transparency for the regulator, the dominant providers and their competitors.
- 15.5 Those requirements were set out in a Statement issued in July 2004 (the 2004 Statement on Regulatory Reporting⁹⁵) and are periodically reviewed and amended by Ofcom to ensure they remain fit for purpose. Most recently, Ofcom amended these obligations in a Statement issued in April 2012.⁹⁶ These obligations require BT to produce a range of outputs, to support compliance with no undue discrimination and cost orientation obligations in SMP markets. Those outputs include the following:
- Generic cost orientation & non-discrimination requirements:
 - Preparation of a variety of financial statements;
 - Preparation of extensive supporting documentation explaining how the financial statements have been put together;
 - Provision of an independent assurance statement;
 - Publication of most of the information; and

⁹⁵ http://stakeholders.ofcom.org.uk/binaries/consultations/fin_reporting/statement/finance_report.pdf

⁹⁶ <http://stakeholders.ofcom.org.uk/consultations/bt-kcom-financial-reporting/>

- Preparation of reconciliation statements;
 - Cost orientation specific requirements:
 - Preparation of service level cost data (LRIC and FAC) compared to average charges
 - Preparation of costs of network components used to deliver services
 - Analysis of service cost stack by component
 - Non-discrimination specific requirements:
 - Analysis of internal and external sales including volume data.
- 15.6 The market definitions and SMP findings determine which services are captured under these reporting obligations.

Proposals

- 15.7 Given the proposed findings of this review, we believe it is appropriate to impose financial reporting obligations on BT and KCOM in respect of the products and services they provide in each of the business connectivity markets in which we have found SMP.
- 15.8 As new products and services are supplied we propose that the current financial reporting obligations on BT and KCOM will need to be amended to encompass those new products and services.

Accounting separation obligations for BT and KCOM

- 15.9 It is essential, if the obligation to not unduly discriminate is to be meaningful, that BT and KCOM can be required to make transparent its wholesale prices and internal transfer prices, i.e., to demonstrate that they are not unduly discriminating against CPs. In practice this means that they are obliged to produce financial statements that reflect the performance of markets as though they were separate businesses. Accounting separation therefore enables Ofcom to monitor whether BT or KCOM are unduly discriminating.
- 15.10 Under section 87(7) and 87(8) of the Act, appropriate accounting separation obligations may be imposed on the dominant provider in respect of the provision of network access, the use of the relevant network and the availability of relevant facilities. That is to say, the dominant provider may be required to maintain a separation for accounting purposes between such different matters relating to network access or the availability of relevant facilities. We consider therefore that we have an appropriate legal basis to impose accounting separation obligations on BT and KCOM.

Cost accounting obligations for BT and KCOM

- 15.11 Cost accounting obligations are applied in markets in which we apply cost orientation obligations to enable us to determine whether charges are cost-oriented.
- 15.12 As discussed in sections 10 to 12, in a change to the approach that we took in the 2007/8 Review, we are not proposing that BT should be subject to any cost

orientation obligations in the business connectivity markets. Consequently we do not propose to apply cost accounting obligations.