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Proposed Variation to and Exemption from BT's Undertakings under the Enterprise Act 2002 related to Fibre-to-the-Premises and Fibre Integrated Reception System

Consultation

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Contents

Section 1

Summary

1.1 This Consultation seeks views from interested parties on a proposal to vary BT's Undertakings under the Enterprise Act 2002 ("Enterprise Act"). It also seeks views on a proposed exemption from the application of BT's Undertakings. The proposed variation relates to BT's intention to invest in fibre-to-the-premises ("FTTP") technology as part of its investment in super-fast broadband. If agreed, the variation would allow Openreach to control and operate the electronics in BT's access network required for FTTP. The proposed exemption would allow Openreach to control and operate a system known as Fibre Integrated Reception System ("FIRS") in Ebbsfleet. The system is used by Openreach for distribution of broadcast signals in its pilot deployment of FTTP in Ebbsfleet.

1.2 BT plans to deploy a mix of FTTP and fibre-to-the-cabinet ("FTTC") technologies in order to make super-fast broadband available in exchange areas covering 40% of premises in the UK by 2012. While BT expects that the greater part of its super-fast broadband deployment will use FTTC, it estimates that FTTP will account for 25%[1] of the premises that this deployment will cover.

1.3 In June 2009 we agreed, following consultation, a variation to BT's Undertakings which allows Openreach to control and operate the access electronics required for FTTC. That agreement enabled BT to proceed with trials and deployment of FTTC and, in July 2009, BT announced that its trials of super-fast broadband using FTTC had started in Whitchurch and in Muswell Hill.

1.4 BT has recently deployed FTTP technology on a limited pilot basis to approximately 100 newly-built homes, where there was no other network infrastructure, in Ebbsfleet in Kent[2]. It is now planning to start trials of super-fast broadband services using FTTP in areas where copper wire infrastructure is already in place, with a view to deployment on a larger scale. It intends to start those trials in January 2010, and hopes to start commercial deployment in the summer of that year.

1.5 In considering this variation request our objectives are the same as those we set out in our Statement on the FTTC variation[3], which are to deliver benefits to citizens and consumers by supporting early investment in super-fast broadband and, where appropriate, by promoting competition. In doing so, we are mindful of the need to maintain the integrity of BT's Undertakings as a comprehensive solution to the competition concerns identified in our Strategic Review of Telecommunications[4].

[1] We understand that BT planned to use FTTP in around 10% of this deployment, and that it has now decided to increase the planned proportion of FTTP following more recent discussions with its stakeholders.
[2] We set out our views on "new build" fibre investments in our Statement of September 2008 entitled *Next Generation New Build,* which can be found at http://www.ofcom.org.uk/consult/condocs/newbuild/statement/new_build_statement.pdf
[3] See http://www.ofcom.org.uk/consult/condocs/fttc/statement/
[4] See http://www.ofcom.org.uk/consult/condocs/statement_tsr/

1.6 FTTP could offer citizens and consumers significant benefits additional to those made possible by FTTC. Firstly, FTTP could allow BT to make super-fast broadband services available more comprehensively in exchange areas in which it deploys super-fast broadband, by deploying FTTP in neighbourhoods where the technical limits of FTTC would restrict coverage. Secondly, FTTP could be more cost effective or more practically feasible than FTTC in some local circumstances. Thirdly, FTTP could enable services with higher data rates to be delivered than FTTC. Finally, FTTP could offer greater potential for future performance improvements than FTTC.

1.7 If we were to agree to the variation BT could deploy FTTP more efficiently, saving costs particularly in field operations and in enabling FTTP exchange equipment to be shared with FTTC. If we were to refuse the variation the additional costs that BT would expect to incur in deploying FTTP could limit the extent to which it deploys this technology, or even deter its deployment of FTTP altogether, and therefore deny the benefits of super-fast broadband to some consumers.

1.8 In light of the benefits that FTTP could offer, and the greater efficiency BT could achieve in its deployment if the variation were agreed, we consider that the proposed variation is in the interests of citizens and consumers.

1.9 In requesting the variation, BT has offered to repeat for FTTP the same commitments concerning its active super-fast broadband products that it agreed in relation to a previous variation to its Undertakings concerning FTTC[5]. We welcome inclusion of these commitments in the proposed variation because we consider that they would help promote fair and effective competition using fit-for-purpose active wholesale products delivered using FTTP on the basis of Equivalence of Inputs ("EoI") by Openreach.

1.10 We do not consider it appropriate to seek commitments from BT in relation to passive inputs for FTTP as part of this proposed variation. This is because the technical and commercial development of FTTP is at an early stage, and it is not yet clear what, if any, are the appropriate passive FTTP inputs that BT could be required to provide. We have separately started new reviews of the wholesale local access and wholesale broadband access markets, and will consider whether passive remedies may be appropriate in relation to FTTP as part of those reviews.

1.11 We have considered the impact that BT's FTTP deployment plans could have on the options available to CPs for delivering voice services to end-users. Current regulations concerning copper wire access require Openreach to offer CPs both the option to resell BT's wholesale voice access service, Wholesale Line Rental ("WLR"), and the option to build their own networks by deploying voice and broadband access equipment in BT's exchanges and using the fully-unbundled local loop product, Metallic Path Facilities ("MPF"). The wholesale options for delivering voice services using FTTP are at an early stage of development. Openreach has recently consulted on options for supporting voice services using FTTP access, and a number of significant technical and commercial questions still need to be resolved before a clear roadmap can be agreed with industry.

1.12 The development of wholesale voice products using FTTP raises important questions about the options that could be available to support effective and sustainable competition in services that include voice where next-generation access technologies are used. For example, if BT produces a product similar to its current Wholesale

[5] See http://www.ofcom.org.uk/consult/condocs/fttc/statement/

Line Rental ("WLR") product using next-generation access, it would be important to consider whether it should also produce a more upstream wholesale product which could be used to support voice service provision and, if so, what that product would be. Further, if BT does produce an upstream product, it would also be important to consider whether it should be required to consume it in producing any next-generation access product similar to WLR. A question analogous to the latter was considered in the context of the copper network at the time BT's Undertakings were first discussed, and Ofcom concluded at that time that BT should not be required to consume an upstream input in producing WLR[6]. However, consideration of the options in the context of next-generation access could lead to different conclusions. Key considerations would include assessment of the costs and technical feasibility of different options, the likely impact on competition and implications for consumers both in terms of migration from today's products as well as future retail pricing structures. We intend to consider these questions, initially within the scope of our current review of the wholesale local access market.

1.13 In light of the considerations we set out in this document of the impacts that the proposed variation would be likely to have on consumers, on competition and on BT's Undertakings, we are inclined, subject to the conclusions of this Consultation, to agree to this proposed variation to BT's Undertakings.

1.14 BT's exemption request, which is also considered in this Consultation, concerns FIRS, an electronic system deployed by BT in its FTTP pilot network in Ebbsfleet for one-way distribution of broadcast signals from a head-end to multiple end-users' premises. BT has no plans to deploy the system outside Ebbsfleet, and the proposed exemption would allow Openreach to control and operate FIRS in Ebbsfleet only. The system can deliver benefits to consumers in Ebbsfleet by providing them with reception of broadcast signals which would otherwise be limited by local geographic constraints. We consider that the proposed exemption, if agreed, would help BT avoid additional operating costs, and that, in view of the limited size of the deployment in Ebbsfleet, it is unlikely to have a material impact on competition. We are therefore inclined, subject to the conclusions of this Consultation, to agree to the proposed exemption.

[6] See http://www.ofcom.org.uk/consult/condocs/statement_tsr/statement.pdf page 51

Section 2

Background to the proposed Variation

2.1 On 22 September 2005 BT offered, and Ofcom accepted, a set of undertakings ("the Undertakings") pursuant to section 154 of the Enterprise Act. The Undertakings addressed issues that had been raised by Ofcom as it considered whether to refer certain markets to the Competition Commission in relation to the provision of fixed telecommunications. The Undertakings were accepted by Ofcom in lieu of making such a reference at that time. Ofcom's reasons for accepting the Undertakings, together with the Undertakings themselves, are set out in full in the document entitled *Final statements on the Strategic Review of Telecommunications, and undertakings in lieu of a reference under the Enterprise Act 2002*[7] ("the TSR").

2.2 The Undertakings include mechanisms to allow for variations to be agreed by BT and Ofcom.

The variation process

2.3 Section 18.1 of the Undertakings allows for BT and Ofcom to agree from time to time to vary the Undertakings.

2.4 This Consultation concerns a proposed variation in connection with BT's planned provision of super-fast broadband using fibre-to-the-premises ("FTTP") technology. The variation, if agreed, would allow Openreach to control and operate electronic equipment in BT's access network when providing super-fast broadband using FTTP.

The process for considering BT's request

2.5 The Enterprise Act requires that Ofcom in accepting the Undertakings should "have regard to the need to achieve as comprehensive a solution as is reasonable and practicable to the adverse effect on competition". Ofcom's competition concerns were set out in its *Strategic Review of Telecommunications Phase 2 Consultation Document*[8] ("TSR Phase 2 Consultation").

2.6 Section 155 of the Enterprise Act requires that Ofcom consult where it proposes to amend the Undertakings in a material respect. Ofcom has consulted on all significant variations in the past, irrespective of the requirement for materiality in the Enterprise Act.

2.7 It should be noted that this proposed variation does not prejudice the outcome of our forthcoming reviews of the wholesale broadband access and wholesale local access markets and any remedies we may impose pursuant to any findings of significant market power in those reviews.

2.8 In view of the scope of this Consultation we consider that a consultation period of six weeks is appropriate in this case.

[7] See http://www.ofcom.org.uk/consult/condocs/statement_tsr/

[8] See http://www.ofcom.org.uk/consult/condocs/telecoms_p2/

Section 3

Ofcom's reasoning with respect to the Variation

Introduction

3.1 In this section, we set out our position with respect to the proposed variation to BT's Undertakings under the Enterprise Act and our reasoning for adoption of this position. We invite, by means of this Consultation, comments from stakeholders on the proposals described.

3.2 The proposed legal wording of the variation is set out in Annex 5. The reasoning we put forward in this section in respect of the proposals is based on information available to us at the time of publication and we reserve the right to change our position with respect to the proposals as a result of the consultation process or any other information that comes to light during the consultation period. Any such change will be fully explained in the statement due for publication after the consultation period ends.

3.3 The Enterprise Act requires that Ofcom, in accepting the Undertakings, should "have regard to the need to achieve as comprehensive a solution as is reasonable and practicable to the adverse effect on competition". Ofcom's competition concerns were set out in the TSR Phase 2 Consultation[9]. In considering the case for agreeing to variations to the Undertakings, Ofcom must consider how the comprehensive solution will be impacted by the variations in question. We explain our reasoning below.

3.4 BT's planned investment in super-fast broadband is based on the provision of active products on a wholesale EOI basis by Openreach, using both FTTC and FTTP. In June 2009, we agreed a variation to BT's Undertakings that allows Openreach to control and operate the electronic equipment required for FTTC in BT's access network. Prior to that time BT's Undertakings did not permit Openreach to control and operate electronic equipment in BT's access network.

3.5 Openreach has since consulted industry on its FTTP Generic Ethernet Access wholesale active product ("GEA") proposals[10]. In order to put these proposals into effect, BT has now requested a further variation to its Undertakings which, if agreed, would allow Openreach to control and operate the electronic equipment required for FTTP in BT's access network.

3.6 FTTP could offer consumers significant benefits complementary and additional to those made possible by FTTC. Firstly, FTTP could allow BT to make super-fast broadband services available more widely in exchange areas in which it deploys super-fast broadband. Without FTTP, the technical limits of FTTC may prevent BT from offering super-fast broadband to some premises in those areas. Secondly, FTTP could be more cost effective than FTTC in some local circumstances, and BT

[9] See http://www.ofcom.org.uk/consult/condocs/telecoms_p2

[10] See http://www.openreach.co.uk/orpg/products/nga/fttp/downloads/FTTP%20Brownfield%20Product%20Proposal%20issue%202.pdf

could provide super-fast broadband more cost-effectively overall if it were able to choose between the two technologies in each area of construction, for example on a cabinet-by-cabinet basis. Thirdly, FTTP could enable services with higher data rates to be delivered than FTTC. Finally, FTTP could offer greater potential for future performance improvements than FTTC.

3.7 In considering BT's variation request our objectives are to deliver benefits to consumers by supporting early investment in super-fast broadband and, where appropriate, by promoting competition. In doing so, we are mindful of the need to maintain the integrity of BT's Undertakings as a comprehensive solution to the competition concerns identified in the TSR.

Prospects for competition in super-fast broadband

3.8 BT has started trials of FTTC in Whitchurch and in Muswell Hill. These are early steps in its plan to deploy super-fast broadband in selected exchange areas, with target coverage of 40% of the UK by 2012.

3.9 BT currently expects that FTTC will be the predominant technology in its deployment. Nevertheless, it foresees a role for FTTP in each super-fast broadband exchange area to the extent found appropriate following detailed local planning[11]. It is proposing to use FTTP to make super-fast broadband available in the following local situations:

3.9.1 Neighbourhoods that are beyond effective technical reach of FTTC.

3.9.2 Where premises are currently connected directly by copper wire to an exchange, without intermediate connection to a street cabinet. (Such connections are known as "Exchange-Only lines")[12].

3.9.3 Neighbourhoods where FTTP will be more cost-effective or more practically feasible than FTTC, for example due to planning restrictions.

3.9.4 "New build" areas, where no prior infrastructure exists.

3.10 The timetable BT proposes to follow is to start trials of super-fast broadband using FTTP in so-called Brownfield areas (i.e. where copper access infrastructure already exists) early in 2010, with commercial deployment to follow in the summer of that year. BT has also proposed to start trials of voice services over FTTP in the summer of 2010, and projects the start of commercial deployment of such services in 2011.

3.11 In our TSR Phase 2 Consultation we set out seven regulatory principles[13]. These included the principle that Ofcom "should promote competition at the deepest level of infrastructure where it will likely be effective and sustainable", and should "focus regulation to deliver equality of access beyond those levels". The Undertakings

[11] We understand that BT originally planned to use FTTP in around 10% of its super-fast broadband deployment and that it has now decided to increase the planned proportion of FTTP to 25% following more recent discussions with its stakeholders.
[12] BT is not planning to use VDSL in the exchange for such lines because the Access Network Frequency Plan agreed by the NICC does not currently allow transmission at the exchange of the higher frequencies used by VDSL (see http://www.niccstandards.org.uk/files/current/nd1602_2005_08.pdf?type=pdf Part D).
[13] See http://www.ofcom.org.uk/consult/condocs/telecoms_p2/tsrphase2/maincondoc.pdf section 5.3

provide for equality of access in the form of Equivalence of Inputs ("EoI") for certain products and functional separation of Openreach from the rest of BT.

3.12 In June 2009, following public consultation, we agreed with BT to vary its Undertakings to allow Openreach to control and operate the electronic equipment required for FTTC in the access network. In considering that variation we concluded that, in the case of FTTC, BT's active wholesale products were likely to correspond to the point in the value chain downstream where competition in super-fast broadband is most likely to be effective and sustainable.

3.13 Our agreement with BT therefore established that Openreach should provide those products on the basis of EoI. In addition, it committed BT to make sure that the products will be fit-for-purpose and that they will be developed through appropriate consultation to reflect both the needs of CPs and the goals described in our *Ethernet ALA Technical Requirements* document[14].

3.14 The agreement contained additional commitments by BT designed to support development over time of an alternative form of competition in which competitors might build and operate their own FTTC infrastructure using passive elements of BT's network (passive inputs). These inputs are components of BT's copper network between street cabinets and end-users' premises, and are generally known collectively as sub-loop unbundling. Our 2004 review of the wholesale local access market requires BT, among other things, to offer sub-loop unbundling[15].

3.15 Openreach's proposals for providing FTTP GEA present an option for competition in neighbourhoods where BT deploys FTTP. This option would allow CPs using Openreach's active wholesale products to compete in providing super-fast broadband services to end-users in such neighbourhoods. Openreach has proposed that GEA will present the same functions and interfaces to CPs, irrespective of whether it is delivered using FTTP or FTTC. This would make economies of scale available to CPs who use Openreach's active wholesale products, enabling their use with common processes and systems throughout all areas where BT deploys its super-fast broadband infrastructure, irrespective of the underlying technology.

3.16 The technical and commercial development of FTTP is at an early stage and it is not yet clear what, if any, options could prove to be a viable basis for effective and sustainable competition based on passive inputs.

3.17 BT has chosen Gigabit Passive Optical Network (GPON[16]) based architecture for its FTTP deployment, as illustrated below in Figure 1. The fibre between the exchange building and the splitter is shared between multiple premises in the GPON architecture. This could mean that it will be more difficult to provide access to passive elements (for example, dark fibre) of the network than if a point-to-point fibre network architecture were used[17]. There are two levels of potential passive inputs in the GPON FTTP architecture:

3.17.1 Duct access: access to infrastructure facilities such as ducts and poles

[14] An updated version of these requirements is available at http://www.ofcom.org.uk/telecoms/discussnga/eala/updated/updated.pdf

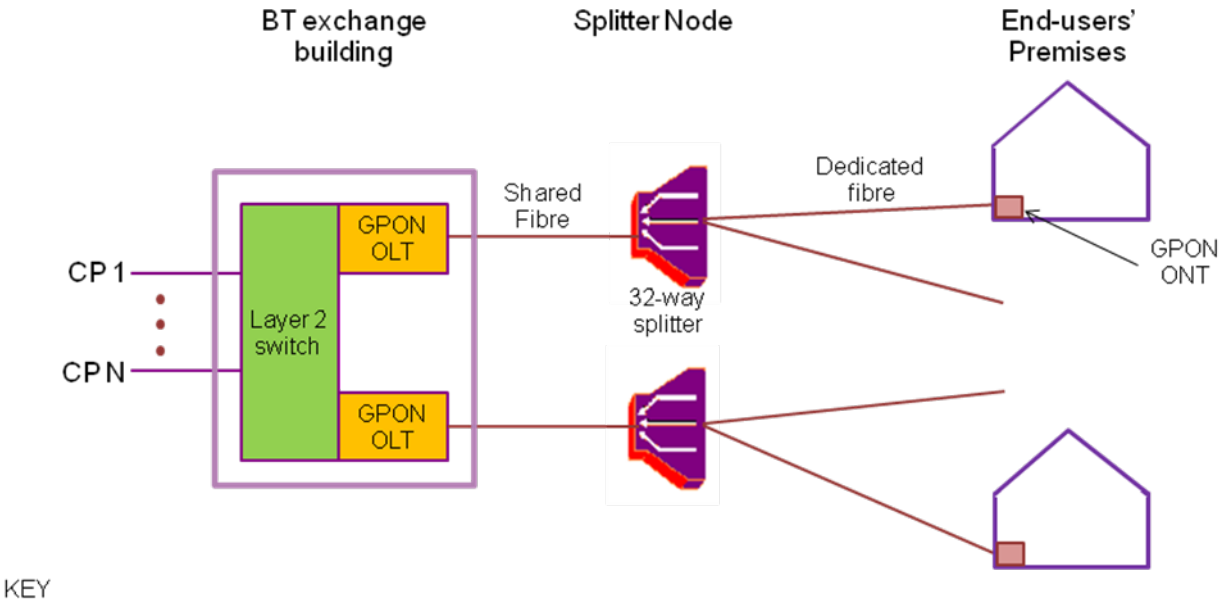
[15] See http://www.ofcom.org.uk/consult/condocs/rwlam/statement/rwlam161204.pdf

[16] GPON is one of many international standards for optical access networks.

[17] In a point-to-point fibre network, an individual fibre connects each end user's premises to the exchange.

3.17.2 Fibre unbundling: access to individual dark fibre after the splitter, which would typically be located in a footway box, between the exchange and the home[18].

Figure 1: FTTP deployment based on GPON architecture



3.18 Construction and adaptation of civil infrastructure is a major component of the cost of FTTP deployment[19]. Duct or pole access is one option that could reduce the cost of deploying fibre, potentially improving the business case for FTTP deployment by alternative communication providers. Ofcom has previously commissioned a survey of part of BT's duct network, between exchanges and cabinets[20]. That study, albeit based on a small sample, suggested that there may be a reasonable proportion of available duct, but that there are also practical complexities regarding accessibility. When considering FTTP deployments, BT's network between cabinets and customer premises is also relevant. Consequently, to inform our wholesale local access market review, we have commissioned a further survey, covering both ducts and poles, for that part of BT's network. The feasibility of duct access for FTTP deployment will be considered in our current review of the wholesale local access market, taking into account both of those surveys and other evidence.

3.19 The shared fibre architecture of GPON could mean that it will be difficult to implement fibre unbundling in a manner similar to that employed in the copper access network today. Access to the fibre serving a particular end-user's premises could be possible in theory between the splitter and the premises. BT has proposed to locate the splitter between the exchange and the premises, for example in a footway box. Stakeholders have not so far expressed an interest in accessing the fibre on the end-user's side of the splitter in BT's proposed deployment. This approach to fibre unbundling could present practical difficulties and commercial viability is uncertain.

[18] The splitter divides the optical signal received from a single input fibre between many individual output fibres

[19] *The costs of deploying fibre-based next-generation broadband infrastructure*, Broadband Stakeholder Group, September 2008.

[20] See- http://www.ofcom.org.uk/telecoms/discussnga/duct/ductreport.pdf

3.20 It is not clear whether appropriate passive inputs that could promote effective and sustainable competition may be available in BT's proposed FTTP deployment architecture. We have separately started reviews of the wholesale local access and the wholesale broadband access markets. These market reviews may consider appropriate remedies including any possible passive inputs in relation to FTTP.

3.21 In summary, Openreach's proposals for GEA, delivered using both FTTC and FTTP offer the prospect of competition in the provision of super-fast broadband to end-users. The effectiveness of this competition will depend, among other things, on the extent to which the GEA product is fit-for-purpose. BT's existing obligations to provide sub-loop unbundling provide options for the development over time of competition in the provision of FTTC infrastructure. Options for competition based on passive inputs for FTTP are at an early stage of development. The prospects for the development of effective and sustainable competition based on passive inputs, both using FTTC and FTTP, are not yet clear.

Rationale for the variation

3.22 BT's Undertakings currently do not allow Openreach to control and operate the electronic equipment that would be required to provide super-fast broadband FTTP products. The Undertakings currently require that, for FTTP, Openreach control and operate the passive components, while other parts of BT's organisation control and operate the active electronics. This differs from the current situation with FTTC for which, following our agreement in June 2009, the Undertakings allow Openreach to control and operate the access electronics.

3.23 Deployment of FTTP infrastructure, in the absence of the proposed variation, would therefore require that Openreach confine its activities to the physical assets required for FTTP, including the fibre cables, passive splitters, ducts, footway boxes and poles. A separate part of BT's organisation would be responsible for purchasing, installing and maintaining the electronic equipment in exchanges and in end-users' premises. Hand-offs between the two parts of BT's organisation would then be required to co-ordinate initial installation, end-to-end testing, connection and disconnection of individual end users, capacity management and in-life fault handling.

3.24 We recognise that there would be inefficiencies associated with these hand-offs and that these would lead to increased costs. Further, we recognise that there would be increased systems development costs associated with establishing a transactional boundary for passive components, either between different parts of BT or between BT and other Communications Providers.

3.25 In arguing for the variation, BT has set out a case estimating the cost increases associated with the separation of passive components and active electronics. In addition to the cost increases, BT also considers that such a separation would lead to an inferior customer experience. Its estimates of cost increases assume that FTTP would be deployed to cover 25% of premises where BT's super-fast broadband is planned to be available. Its approach and estimated cost increases are summarised below.

3.26 BT has estimated the additional costs associated with maintaining the separation of passive components and active electronics within BT, relative to its base case, which assumes that both passive and active components are controlled and operated by Openreach. BT estimates that additional capex cost of [✂] would be incurred in respect of additional FTTP head-end equipment if, contrary to the base case

assumption, this was not shared with exchange equipment used for FTTC. This would represent a 20% increase in BT's base-case capex cost for FTTP. BT estimated this cost increase by assuming that additional head-end equipment would be required at [✂] exchanges at a cost of [✂] per exchange. BT also estimates additional non-recurring costs of [✂] for tooling and training and service-management centre support of an enlarged engineering field force in BT Operate, [✂] of associated systems development costs, and [✂] of additional manpower costs involved in installation of FTTP in end-users' premises by two sets of BT engineers, one handling the passive components and the other handling the electronics. Taken together, these additional non-recurring costs represent a 9% increase in BT's FTTP capex cost.

3.27 BT has also estimated that the ongoing management of the FTTP infrastructure using two sets of field engineers would add continuing operating costs of [✂] per annum. BT's estimate assumed that a second engineering workforce would be needed to operate the active elements of the FTTP network. This workforce would be part of a downstream division of BT and would be additional to the Openreach manpower requirement that BT estimated in its base case. BT considers that this downstream workforce would be less efficient than Openreach's and incur additional costs due to fewer operational synergies, and hence cost 30% to 40% more than the corresponding costs in the base case. This corresponds to a cost of the second workforce of [✂] p.a. per line installed, an uplifted figure from an estimate of [✂] p.a. for repair and maintenance in the base case, covering manpower and associated costs for monitoring, locating and fixing faults, as well as customer service in fault handling. BT based these figures on analysis of typical operating costs for similar activities.

3.28 BT calculates that the estimated additional capital and non-recurring costs added together would increase the base-case capital expenditures it forecast for FTTP by approximately 30%. The estimated additional operating costs would increase the ongoing annual operating expenditures, excluding depreciation, by approximately 60%.

3.29 It is not yet clear what, if any, passive FTTP inputs it might be appropriate for BT to provide. If Openreach was to provide them in future, it would need to design and implement them and their associated processes and systems to support volume transactions for each input with a number of CPs. BT has estimated additional systems costs of at least [✂] associated with providing passive FTTP components on the basis of EoI. This would be equivalent to a 15% increase in the base-case capex cost that BT forecasts for FTTP. BT based this estimate on a "top-down" assessment from its past experience of the costs of large systems implementations, rather than on a detailed "bottom-up" review of automation requirements, since it considers that these are unknown.

3.30 In addition to the estimated additional costs, BT also argues that separation of responsibilities between its divisions for passive components and active electronics within BT could lead to increased risk of disruption to end-users' services, and that the resulting unsatisfactory end-user experience could reduce take-up and increase churn.

3.31 If we were to agree the proposed variation BT would be able to avoid the inefficiencies entailed in deployment and operation of FTTP by separate BT divisions. It would then be able to proceed with trials and deployment of FTTP as it has planned. On the other hand, if we were not to agree the proposed variation we consider that the inefficiencies would then be likely to diminish the extent to which BT

invests in FTTP, and may deter it from deploying FTTP to a significant extent. In that event, it would not be able to replace all of its intended FTTP deployment with FTTC because of the technical limitations of FTTC, and to the extent that it does deploy FTTC instead of FTTP its deployment is likely to be less cost-effective.

3.32 BT's FTTP deployment would be based on new network infrastructure deployment, and current regulations do not require BT to provide any FTTP passive inputs. Ongoing and future reviews of markets under the SMP framework may establish such requirements. We have recently started such a review of the wholesale local access market.

3.33 Although we have not analysed BT's cost estimates in detail, we nevertheless consider that the additional costs that BT would incur in deploying and operating super-fast broadband using FTTP if we were to refuse the proposed variation would be significant. At the same time, the scope and opportunities for effective and sustainable competition based on passive FTTP inputs are highly uncertain at present. The benefits that would flow to consumers and to competition if we were to refuse the proposed variation are therefore also highly uncertain and, in light of the limited interest shown so far by CPs in such competition, seem unlikely to be significant at this stage. Hence, the likely costs and benefits favour agreement to the proposed variation.

Safeguards relating to BT's active products

3.34 BT proposes in its variation request that its active FTTP super-fast broadband wholesale products would be provided by Openreach. This would mean that those products would be made available to all CPs on the basis of EoI.

3.35 BT has, in addition, offered to repeat the same commitments in relation to its wholesale active FTTP products as it agreed previously in the case of FTTC. These are set out fully in BT's Undertakings in sections 5.54 and 5.55, and include:

- Robust and scalable processes and systems to support provision, migration, monitoring and fault repair;
- Volume availability of the product to support reasonable demand;
- Conformance to appropriate industry standards;
- Contracts to include service-level agreements;
- Ongoing consultation with industry to develop a product roadmap, to include consideration of Ofcom's Ethernet ALA Technical Requirements document; and
- Timely delivery by Openreach of product features in accordance with the product roadmap.

3.36 These commitments could help ensure that BT's active wholesale super-fast broadband products will have the same functionality, and present the same functional and commercial interfaces, irrespective of the underlying access technology.

3.37 We consider that provision by Openreach of FTTP active wholesale products on the basis of EoI would help safeguard a level playing field, and hence fair competition, amongst downstream providers of super-fast broadband products. We consider also that common functionality and interfaces between BT's active wholesale products,

whether they are delivered over FTTC or FTTP, will enable CPs to take advantage of economies of scale, and thereby contribute further to effective and sustainable competition.

3.38 We are therefore inclined to accept BT's commitments as they relate to FTTP active products.

Implications for passive FTTP inputs

3.39 We have recently started new reviews, under the SMP framework, of the wholesale local access and wholesale broadband access markets. As part of these reviews we will consider what, if any, passive remedies may be appropriate in relation to FTTP.

3.40 In the meantime, it is not clear what, if any, forms of competition based on the use of FTTP passive inputs might be effective and sustainable. Consequently, it is not yet clear what, if any, steps it might be appropriate for BT to take in order to safeguard the option for such forms of competition to develop in future. We have commissioned a study to explore the options for competition on GPON-based FTTP deployments. This study will inform the wholesale local access market review.

3.41 We therefore do not consider it appropriate to seek commitments from BT in relation to passive inputs for FTTP as part of the proposed variation.

Delivery of voice services with super-fast broadband

3.42 The prospect of deployment of FTTP has brought to the fore the question of how voice services will be delivered with super-fast broadband products. BT has so far been planning to deliver voice services to customers served by FTTC using its legacy network, transmitting analogue voice over the existing copper wire between the local exchange and the end-user's premises. Openreach has recently consulted industry on an alternative method for delivering voice services to premises served by next-generation access[21] with a view to employing this initially with FTTP. Its proposal is to use voice over IP ("VoIP"), which involves digital transmission of voice between the exchange and the end-user's premises, control of the service using call servers and conveyance of voice services using an IP core network. It intends to start trials of voice delivery over FTTP in the summer of 2010, with a view to launching commercial service in 2011.

3.43 This approach to delivery of voice services could potentially enable Openreach to achieve efficiencies by avoiding use of any copper wire access in the delivery of wholesale access services to premises served by FTTP[22].

3.44 We consider that the effective evolution of methods for delivery of voice services is important in the development of super-fast broadband. Firstly, voice services are of fundamental importance to consumers, whether they are bundled with broadband services or delivered stand-alone. Secondly, the use of VoIP with super-fast broadband could accelerate the established trend of convergence of delivery of all

[21] Openreach published its consultation at http://www.openreach.co.uk/orpg/products/nga/downloads/VoNGA%20Voice%20Product%20Proposal%20Issue%201_0.pdf

[22] It would still be possible for a CP to serve such premises by requesting existing copper-based regulated wholesale access products from BT, but these are unlikely to form the basis of an attractive retail proposition to those end-users who value the higher broadband speeds that would be available with FTTP.

services onto a common network platform based on the Internet protocol ("IP"). This trend underlies the evolution of core networks to next-generation technologies, which allow operators to reap economies of both scope and scale, and could, over time, offer consumers better value for money and more rapid development of new services.

3.45 Some UK operators of fixed networks already use next-generation technologies on a large scale in their current core networks to compete in the provision of voice and broadband services to consumers. They use Openreach's Metallic Path Facility ("MPF") product for wholesale access to end-users' premises connected to BT's copper network. By its nature, this product cannot be provided using FTTP technology. BT could provide MPF in premises served by FTTP in cases where copper wire is already in place, but this is unlikely to form the basis of an attractive proposition to an end-user interested in super-fast broadband data services.

3.46 We consider therefore that, where BT deploys super-fast broadband, it is important that it provides wholesale products likely to support effective and sustainable competition in voice services for the benefit of consumers. The wholesale products available, and the manner in which BT produces them, are likely to be key factors in determining the models of competition that could be effective and sustainable.

3.47 One such model of competition could be based on an approach similar to that enabled by the current Wholesale Line Rental ("WLR") product. In such a model BT (through Openreach) would provide wholesale voice access on the basis of EoI by using its own network, which would therefore control the functionality of voice services. Competition could take place in the retail market and in call conveyance through the core network, but, unlike the model enabled by MPF in the copper network, a CP would not access its end-user's voice traffic at the exchange where that end-user's access connection terminates.

3.48 A more upstream model of competition could be enabled if Openreach were to make it possible for a CP's network to control the functionality of its end-users' voice services, and to aggregate its end-users' voice traffic at local exchanges for conveyance through the CP's core network. Industry debate about technical possibilities for implementing such a product in the context of FTTP centre currently on how the product is presented physically in the end-user's premises. An analogue telephone socket could be presented for example in one of the following ways:

3.48.1 On Openreach's network termination unit, with Openreach providing an electronic interface which would allow a CP's network to control the end-user's voice services, and to aggregate the end-user's voice traffic at the local exchange for conveyance through the CP's core network[23].

3.48.2 On a CP-owned adapter, connected to an Ethernet socket on Openreach's network termination unit.

3.48.3 A so-called "wires-only" option, in which Openreach would provide a simple, as yet undefined, network termination while the home equipment is provided essentially in its entirety by the CP.

[23] This type of interface is sometimes referred to as "Open ATA". The physical presentation of this in the end-user's premises might be the same as that of a next-generation product similar to WLR.

3.49 If the more upstream model of competition is to be available, a further significant consideration underpinning effective competition is the question of BT's incentives in ensuring equality of access. Two options could be considered here:

3.49.1 BT produces an upstream product for communications providers but does not consume it in producing any next-generation access product similar to WLR.

3.49.2 BT consumes its own upstream product on the basis of EoI in producing a next-generation access product similar to WLR.

3.50 Similar options were considered at the time BT's Undertakings were first agreed in relation to BT's current WLR product. Ofcom concluded at that time that BT should not be required to consume an upstream input in producing WLR. However, consideration of the options in the context of next-generation access could lead to different conclusions.

3.51 If BT was required to consume an upstream product in producing a next-generation access product similar to WLR it may have to incur additional costs. Since such an upstream product has not yet been defined and industry standards are not yet sufficiently evolved, it is not yet possible to assess how significant those costs are likely to be.

3.52 BT's consumption of an upstream voice product could potentially deliver significant benefits to competition, and hence to consumers, by providing a high degree of assurance that the upstream product will be fit-for-purpose and that it will form the basis of competition on a level playing field. However, in deciding whether such consumption by BT would be proportionate, a number of key factors would need to be considered, including the costs and practical implications for BT, and the potential impacts on the industry, including those operators who currently rely solely on BT's WLR product.

3.53 Another important consideration is the manner in which the common costs of BT's access network are recovered. The current copper network is used to provide both voice and broadband services, while currently most of its costs are recovered by charges for voice services, and a relatively small proportion is recovered by charges for broadband services[24]. In the wholesale market this means that BT can only provide broadband access to lines whose consumers also purchase voice services. In the retail market this means that consumers expect to pay similar charges for voice services, whether or not they receive broadband services. Once a next-generation access technology can deliver both broadband and voice services, it may no longer be appropriate to recover the common costs of BT's next-generation access network in this way, and the impact that a change to the approach to the recovery of these cost could have on consumers needs to be considered carefully.

3.54 We intend to consider the options that arise for competition and for consumers as voice products delivered over next-generation access are developed, including the questions and issues we have highlighted above. We will progress these issues further, initially within the scope of our current review of the wholesale local access market. We currently plan to consult on that review early in 2010.

[24] This is reflected in the relative charges for Openreach's WLR and SMPF products, which are used by CPs to provide voice and broadband services respectively. Some CPs also use Openreach's MPF product, mostly as an input to a retail bundle of voice and broadband services.

3.55 In this proposed variation to BT's Undertakings, we interpret the definition of FTTP Active Product in the legal text of Annex 5 to allow Openreach to control and operate, among other things, the analogue terminal adaptor ("ATA"). This electronic function would be required to enable consumers' existing telephone handsets and home telephone wiring to be used for voice services delivered using digital access to the home, as would be the case with FTTP. While we did not consider voice services delivered using digital access when we agreed the variation to BT's Undertakings concerning FTTC, this interpretation would apply equally in the case of FTTC. We consider that the competition issues relating to voice services in the case of FTTC are different from those in FTTP because digital access is not the only way to deliver voice services with FTTC. Nevertheless, this consistent approach would permit Openreach to control and operate the ATA in the case of FTTC as well as FTTP, and therefore allow BT to harmonise its super-fast broadband product range if it chooses to do so, enabling the same products to be delivered irrespective of the underlying technology.

Impact on the Undertakings

3.56 In the TSR we concluded that there were enduring bottlenecks in fixed telecoms, and adopted the principle that regulation should promote competition as deep in the network infrastructure as was likely to be effective and sustainable. We noted that where Communications Providers competing on this basis need access to parts of BT's network where competition is not sustainable, BT would need to provide such access on the same terms as it makes it available to itself.

3.57 To achieve this, the Undertakings were designed to deliver equality of access through the principles of equivalence at the product level and functional separation of the organisation of BT, in which Openreach is responsible for providing the access to parts of BT's network where competition is unlikely to be effective or sustainable.

3.58 In today's exchange-based broadband services, the Undertakings require that BT's Openreach division provides, on the basis of EoI, passive inputs to competing Communications Providers who invest in electronic equipment located in BT's exchange buildings. Openreach provides the passive inputs including space, power and tie cables between the DSLAMs and BT's main distribution frames, where copper wires from end-users' premises terminate. Openreach is also responsible for carrying out the physical processes required to manage the service, such as making the connection between a particular end-user's copper wire and his chosen provider's equipment on activation of that user's service.

3.59 Currently there appears to be strong interest from Communications Providers in wholesale active products, both using FTTC and FTTP, while there appears to be limited interest, other than from BT, in investing in FTTP infrastructure. At the same time, FTTP technology is at an early stage of development and we have not yet established what, if any, passive FTTP inputs it might be appropriate for BT to provide.

3.60 The proposed variation would allow Openreach to control and operate the electronic equipment in BT's access network required to provide wholesale active FTTP products, and these would be provided on the basis of EoI. In addition, the proposed variation would commit BT to provide fit-for-purpose FTTP wholesale active products, and align those commitments with those which apply to its provision of similar products using FTTC.

3.61 In light of these commitments, we consider that the variation does not depart from the principles that led to the Undertakings, in that it promotes competition at the deepest level of the infrastructure where it is likely to be effective and sustainable.

No change to the arrangements concerning provision of business leased lines and of other existing fibre-based products

3.62 BT already provides wholesale services such as Ethernet products, partial private circuits and ISDN30 voice access using fibre connections to approximately 130,000 UK business premises. In accordance with the current provisions of BT's Undertakings, Openreach does not control or operate the electronic components of any of these services, although it provides a range of upstream Ethernet services[25]. The proposed variation is not intended to change those provisions. The legal definition of "BT Active FTTP Product" in the proposed legal text of Annex 5 is designed to reflect this position.

3.63 We recognise the future possibility that BT might seek to design leased-line products for the business connectivity market using its planned new FTTP infrastructure. However, we understand that BT has no plans to do so at present, and we have not considered the impact that such developments could have on consumers and on competition in that market. Therefore the scope of the proposed variation excludes Openreach control or operation of the electronic equipment required for products designed specifically for application in business leased lines. (For the avoidance of doubt, products delivered using BT's planned new FTTP infrastructure and designed for business uses other than leased-lines are included within the scope of the proposed variation. An example of such a use might be business broadband access where service levels offered for repair are higher than those offered with the corresponding products in the residential market).

3.64 Therefore, we would expect that BT and Ofcom would need to agree a further variation to the Undertakings in the event that Openreach either designs new products for use in business leased lines which are delivered using its FTTP infrastructure or designs variants of its GEA-FTTP product in order to fulfil requirements specifically for such use.

3.65 It should be noted nevertheless that, if the variation is agreed, once Openreach markets its GEA-FTTP product, it is possible that some CPs might seek to use it, without requiring changes to its designed functionality, as the access component of leased-line products. This variation is not intended to prevent such application, and we do not consider that it would be appropriate for Openreach to limit the application of its products by its customers.

Equality Impact

3.66 We are required by statute to have due regard to any potential impacts our proposals in this consultation document may have on race, disability and gender equality. An Equality Impact Assessment (EIA) is our way of fulfilling this obligation[26]. We have considered whether we are required to undertake a full EIA for this consultation. On the basis of our initial screening we consider that this is not required as the impacts will apply equally to all, regardless of race, disability or gender.

[25] See, in particular, sections 5.4 and 5.5 of BT's Undertakings.
[26] See section 71(1) of the 1976 Race Relations Act (as amended), section 49A of the 1995 Disability Discrimination Act (as amended), and section 76A(1) of the 1976 Sex Discrimination Act (as amended).

Section 4

Proposed Exemption concerning Fibre Integrated Reception System

Introduction

4.1 BT has requested an exemption from its Undertakings in relation to Fibre Integrated Reception System ("FIRS").

4.2 Some sections of BT's Undertakings provide for the possibility that their application might be modified in certain circumstances following an agreement between BT and Ofcom.

4.3 BT and Ofcom are minded to reach such an agreement pursuant to section 5.12 of the Undertakings in relation to FIRS.

Description of FIRS

4.4 FIRS is an electronic system which distributes broadcast television or radio from a single head-end to multiple end-users' premises using an FTTP infrastructure. It is designed for use in neighbourhoods where the installation of reception aerials or dishes on end-users' premises is either prohibited by lease agreements or technically ineffective due to constraints imposed by local geography. It is technically suitable for distribution of services such as Freeview, Sky, Freesat and Digital Audio Broadcast.

4.5 The system receives the required broadcast signal from a master antenna at the head-end. It uses one-way analogue transmission at radio frequency through a passive optical network to distribute the required broadcast signal to end-users' premises.

4.6 Openreach has used the passive optical network structure of its pilot FTTP installation in Ebbsfleet to deploy FIRS. It has done so because the constraints imposed by local geography would render the installation of aerials or dishes on consumers' premises there technically ineffective. It has deployed the system in fewer than 150 homes and has no plans to deploy it outside the Ebbsfleet pilot area.

Ofcom's considerations with respect to BT's exemption request

4.7 BT's exemption request and the legal wording of the proposed exemption are set out in Annex 6. The reasoning we put forward in this section in respect of the proposal is based on information available to us at the time of publication and we reserve the right to change our position with respect to the proposals as a result of the consultation process or any other information that comes to light during the consultation period. Any such change will be fully explained in the statement due for publication after the consultation period ends.

4.8 BT has argued that, if the variation proposed in this document is agreed, allowing Openreach to control and operate the access electronics required for FTTP, it would be efficient for Openreach to also control and operate the electronics for FIRS in Ebbsfleet.

4.9 The FIRS system can deliver benefits to consumers and citizens in Ebbsfleet by providing them with effective reception of broadcast services, which would otherwise be limited by local geographic constraints.

4.10 If the proposed exemption is not agreed, a separate division of BT from Openreach would control and operate the FIRS system. We consider that this is likely to add costs to the operation of the system in Ebbsfleet by requiring additional hand-offs between different operations teams. We also consider that there are unlikely to be material benefits to competition from such separation in this case because the local commercial opportunity in itself is likely to be too small to attract sustainable entry by competitors.

4.11 We consider therefore that some costs could be avoided if we were to agree to the exemption request, and that there are unlikely to be material benefits if we do not so agree.

Section 5

Conclusions

Proposed variation related to FTTP

5.1 We believe that agreement to the proposed variation is in the interests of citizens and consumers because:

- It would give BT regulatory certainty to invest in FTTP and therefore enable it to deploy super-fast broadband infrastructure more cost-effectively.
- In enabling BT to deploy FTTP widely it would help make super-fast broadband services available to more citizens and consumers than FTTC alone would make possible.
- It would help maximise the opportunities to provide consumers with high-quality experience of super-fast broadband services.

5.2 We also believe that the proposed variation would help promote effective and sustainable competition by enabling CPs to take advantage of economies of scale in providing super-fast broadband services using Openreach's wholesale active products.

5.3 In our view the proposed variation does not depart from the principles that led to BT's Undertakings because it would promote competition at the deepest level of the infrastructure where it is likely to be effective and sustainable, while ensuring that Openreach is responsible for providing the inputs to that competition on the basis of EoI. In addition, agreement to the proposed variation would include agreement with BT of the process by which the industry will identify, with our involvement, the appropriate inputs to effective and sustainable competition in the delivery of voice services over super-fast broadband.

5.4 We therefore consider that, subject to Consultation, we should agree to the proposed variation.

Question 1: Do you have any comments on our analysis as set out in this document, and do you agree with our provisional conclusion that we should agree to this variation as proposed in the legal text in Annex 5?

Proposed Exemption related to Fibre Integrated Reception System ("FIRS")

5.5 We consider that the proposed exemption is in the interests of consumers and citizens because it will help minimise the costs involved in operating the FIRS system in Ebbsfleet, where geographic constraints would otherwise limit effective reception of broadcast services by local residents. We also consider that agreement to the exemption is not likely to have a material impact on competition because of the limited size of the Ebbsfleet deployment.

5.6 We therefore consider that, subject to Consultation, we should agree to the proposed exemption.

Question 2: Do you have any comments on our analysis of the proposed exemption set out in this document, and do you agree with our provisional conclusion that we should agree to this exemption as proposed in the legal text in Annex 6?

Annex 1

Responding to this consultation

How to respond

A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made **by 5pm on 20 November 2009**.

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

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

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

Gideon Senensieb
Floor 4
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax: 020 7981 3333

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

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

Further information

A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Gideon Senensieb on 020 7981 3000.

Confidentiality

A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your response should be kept confidential, can you please specify what part or whether

all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

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

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

Next steps

A1.11 Following the end of the consultation period, Ofcom intends to publish a statement in January 2010.

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

Ofcom's consultation processes

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

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

A1.15 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Vicki Nash, Director Scotland, who is Ofcom's consultation champion:

Vicki Nash
Ofcom
Sutherland House
149 St. Vincent Street
Glasgow G2 5NW

Tel: 0141 229 7401
Fax: 0141 229 7433

Email vicki.nash@ofcom.org.uk

Annex 2

Ofcom's consultation principles

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

Before the consultation

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

During the consultation

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

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

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

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

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

After the consultation

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

Annex 3

Consultation response cover sheet

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

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

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

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

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

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title: Proposed Variation to and Exemption from BT's Undertakings under the Enterprise Act 2002 related to Fibre-to-the-Premises and Fibre Integrated Reception System

To (Ofcom contact): Gideon Senensieb

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

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

Nothing ☐ Name/contact details/job title ☐

Whole response ☐ Organisation ☐

Part of the response ☐ If there is no separate annex, which parts?

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

DECLARATION

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

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

Name Signed (if hard copy)

Annex 4

Consultation questions

Question 1: Do you have any comments on our analysis as set out in this document, and do you agree with our provisional conclusion that we should agree to this variation as proposed in the legal text in Annex 5?

Question 2: Do you have any comments on our analysis of the proposed exemption set out in this document, and do you agree with our provisional conclusion that we should agree to this exemption as proposed in the legal text in Annex 6?

Annex 5

Proposed legal text of variation related to Fibre-to-the-Premises

Variation of the Undertakings given to Ofcom by BT pursuant to the Enterprise Act 2002 – Variation Number [22]

WHEREAS:

(a) British Telecommunications plc ('BT') has given Ofcom certain undertakings ('the Undertakings') which took effect on 22 September 2005, pursuant to the Enterprise Act 2002;

(b) by virtue of section 18.1 of the Undertakings, BT and Ofcom may from time to time vary and amend the Undertakings by mutual agreement; and

(c) BT and Ofcom have agreed to vary the Undertakings as hereinafter appears.

NOW THEREFORE:

It is hereby agreed between BT and Ofcom pursuant to section 18.1 of the Undertakings that the Undertakings are varied as follows:

1. Definitions and interpretation

1.1. Words or expressions hereinafter appearing have the same meanings as in the Undertakings.

1.2. References hereinafter to section numbers are references to section numbers in the Undertakings.

2. Variations to the Undertakings

2.1 Section 2.1 "Definitions" is amended by adding the following new definitions:

> ""**BT Active FTTP Product** " means an Ethernet based Bitstream Network Access product offered by AS as of the date it is available for order and provided over the entirety of FTTP excluding any product or products:
>
> (i) falling within section 5.4 (d), or section 5.5 (c), (d) or (e); or
> (ii) designed as an input to an uncontended service between two business End-User premises."

""**FTTP**" means a network structure for access at End-Users' premises at fixed locations in which optical fibres connect a node in an Exchange to the End-Users' premises."

2.2 In section 2.1 "Definitions", the definition of "Exchange" is amended by deleting the words "and FTTC" and adding the words ", FTTC and FTTP" after the words "Section 7".

2.3 Sections 5.52 shall be replaced with the following:

"5.52 AS may control and operate the assets contained within:

(i) the Transmission Layer of BT's Access Network where required to test, build, implement and operate a BT Active FTTC Product and/or a BT Active FTTP Product; and
(ii) the Transmission Layer of BT's Backhaul Network where required to test, build, implement and operate a BT Active FTTC Product."

2.4 Section 5.53 shall be replaced with the following:

"5.53 To the extent that BT offers a BT Active FTTC Product and/or a BT Active FTTP Product it shall be provided by AS until such time as or to the extent that the active product in question is determined not to fall within a market for Network Access in which BT has been determined from time to time by Ofcom as having SMP."

2.5 Section 5.54 shall be amended by inserting "and/or a BT Active FTTP Product" after "BT Active FTTC Product".

2.6 Section 5.55 shall be amended by inserting "and/or a BT Active FTTP Product" after "a BT Active FTTC Product"

2.7 Section 5.55(ii) shall be amended by inserting the words "and FTTP" after "FTTC".

2.8 Section 5.59 shall be amended by inserting the words "and FTTP" after "FTTC" on each occasion that it occurs.

2.9 Section 5.61 shall be amended by replacing the words "being served by a BT FTTC enabled cabinet" with the words "receiving a service based on either a BT Active FTTC Product or a BT Active FTTP Product".

3. Effect

3.1 These variations of the Undertakings take effect immediately upon signature hereof on behalf of both parties.

Signed for and on behalf of British Telecommunications plc

Signature _____

Name _____

Position _____

Date _____

Signed for and on behalf of Ofcom

Signature _____

Name _____

Position _____

Date _____

Annex 6

BT's FIRS exemption request and legal text of the proposed exemption

BT's exemption request

FIBRE INTEGRATED RECEPTION SYSTEM (FIRS)

Legal basis: Section 5.12

1. Product description and reasons for request

The Openreach Fibre Integrated Reception System product (FIRS) provides for the one-way distribution of digital TV/Radio broadcast signals supplied from a central reception head-end to multiple end users premises over a Fibre to the Premises (FTTP) access network. It is only available for supply in Ebbsfleet, Kent where it was introduced to provide a solution for customers to a problem which arose because of the particular geography of that area.

This request seeks Ofcom's agreement that Openreach be allowed to control and operate the assets contained in BT's Access Network which are required to test, build, implement and operate FIRS in Ebbsfleet.

BT has requested a variation of the Undertakings in order to allow Openreach to control and operate the electronics in BT's Access Network required for Fibre to the Premises. If granted, it will mean that, in practice, Openreach engineers will have day to day control and operation of the assets required to support the provision of BT's FTTC and FTTP active products.

In Ebbsfleet, BT also provides FIRS over FTTP. As the FIRS product uses the passive optical network used in the FTTP infrastructure, it would be inefficient and impractical for Openreach not to support, also, the provision of FIRS for reasons which are effectively the same as those pertaining to BT's variation application. As explained in more detail in section 5 below, BT does not consider that there is any other alternative delivery solution which would produce greater consumer or competitor benefits. For these reasons, we request an exemption to allow Openreach to control and operate the assets required to provide FIRS.

2. Legal basis, scope and duration

Legal basis: section 5.12

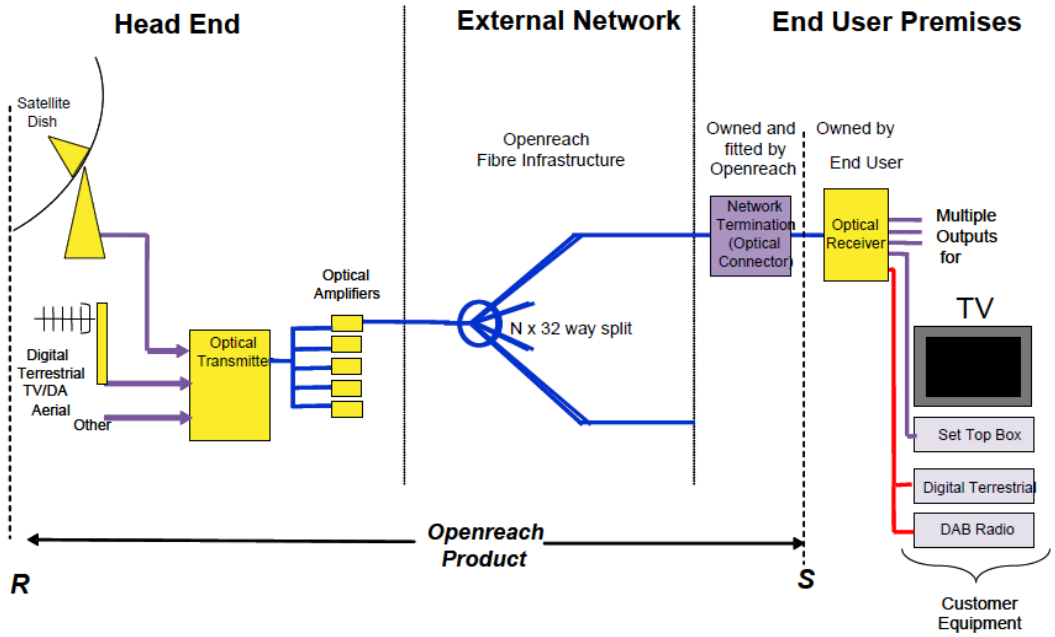
Scope: Agreement that Openreach may control and operate the assets contained within BT's Access Network which are required to test, build, implement and operate FIRS within Ebbsfleet, Kent.

Duration: permanent

3. Identification of the products involved

Openreach's Fibre Integrated Reception System product (FIRS) is a Radio Frequency over Passive Optical Network (RF over PON) based product used to provide one-way TV/Radio signal distribution to multiple end user premises over an FTTP access network.

FIRS offers a means of receiving and then distributing broadcast digital TV and audio signals (Digital Terrestrial TV, Digital Audio Broadcasting and Digital Video Broadcast Services – including Sky and Freesat) and other compatible broadcast sources over a FTTP access network. The diagram below provides a pictorial representation of how FIRS is used to enable Ebbsfleet residents to access TV satellite and digital radio.



FIRS provides for the one-way distribution of digital TV/Radio broadcast signals supplied from a central reception head-end to multiple end users premises over a FTTP access network. It is based on a multi-way split Passive Optical Network (PON) terminating in the end user premises at an optical connection point.

FIRS can be used as an alternative method of physically distributing broadcast signals where the installation of individual reception aerials/dishes on the premises is undesirable or prohibited by lease agreements and/or in areas where local geography restricts the availability of alternative means of reception.

4. Description of the way in which the product will be provided by Openreach / description of the solution proposed

Openreach has used the opportunity offered by the Ebbsfleet new build programme (where a completely new communications network has needed to be installed as the building work develops) to pilot the installation of a FTTP network and the provision of FTTP based services.

In particular, FIRS was developed to meet the particular needs of the Ebbsfleet new-build development. It is used as an alternative method of physically distributing broadcast signals as the installation of individual reception aerials/dishes on individual premises is restricted by lease agreement and local geography also restricts the direct reception of broadcast signals.

When construction started, the need for properties in the area to be able to receive TV, radio and satellite signals was considered essential to enable the building development to proceed, and Openreach was able to offer to provide a solution to the issues described above by delivering the required functionality over the pilot FTTP infrastructure already being deployed at the site.

Currently there are less than 150 end-users connected to the system. Due to the current economic slow-down and the consequential effect on new site developments, material increases in this volume are not expected in the short/mid-term. In the long term as and when economic conditions improve further growth is expected and numbers over time could be expected to eventually reach pre-recession estimates of circa 10,000+ homes over a 10+ year period. Openreach only supplies this service in Ebbsfleet.

For the avoidance of doubt, Openreach currently has no plans to deploy this technology elsewhere or to offer this type of service at any other sites.

It is proposed, if the exemption is granted, that in Ebbsfleet, Openreach will continue to test, build, implement and operate the assets in BT's Access network in order to provide FIRS. If the contemporaneous variation application is granted, it will allow efficient management by Openreach of the Next Generation Access (NGA) network for the provision of both NGA service and FIRS.

For the reasons given above, BT is content for the exemption to be limited so as to cover FIRS provision only in Ebbsfleet. Should Openreach's plans change, and if required, Openreach has indicated that it will seek a further exemption at the appropriate time.

5. Justification for the exemption and impact on CPs and consumers

It is not considered that the granting of this exemption application would have any impact on Communications Providers (CPs) because:

(i) to the best of our knowledge no other CP or infrastructure provider was willing to engage in the provision of such a service to the site;

(ii) there is no established market for FIRS infrastructure in the area;

(iii) the lease and planning arrangements for the site only enable one FIRS infrastructure to be installed. Not-withstanding this restriction, the site is, in any event, expected to remain sub-scale with regard to the economics of multi-CP deployment of FIRS infrastructure for the foreseeable future. Accordingly, it is unlikely that any other CP would seek to invest in this area; and

(iv) in the event that any other CP is interested in offering vision/audio services the GEA product is capable of supplying video/telecoms signals from multiple CPs to individual premises. GEA is being delivered on an EoI basis alongside FIRS deployment or usage.

Without access to the FIRS service, consumers would not be able to receive digital TV or audio services. Development restrictions mean, for example, that they cannot install satellite dishes on their homes – which presumably is intended to improve the visual amenity for residents.

For the reasons given above, allowing Openreach to control FIRS electronics will not limit the range of superfast broadband services available in due course to the residents of Ebbsfleet. It is also the option that is likely to result in the best customer experience for them

(when compared, for example, with other options such as requiring other parts of BT to control the electronics or having downstream BT trading units supplying the service).

Exemption wording

WHEREAS:

(a) BT has offered and Ofcom has accepted Undertakings pursuant to the Enterprise Act 2002, which took effect on 22 September 2005 (the "Undertakings");
(b) On 8 October 2009, BT submitted an exemption request to Ofcom seeking its agreement to allow AS to control and operate the assets contained in BT's Access Network which are required to test, build, implement and operate its Fibre Integrated Reception System product (FIRS) in Ebbsfleet, Kent;
(c) It is considered that due to the local nature of the FIRS product, it is more appropriate for arrangements relating to its provision to be the subject of an exemption rather than for it to be incorporated into the Fibre-to-the-Premises (FTTP) variation of the Undertakings;
(d) On 9 October 2009, Ofcom published a consultation document in relation to BT's application for a variation of the Undertakings concerning FTTP and an exemption for FIRS ;
(e) Access Services (AS) as referred to in the Undertakings has been established as Openreach since 22 January 2006.

NOW THEREFORE:

Ofcom and BT hereby agree, pursuant to section 5.12, that:

1. AS may control and operate the assets contained within BT's Access Network required to test, build, implement and operate its Fibre Integrated Reception System product in Ebbsfleet, Kent.

Definitions and interpretation

2. Words or expressions in this Agreement have the same meaning as in the Undertakings.

3. References in this Agreement to section numbers are references to section numbers in the Undertakings.

Effect

4. This Agreement shall take effect immediately upon signature hereof on behalf of both parties.

Signed for and on behalf of British Telecommunications plc

Signature _____

Name _____

Position _____

Date _____

Signed for and on behalf of Ofcom

Signature _____

Name _____

Position _____

Date