



BT's response to Ofcom's consultation document

"Business Connectivity Market Review: Review of competition in the provision of leased lines"

Summary and Part A: response to Ofcom's overall approach and consultation questions

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NON-CONFIDENTIAL VERSION

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1. Executive Summary

- 1.1 Business connectivity is an important input into a wide range of economic activity and BT believes that it is essential to ensure effective competition, efficient investment and innovation and choice in these markets. We believe that competition, based on the provision of regulated upstream active inputs, is well established and continues to develop to meet the needs of customers.¹ Ofcom's proposed Leased Lines Charge Control² fails to recognise these realities and Ofcom's proposals as a package represent overly aggressive and disproportionate regulation. This will undermine investment by BT and other network access operators to the detriment of our customers at a time when network investment is crucially needed to fulfil customer needs.
- 1.2 Against clear trends of increasing competition, the approach proposed in this Consultation³ creates an outcome which is unfair, bad for the market, and fundamentally different to that in the last Business Connectivity Market Review (BCMR). Individually any of the following effects would be a significant increase in the regulatory burden, together they create a perfect storm:
- the Ethernet charge control (with a high "X" combined with start price adjustments) is a highly intrusive remedy which, combined with the proposed introduction of Dark Fibre, will reduce Openreach's Ethernet revenues by [X] by the end of the three years of the control. This is up from [X] in the last control: this is a disproportionate intervention which will destroy the case for Ethernet investment by BT and other network providers;
 - the PPC charge control is similarly intrusive, resulting in legacy revenues falling by around [X] in real terms. It will create the wrong incentives for migration in a legacy market, where volumes have been declining rapidly. Prices set too low will discourage migration;
 - the cost allocation changes proposed by Ofcom, which further exacerbate the impacts of these charge controls, are wrong and overstate the level of returns;
 - the introduction of challenging service targets, which will need to be delivered against a background of greater volume and data uncertainty (driven in part by Ofcom's overall package of proposals);
 - furthermore, despite the evidence of increasing competition, Ofcom is re-introducing regulation of high bandwidth products in some London areas; and
 - as well as the above intrusive remedies, Ofcom is also proposing to introduce dark fibre, which will not be a sound foundation for downstream competition: it will favour specific operators (capable of using this product at scale) over the generality of

¹ This has been previously set out by BT in its responses to the "Business Connectivity Market Review: timetable and initial call for inputs" (published 1 April 2014, the "Call For Inputs") and "Business Connectivity Market Review: preliminary consultation on passive remedies" (published 5 November 2014, the "preliminary consultation on passive remedies").

² BT will be responding separately to the "Business Connectivity Market Review: leased lines charge controls and dark fibre pricing" (published 12 June, the "LLCC Consultation") and the "Review of BT's cost attribution methodologies" (published 12 June, the "CAR"). This response should be read in conjunction with those and the consultants reports providing further support to the arguments made across these responses which will be submitted shortly.

³ "Business Connectivity Market Review: review of competition in the provision of leased lines", Ofcom consultation published 15 May 2015, (the "Consultation"). We also refer to the related LLCC Consultation as appropriate.

Ethernet customers, while reducing Openreach revenues by [X] (which combined with the charge control will lead to Openreach revenues being reduced by [X] over the course of the charge control period), further impacting investment incentives and the very services where Ofcom's own figures show BT's share is around 30% outside of the competitive areas.

- 1.3 The market analysis on which these remedies are based fails to reflect the realities of actual competition and the actual features of the leased lines markets. These remedies are therefore overly intrusive in their own right and represent a material and disproportionate tightening of regulation. BT considers this is wrong when competition is increasing not decreasing.⁴ This is hard to reconcile with a need to promote investment and innovation by Openreach and other fibre infrastructure builders, and promote higher service levels. The balancing of risks and benefits, used to justify the introduction of a requirement to provide dark fibre, does not recognise how disruptive this remedy will be, for little demonstrable gain and with overall a strongly negative outcome for end-users.

Dark Fibre

- 1.4 BT disagrees that a Dark Fibre Access remedy will bring greater benefits than costs, as set out in sections 3, 16 and 17 of this response. The Consultation does not provide a sound justification for such a seismic shift in the regulatory regime for business connectivity. BT considers that such a significant change to the way leased lines are regulated, with far-reaching consequences for investment and competition in the business connectivity sector, should more properly be considered as part of the Digital Communications Review (DCR). Such a fundamental review would provide a more appropriate framework for considering regulatory change impacting on overall industry structure.
- 1.5 As we set out in this response (see sections 3 and 17), Ofcom has underestimated the disruptive impact of requiring dark fibre products. Even with a 1Gbit/s EAD minus pricing rule, there will be substantial opportunities for take up which are not based on any innovation or differentiation, but are purely price based. Our analysis suggests [X] of circuits would be subject to aggregation under Ofcom's proposals with an average of [X] active circuits being aggregated in a single dark fibre. If aggregation is made possible across circuits of different Communications Providers (CPs) then this risk will substantially increase to around [X] of circuits. The volume of such dark fibre take up will be larger than Ofcom has assumed (discussed in detail at section 17) and more disruptive to Openreach cost recovery and investment incentives than assumed in the Consultation. [X]. BT's base case forecasts of above 1Gbit/s active product volumes are a third of those implied by Ofcom's approach by the final year of the charge control; and in our view dark fibre volumes will be [X] than Ofcom is assuming. As a result, Ofcom's view of the disruption caused by dark fibre is unrealistically low and the impact on efficient cost recovery will be greater than it has assumed (see figures 3.1 and 3.2 and detailed the discussion in section 17).
- 1.6 The reduction in volumes of active products and the greater uncertainty around active volumes will also make any investment case significantly harder for upstream investors such as Openreach, Virgin Media and other providers of fibre infrastructure. BT quantifies the revenue loss to Openreach of the dark fibre proposals at [X] over the course of the charge control period which will substantially undermine investment incentives (this revenue reduction being on top of the revenue reductions arising from the charge control proposals themselves). Putting this in context, the dark fibre proposals represent an increase of around [X] of the Leased Line Charge Control (LLCC) impacts alone, which themselves represent a

⁴ As was shown for very high bandwidth services, for example, in Ofcom's October 2014 data analysis consultation.

[>] increase in the revenue impact to the current charge controls. BT's calculations further suggest that the dark fibre proposals will have a [>] greater impact than if the proposed LLCC reductions had been applied to all above 10Gbit/s and optical products (see section 17). Impacts of this size cannot be reconciled with ensuring efficient cost recovery and promoting investment.

- 1.7 The introduction of mandated dark fibre does not address any clear policy requirement or address a current failing in the existing regulatory regime of a lack of effective competition downstream when based on upstream active products.
 - Ofcom justifies its imposition as an SMP remedy which may enable innovation: but as we set out in detail (in section 3 and, especially, in section 16), the evidence cited by Ofcom that the introduction of dark fibre will unlock additional innovation or enable differentiation is lacking and wholly speculative.
 - Ofcom does not provide adequate reasons why introducing dark fibre is proportionate or necessary to the nature of the competition problem identified, in particular given the disruptive nature of the change and the adverse impacts on investment (see section 3 and the DotEcon report to be submitted to Ofcom shortly).
 - Ofcom fails to demonstrate compellingly why a dark fibre remedy is required in addition to the existing suite of active remedies (i.e. what incremental benefit there is from a dark fibre remedy over and above active remedies), nor what has changed in this context from the last BCMR (see section 3 and the DotEcon report to be submitted to Ofcom shortly).
- 1.8 Dark fibre is not required to deal with any concerns of excessive pricing, either in general or at any specific bandwidth, as these are self-evidently being addressed through the LLCC. Ofcom has not identified any market problem arising from the current bandwidth gradient (if anything, the reverse is true: Ofcom has found that this is an efficient way of recovering costs).
- 1.9 The active products which dark fibre is most likely to replace (as is acknowledged in the Consultation) are precisely those where Ofcom has found the highest degree of competition and where BT has a low market share (for example, even under Ofcom's own data, BT has a market share of 30-32% in very high CISBO outside of London).
- 1.10 Any benefits of introducing dark fibre have therefore been overstated and are unsubstantiated (see section 16).
- 1.11 Even if there was a credible competition issue which was capable of justifying the introduction of mandated dark fibre, the Consultation fails to undertake a suitably robust analysis of the relevant costs and benefits of introducing dark fibre (see further discussion on this issue in the DotEcon report to be submitted to Ofcom shortly).
- 1.12 Against the above alleged benefits of innovation, which are uncertain, the size of the costs and risks of introducing the dark fibre remedy are not properly assessed. While Ofcom properly recognises and identifies the key risks involved in mandating dark fibre, the Consultation essentially asserts that the EAD minus pricing approach will provide sufficient mitigation of these risks such that they do not need to be quantified or properly compared against the benefits. As set out above, Ofcom has significantly underestimated the impact which mandating a dark fibre product will have. Volumes of dark fibre take up will be greater than Ofcom has assumed, due especially to the impact of aggregation, and the proposed pricing approach will not, as Ofcom asserts, sufficiently mitigate the risks. The overall impact on investment incentives will therefore be more adverse than set out in the Consultation.
- 1.13 Ofcom should place significant weight on these impacts and the consequent effect on investment incentives, given the on-going significant need for fibre investment. As is clear

from the responses to the preliminary consultation on passive remedies, there are a number of other investors in fibre who are also seriously concerned that these proposals will undermine existing and potential investments in the UK's future communications capacity.

- 1.14 Fundamentally, Ofcom gives no consideration to the long-term impact of dark fibre and the sustainability of the proposed approach and pricing arrangements. This unreasonably increases the degree of risk for investors in fibre infrastructure and undermines the investment incentives of CPs who invest in access infrastructure (disadvantaging them compared to CPs who do not take such investment risks).
- 1.15 Further, Ofcom's proposed timescales for the delivery of a new dark fibre product are unrealistic and unachievable (see discussion in section 4). Ofcom has underestimated the challenges which the industry as a whole will need to address to bring such a product to market. For example, dark fibre customers and Openreach will need to establish new systems and processes to monitor circuits for faults, identify where they are occurring and allocate responsibility for them.
- 1.16 In short, the costs and risks of introducing dark fibre have been understated.
- 1.17 For the reasons set out in detail in this response, BT's position is that the introduction of a dark fibre remedy cannot be justified. If, notwithstanding the fundamental flaws in the approach presented by Ofcom in the consultation document, Ofcom proceeds with this approach, any such remedy must at the very least:
 - be implemented in such a way as to ensure a level competitive playing field for all downstream operators: BT appreciates the clarification⁵ that downstream BT units using dark fibre inputs would not be regulated when selling products or services using these dark fibre inputs and would be free to compete, but considers that further detail is required here to provide appropriate certainty (see further section 4 and comments on required changes to legal instruments in section 9);
 - be appropriately constrained so that Openreach is only required to provide dark fibre in markets where it has been found to have SMP: BT remains concerned that, in spite of the suggested restrictions, Ofcom's current proposals will enable CPs to purchase dark fibre for use in "core network" applications (see further discussion in section 4); and
 - be based on a robust pricing system which provides a sound basis for long run investments: the Consultation has not properly considered all potential pricing approaches, and BT has concerns that the proposed EAD minus pricing approach will not be sustainable and does not sufficiently mitigate the risks associated with the introduction of dark fibre (discussed in more detail in section 4, and further comment will be provided in our response to the proposed guidance on dark fibre pricing in the LLCC Consultation).
- 1.18 If Ofcom persists in introducing a dark fibre remedy BT considers that such a remedy needs to be specified so that it does not disrupt non-SMP markets and that it allows sufficient time and safeguards for any implementation beyond where existing active Ethernet products are currently available. Further, we consider that properly mitigating the risks and costs identified in the Consultation requires a higher price for dark fibre. Under Ofcom's EAD minus approach, we therefore think 10Gbit/s EAD would be a better benchmark product than 1Gbit/s EAD (for the reasons set out in section 4).

⁵ Section 2.2 of "Clarifications and corrections to the Business Connectivity Market Review consultation document of 15 May 2015 and the Leased Lines Charge Controls and Dark Fibre Pricing consultation document of 12 June 2015", published 9 July 2015.

Market definition and SMP analysis

- 1.19 Ofcom's proposed approach to market analysis does not properly reflect actual competitive conditions and therefore does not provide a robust basis for Ofcom's proposed regulation either of active remedies or to introduce a dark fibre remedy (see sections 5, 10, 11, 12 and 15).
- 1.20 Combining the existing Alternative Interface (AI) and Multiple Interface (MI) markets into a single Contemporary Interface (CI) market is not justified by the evidence or proper analysis. The evidence available to Ofcom (such as MI market shares, which for BT are around 30% nationally and even less in London areas and central business districts) clearly shows that products grouped by bandwidth continue to represent separate relevant markets. Ofcom has unconvincingly dismissed this evidence as unreliable and has instead relied on declining equipment cost differences between different bandwidths to justify its conclusions. This is not sufficient to show a single product market based on a "chain of substitution" (see sections 5 and 12 especially).
- 1.21 Ofcom has also made serious errors in its economic assessment without relevant supporting evidence and has unreasonably not considered alternative market boundary hypotheses.
- 1.22 We believe that under a proper analysis, Ofcom would continue to find a separate very high bandwidth market (i.e. the current MI market), as there are very real differences in the market by site value, for which bandwidth may be used as a useful proxy (discussed in detail in sections 5 and 12 of this response). There is in fact a range of evidence such as switching costs and migration between bandwidths which shows that there remains at least a market boundary between the existing AI and MI markets. For example, the 10Gbit/s EAD price will be 2.6 times that of a 1Gbit/s EAD service, which means that the level of substitution between these products will be minimal. Competitive conditions differ significantly between very high value sites (characterised by aggregate bandwidths above 1G) and other sites (characterised by lower bandwidths). This break is very clear from analysis of both demand side switching costs and from an analysis of changes in competitive conditions.
- 1.23 The geographic markets defined in the Consultation also significantly understate the number of sites which are, in fact, subject to competitive supply (see section 5 and detailed discussion in section 11). This results, for example, in the competitive Central London Area being defined too narrowly; and other geographic areas (both the wider London area and business districts in other major cities) should be found to be more competitive at least for higher bandwidths (and hence there are important linkages between Ofcom's approaches to product and geographic market analysis). Very high bandwidth services are being re-regulated in the London Periphery where even on Ofcom's own figures BT's market share is 14-15%. Wider geographic deregulation is clearly appropriate.
- 1.24 We have requested that Ofcom undertakes additional data analyses to corroborate its proposed definitions against actual circuit ends and allowing the statistics of CP presence to vary according to circuit bandwidth. Similar analyses were presented in the previous 2013 market review but have not been undertaken this time. In addition, Ofcom should make allowance for Ethernet First Mile (EFM) coverage which has not been taken into account at all.
- 1.25 Ofcom's conclusions on the CI market definition are wrong, because they:
 - i) rest on unsustainable assumptions about price and cost (discussed in sections 5 and 12);
 - ii) fail to provide clear, robust and quantifiable evidence for its proposed market definition and incorrectly dismiss available evidence on very high bandwidth CISBO market shares as unreliable;

- iii) fail to take 'utmost account' of relevant Commission guidelines and fail to provide any explanation as to why Ofcom has done this;
 - iv) depart from Ofcom's previous conclusions (i.e. in the 2013 BCMR and in the Colt appeal) without adequate explanation; and
 - v) depart from Ofcom's own approach (for example in relation to carrying out SSNIP tests) in this market review in relation to TI services (discussed in section 15).
- 1.26 In particular, Ofcom's proposal to define the wholesale leased lines market as a single product market would not meet the standard of "profound and rigorous" scrutiny required by the CAT (see further section 9 and the legal annex to this response).
- 1.27 Even if Ofcom retains its broad market analysis in relation to CI products, we consider it is important to recognise the greater degree of competition for very high bandwidth CI products, where Ofcom's analysis shows BT has low market shares and faces a much greater degree of competition. Ofcom is already proposing a different charge control for these products, and BT urges Ofcom to extend this differential remedies approach (especially in the London Periphery where these products are unregulated today) to the other SMP conditions, including by not applying the dark fibre remedy where there is such greater competition already (see sections 5 and 8).

Mobile Backhaul

- 1.28 As explained in section 13, BT notes and agrees with Ofcom's conclusion that BT Wholesale does not have SMP at the level of managed services for mobile backhaul. As Ofcom correctly recognises, there are existing alternatives to the supply of MEAS (considering Openreach's regulated inputs), and competitive conditions for mobile backhaul do not vary significantly from other leased lines services. In this context, the proposed BT/EE merger currently under consideration by the CMA will not change the position in relation to mobile backhaul, given the availability of alternative supplies and BT's continued incentives to supply managed services. Therefore, BT supports Ofcom's position that there will be no cause to revise its position in light of the CMA's assessment.

Quality of service

- 1.29 BT is committed to quality of service improvements and to offering good levels of service to its customers on a sustainable basis across all the key aspects of service. The detail of our views on Ofcom's proposals on Ethernet service standards are set out in a separate Openreach response. Openreach is in the process of taking a number of steps to ensure a consistent level of good service. Against this background, Ofcom is proposing a significant set of additional interventions in relation to Ethernet service. It is critical that the minimum service standards proposed are challenging but also proportionate and achievable. BT agrees with many key aspects of Ofcom's proposed approach but does not consider that all of its proposals are necessary. All proposals must be proportionate and enable the recovery of any reasonably incurred associated costs. However, BT does have concerns about a number of the detailed aspects of the proposals and does not believe that minimum standards are required in relation to repair.
- 1.30 BT further supports Ofcom's proposal to require publication of Ethernet KPIs. These proposals chime with Openreach's existing strategy to be transparent in relation to underlying service performance. We also support Ofcom's proposal to let changes to the existing SLA/SLG schemes be managed via a process of facilitated industry negotiation. This process has worked well following its introduction in the FAMR and Ofcom is right to propose the same in the BCMR market.

Ofcom's approach to legacy services

- 1.31 The Traditional Interface (TI) market analysis also understates the competitive constraint from lower bandwidth Ethernet services, Next Generation Access products and EFM. While we fully support the deregulation of these services at and above 8MB, the continuing regulation of low bandwidth TI services is not justified by market conditions (see sections 7 and 15).
- 1.32 Ofcom's inadequate market analysis is leading to findings of SMP being far wider than actual market conditions justify: the Consultation considers TI services in isolation and fails to take account of the fact that this is a sharply declining market and the range of alternatives to which the customers of these services are therefore migrating.
- 1.33 At the end of a product life cycle, it is reasonable to expect high market shares for the specific product and for those to remain unchanged or even increase over time. As demand migrates to newer services, rational market entrants would choose to meet demand using a modern equivalent technology, so as migration occurs one would expect to see a gradual reduction in the number of providers of the service using the legacy technology.
- 1.34 As a result, BT considers that the approach to TI remedies in the Consultation fails to take proper account of the range of substitutes to which legacy TI services are migrating. This on-going regulation of this declining market, especially the significantly harsher charge control, is entirely disproportionate. It will lead to inappropriate disincentives against customers migrating to the rich suite of potential more modern alternatives. This creates further inefficiencies in artificially extending the life of the TI network, which will become increasingly more expensive to maintain.
- 1.35 Ofcom has not undertaken a proper analysis of regional trunk services at all (also discussed in sections 7 and 15). BT believes Ofcom should treat regional trunk as trunk segments and in line with the EU markets recommendation it should be deregulated. Several CPs have a presence at BT nodes and are able to supply their own 'regional trunk' segments.

Deregulation

- 1.36 BT recognises that, separate from the proposals around service and dark fibre, Ofcom is also proposing certain deregulation of services. This is a positive and welcome development.
- 1.37 The expanded definition of the "Core Network" recognises the extensive competition which exists to provide connectivity in this area. In addition, including the provision of connectivity to major data centres in the same market as high bandwidth connectivity to core nodes is highly welcome. Further detail on these issues is provided in sections 6 and 13 of this response.
- 1.38 Ofcom needs to review the detail of its analysis on the expanded competitive core definition, and the list of third party data centres. In particular, Ofcom has overstated the potential benefit from its proposal to continue regulation on circuits between BT "TAN" exchanges within the TAN groups identified. We encourage Ofcom to continue its efforts to provide clarity on these core network definition issues – and we highlight in this response some further opportunities for Ofcom to simplify and clarify the regulation, with no significant reduction in regulatory protection to CPs dependant on BT transmission services.
- 1.39 Ofcom has also overlooked a class of third party data centre where currently BT is not the preferred provider of core connectivity – and indeed in some of these cases BT is prevented from offering our services in competition with the incumbent or preferred provider. It would be perverse for Ofcom to continue to regulate such core connectivity routes, while recognising the fully competitive nature of core network elsewhere.

The overall package of Ofcom's proposals will harm the future development of the market

1.40 The current regulatory environment has enabled continual high market growth, large choice for end customers, reducing prices and healthy investment from a significant number of infrastructure investors. As we set out in our responses to the Consultation and related documents, we believe that the key individual interventions are unjustified and disproportionate. Together they will interact as a perfect storm having a strongly disruptive impact that will be negative for end customers, long-term choice and investment and will make the environment for material service improvement significantly more challenging. Specifically:

- The price reductions will have an impact on market demand, but the uncertainty caused by dark fibre will significantly reduce the ability to forward plan;
- All active product business cases will be undermined by dark fibre;
- The introduction of dark fibre will inevitably dilute investment resources, and individual circuit migration to dark fibre will drive significant additional engineering demands; and
- Against this backdrop (and a current demand profile which is increasing weekly) the ability to improve service will be greatly impacted.

1.41 These proposals are therefore disproportionate and create significant uncertainty harmful to investment. BT does not believe that these proposed changes are feasible as a whole package.

2. Overview of the response

- 2.1 This section of BT's response provides an overview of BT's views and approach to the proposals in the BCMR consultation and sets out where further detail on each of the relevant issues is discussed in more detail in this response.
- 2.2 The approach proposed in the Consultation has a number of fundamental differences to previous BCMRs and introduces very different forms of regulation. In particular the dark fibre remedy creates significant uncertainty and the overall impact of different parts of the proposed suite of remedies depends on a range of factors including the detail of the LLCC on active prices. The exact impact of dark fibre will also only become clearer once the approach of other CPs, and their use cases for dark fibre, becomes clearer. Given this complexity created by the dark fibre proposals, our current analysis is inevitably on-going and will be updated as further detail becomes available.
- 2.3 Further, taking into account the various interactions and the need to consider a number of clarifications, BT reserves its position to make further submissions on the issues raised in this response as appropriate. This response sets out our current analysis in the time available, taking into account as far as possible the complexity of the interactions between the BCMR, the LLCC and the provided charge control model.

Related submissions

- 2.4 This response covers BT's views on Ofcom's market analysis, dark fibre proposals and the general remedies being proposed with respect to CI and TI services. A separate Openreach response is being submitted which sets out detailed views on the proposed quality of service SMP remedies (responding in particular to section 13 of the Consultation and the associated annexes).
- 2.5 BT has also commissioned external consultancy analysis on specific aspects of the issues raised by the Consultation to provide support to a number of important arguments in this response. These will be provided to Ofcom shortly.
- 2.6 BT has responded separately to the BCMR consultation on "Very low bandwidth leased lines" published on 15th May. In summary, BT fully supports the proposals to remove remaining retail leased lines regulation given that these are legacy services which are in steep volume decline and for which a range of modern alternatives exist.
- 2.7 BT will further be responding separately to the LLCC Consultation and the Cost Attribution Review (CAR) Consultation. These responses will naturally cover material very closely related to the substance of this response and should be read in conjunction with this document. We also expect that this response will cover further issues relating to potential dark fibre pricing, responding to the guidance on this topic set out in the LLCC Consultation.

Structure of the rest of this response

- 2.8 The rest of this response is divided into two main parts. Part A covers BT's overall position on the key areas covered by the Consultation and provides responses to the specific consultation questions. In particular:
 - Section 3 sets out our views on why the proposed dark fibre remedy is disproportionate and not justified by Ofcom's analysis;
 - Section 4 explains our current views on the form and pricing of any dark fibre remedy if, notwithstanding BT's on-going objection to its imposition in the first place, Ofcom nonetheless decides to impose such a remedy;

- Section 5 provides an overview of our views on Ofcom's market analysis for both the product and geographic aspects of the proposed CI market;
- Section 6 comments on Ofcom's market analysis concerning core networks and data centres;
- Section 7 responds to Ofcom's proposed approach to TI services;
- Section 8 sets out BT's views on the proposed SMP remedies for active services (although BT's views on the proposed charge controls will be set out in separate responses to the LLCC consultation and the associated CAR consultation); and
- Section 9 provides a summary of BT's legal analysis of the proposals in the Consultation.

2.9 Part B of this response (contained within a separate document) provides a detailed response to the considerations raised by the Consultation from an economic and commercial perspective, especially covering Ofcom's market analysis and assessment of the costs and benefits of introducing dark fibre. As such, this Part B in particular responds to the analysis in the annexes to the Consultation which underpin Ofcom's proposed conclusions:

- Section 10 sets out BT's views on the appropriate market context and responds especially to section 3 of the Consultation;
- Section 11 provides our response to Ofcom's geographic market analysis (responding to the relevant parts of section 4 of the Consultation and annexes 18 and 21);
- Section 12 addresses the market assessment for CISBO (in particular responding to section 4 of the Consultation);
- Section 13 deals with backhaul services and the core network boundary, responding to the issues Ofcom has raised in annexes 11, 12 and 20 of the Consultation;
- Section 14 sets out BT's views on the SMP analysis (dealing with relevant issues in annexes 13, 15 and 18 of the Consultation);
- Section 15 responds to Ofcom's analysis of legacy TI services (responding to section 5 and annexes 10 and 19 of the Consultation);
- Section 16 provides BT's assessment of the benefits of dark fibre, dealing with issues raised by annexes 23 and 27 of the Consultation; and
- Section 17 responds to the assessment of risks of passive remedies, providing BT's response to annexes 24 and 26 of the Consultation.

2.10 BT's legal submissions in relation to the proposed CISBO market definition are set out in an annex to this response.

Part A: Response to Ofcom's overall proposed approach and specific consultation questions

3. Ofcom's proposals to introduce Dark Fibre Access

Response to relevant consultation question

Question 7.1: Do you agree with our approach to assessing what remedies are appropriate to address the competition problems we have identified in the markets in which we propose to find that BT and KCOM have SMP? If not, please explain why, and what alternative approach you consider we should take.

- 3.1 No. BT considers that there are significant aspects of the proposed approach to remedies which are disproportionate. The introduction of a Dark Fibre Access (DFA) remedy is not justified as a response to the competition problems identified in relation to the proposed CISBO market. In particular:
- Ofcom has materially overestimated the benefits which can be achieved from passive remedies and has not assessed these benefits sufficiently against a robust 'active remedy only' counterfactual, as explained below in the section on benefits of passive remedies and in section 16 in Part B of this response;
 - the risks (dis-benefits) of dark fibre have not been given due weight as Ofcom has erred in considering these are largely mitigated by the proposed dark fibre pricing: in fact substantial costs of dark fibre introduction remain, as discussed later in this section and in section 17 in Part B; and
 - given this, the Consultation does not have a robust framework within which to balance properly the risks and benefits of the proposed remedy, and Ofcom's assessment of this cost-benefit trade-off is incorrect (this point is covered in the DotEcon report which BT submitted as part of its response to the Preliminary Consultation on passive remedies, and will be further explored in a new report from DotEcon which BT has commissioned).
- 3.2 Our comments on the suite of active remedies proposed are provided in Section 8 of this response. In particular, we suggest some opportunity to simplify and clarify Ofcom's proposed regulation, for example in respect of requests for new forms of network access (the Openreach SoR process) and Project Services. We also set out our outline position on a number of pricing issues, where our more detailed analysis will follow in response to Ofcom's separate consultation on the Leased Lines Charge Control.
- 3.3 BT also considers that the remedies proposed in relation to legacy TI services are disproportionate and not justified in the context of these declining markets (and hence provide inappropriate and inefficient incentives). Ofcom does not indicate how it proposes to assess the effects of regulating a legacy market in rapid decline. Ofcom fails to present any evidence of how the legacy TI market may be affected by the imposition of regulation. In particular, the extent to which Ofcom is driving TI prices down may artificially extend the life of the TI services, and this is a serious concern to BT.

Question 7.2: Do you agree with our assessment of the benefits that a package of passive and active remedies can offer relative to a package of active remedies only? If not, please explain why, giving your views on our assessment of these benefits, and providing any relevant evidence in support.

- 3.4 No. For the reasons set out below and in section 16 of Part B this response, we consider that the benefits have been overstated and are not significant compared to what an 'active only' regulatory regime could provide.

- 3.5 The analysis of the Statement of Requirements (SOR) process in the Consultation has overestimated the extent to which dark fibre could make a difference; the available evidence of any such innovation benefits is weak and speculative. We set out our analysis of the SOR process from this perspective in section 16. In summary, barely an additional 1% of SORs might have been taken forward had dark fibre been available. As described in BT's response to the preliminary consultation on passive remedies, dark fibre is also not the only or the preferred option for developing mobile networks (even were potential developments such as Cloud-RAN to be introduced). We provide an update on Openreach's engagement with the Mobile Network Operators (MNOs) below.
- 3.6 BT considers that the other potential benefits of dark fibre have also been overstated. The productive efficiency benefits (arising from savings in box costs) are assessed using an assumption around volume of dark fibre take up which is internally inconsistent with Ofcom's stated assumption on such take up for charge control and pricing purposes. Furthermore, whatever the estimated level of these productive efficiency "savings", we consider they are more appropriately characterised as stranded assets. The potential for future de-regulation, as BT has previously set out in its response to the preliminary consultation on passive remedies, can only be considered a benefit in the context of firm criteria on how and when such regulation would be withdrawn. No such criteria are provided in the Consultation.

Question 7.3: Do you agree with our assessment of the risks associated with imposing passive remedies? If not, please explain why, giving your views on our assessment of these risks, and providing any relevant evidence in support.

- 3.7 BT agrees with the list of risks of passive remedies which Ofcom has identified in the Consultation, but not with the analysis of these risks' impact and importance.
- 3.8 We consider that these risks have been significantly understated and are not mitigated by the pricing approach Ofcom is proposing. In fact, even under a 1Gbit/s EAD minus pricing rule we expect there will be a much greater volume impact from dark fibre than Ofcom is assuming. Further aggregation possibilities will mean that there is not a one to one substitution between active and passive services. As a result there will be a much greater impact on BT's efficient cost recovery and on investment incentives for fibre investors than Ofcom considers in the Consultation.
- 3.9 These issues are discussed further in this section and in section 17 of Part B of this response.

Question 7.4: Do you agree that our proposal of a dark fibre remedy priced and designed in the way we have described in this consultation provides the best balance between the benefits and risks that we have identified? If not, please explain why, providing any relevant evidence in support, referencing specific aspects of our proposed remedy design where appropriate, and taking into account any comments you have made in response to questions 7.2 and 7.3.

- 3.10 BT considers that there are a number of potential issues with the dark fibre pricing approach proposed in the Consultation which would need to be addressed to ensure a reasonable mitigation of the dis-benefits of passive remedies. Any pricing approach needs to be sustainable and provide long-run certainty for investments which last well beyond the next BCMR period. Further, for the reasons set out in sections 4 and 17 of this response BT considers that the benchmark product proposed in the Consultation will lead to too low a price.

Question 7.5: Do you agree with our assessment of passive remedies, and our proposal to include dark fibre in the package of remedies we propose to impose on BT? If not, please explain why.

- 3.11 No. Passive remedies do not address a specific policy concern and are not a proportionate or required remedy to address any market power issue which Ofcom has identified that cannot be addressed by active remedies alone.
- 3.12 Under Ofcom's own assessment, dark fibre will have the greatest impact on the areas of the market (very high bandwidth CISBO) where there is no market power issue at all (on the correct product market definition). The principle benefit which Ofcom sets out for passive remedies is its role in enabling innovation, which is based on insufficient evidence as explained below and in section 16. Ofcom has further significantly underestimated the impact of the risks of passive remedies (which, as discussed in response to question 7.4 above and as explored in more detail below in section 17, are not mitigated by Ofcom's proposed pricing approach. In asserting that innovation benefits may be significant, and that the risks can be mitigated, Ofcom has not undertaken a proper cost benefit analysis under an appropriate framework. Further, Ofcom has not properly used the appropriate counterfactual situation. The relevant question is not what benefits dark fibre can enable, but what additional benefits dark fibre can provide over and above the proposed active remedies.

Policy concern dark fibre is meant to address

- 3.13 As set out below, in section 5, BT has significant concerns about the market analysis set out in the Consultation, especially the combination of the existing AISBO and MISBO markets into a single CISBO market. The starkest instance where this inappropriate market analysis has led to inappropriate remedies relates to the proposed imposition of a DFA remedy. This remedy has the most impact, as acknowledged and assumed in the Consultation, on high value and high bandwidth services where Ofcom's figures show that the market (if defined correctly) is most competitive. As such BT does not consider that mandating DFA is a proportionate response to the nature of the market power issue which Ofcom has identified.
- 3.14 No overarching policy question is provided to which dark fibre is the solution. Ofcom's own market research, published alongside this Consultation, states that 87% of businesses are satisfied with the service they receive from their main supplier (i.e. in service satisfaction levels) and that there is a healthy level of switching, with 40% of leased lines users saying they are likely to replace their current leased line service in the next 3-5 years⁶. The market share figures Ofcom has set out in the Consultation also show that BT is unlikely to have any market power in relation to a number of key market segments (e.g. relating to very high bandwidth services and more competitive geographies)⁷. A combination of increasing competition and regulation of active products in wholesale business connectivity markets is delivering competitive retail business connectivity markets – which are delivering for business customers.
- 3.15 The key benefit of such a radical new remedy, according to the Consultation, is that it enables product differentiation and innovation by downstream CPs. Ofcom suggests that these potential benefits could be large but are essentially unknown and unknowable. The Consultation further states that the various "risks" (that is, costs or dis-benefits) of dark fibre are substantially mitigated or removed by its proposed pricing approach⁸. As set out below, BT vigorously disagrees with this assessment.

⁶ See section 2.5 of "Business Connectivity Services Review" BDRG Continental, May 2015 published alongside the Consultation.

⁷ See Table 4.4 of the Consultation.

⁸ This will also be discussed in the DotEcon report which BT will submit to Ofcom shortly.

- 3.16 The benefits of dark fibre have been overstated and are based on weak or speculative evidence. The costs and disruption of introducing dark fibre have been under-stated and are not mitigated to anything like the extent Ofcom asserts by the EAD minus pricing approach.
- 3.17 As a result, Ofcom has failed to undertake a suitably robust analysis of the relevant costs and benefits of introducing DFA. As BT set out in its response to the preliminary consultation on passive remedies, such a remedy represents a fork in the road. The introduction of a dark fibre remedy is irreversible. As discussed below, BT considers that the costs are real and immediate. Faced with this, the precautionary principle should apply and DFA should only be introduced where the benefits can be clearly established, have some degree of certainty and can be quantified in a way which demonstrates they will outweigh any costs. In fact, the evidence in the Consultation of any benefits is speculative, unquantified and does not show that any such benefits would actually occur. Furthermore, such benefits also need to be assessed in the context of an appropriate counterfactual. That is, there is an existing suite of active remedies and the benefits of any DFA remedy need to be considered in terms of the additional innovation it would enable over and above that which is possible under the existing regime.

Benefits of dark fibre are overestimated

Alleged innovation benefits

- 3.18 Of the potential competition problems requiring *ex ante* regulation set out on paragraph 7.11 of the Consultation, the only one which is potentially addressed by introducing a passive remedy is the first relating to the extent to which access is offered to secure efficient investment and innovation. The main benefit identified in the Consultation thus achieved by dark fibre relates to providing CPs with “greater scope for innovation and differentiation” (see paragraphs 7.41-2 of the Consultation). The analysis in the Consultation on this point does not address the size of the incremental benefits of dark fibre over the existing active regime, but simply notes that CPs would have more control over any innovations they undertook. We consider that this issue should be addressed in terms of the scope, size and importance of the potential innovations which would be under CPs’ control as a result of introducing dark fibre which control is not available to them using only active products. As we set out in section 16, BT considers these incremental benefits are relatively small.
- 3.19 We address each of the proposed benefits in turn below.
- 3.20 First, the potential innovation benefits have not been properly established as at all likely.
- The Consultation suggests that a range of innovations requested through the SoR process which did not occur would have been enabled by DFA. On the contrary, our analysis of innovations requested through SoRs which did not occur, shows that barely an additional 1% of SoRs may have been taken forward using dark fibre. Our detailed analysis of this issue is provided in section 16.
 - The other main innovation example relates to the use of dark fibre to provide future mobile backhaul and “fronthaul” solutions, but it is not clear that Cloud RAN (C-RAN) architectures will be the future standard for mobile operators, and even if they are dark fibre will not be the only (or necessarily the best) way of providing such connectivity needs. BT continues to believe that there are also active alternatives which will likely better meet MNOs future needs.

The case of C-RAN and dark fibre for mobile backhaul

- 3.21 One of the key innovation benefits which Ofcom identified in the preliminary consultation on passives, and which is repeated as an example in the Consultation [A23.89], relates to the use of dark fibre for such C-RAN architectures. This has been the subject of significant industry

discussion and Openreach has engaged with MNOs on this issue. The emerging view⁹ is that dark fibre is unlikely to deliver the efficiencies and costs points required for future growth and that there are potentially more efficient long term solutions based on active products architectures (including Ethernet, WDM and passive optical networks/PONs) which may be a better fit. This is a new area of focus for the UK mobile industry, but Openreach is already in the process of assessing the MNOs' needs and actively discussing potential development options with vendors with international experience in this area.

- 3.22 Following initial industry workshops in January and April 2015, Openreach has now held detailed bi-laterals with all UK MNOs to assess likely volume requirements for potential future forms of mobile backhaul and suggested price points, and this has enabled Openreach to progress development of an initial business case and product specification. Further MNO bi-laterals will follow as will an additional industry-wide session being planned for November 2015.
- 3.23 Should MNO investment plans mature around these technologies, then Openreach is well placed to support such developments both with its existing portfolio and with new emerging active connectivity solutions - plus a major operational capability to meet large scale deployments over the longer term if required. Given the competitive pressures on Openreach to meet the challenges of new commercially viable mobile technologies and the incentives to build on our existing portfolio we see no case for dark fibre as the preferred or even likely Openreach solution to potential innovations required in the mobile infrastructure space.

Other benefits of dark fibre which Ofcom identifies

- 3.24 The other supposed benefits of introducing dark fibre are similarly insubstantial or incorrect.
- 3.25 The productive efficiency benefits identified in the Consultation rely on Ofcom's estimates of savings on electronics. However, these figures are based on dark fibre volumes which are different to Ofcom's own estimates of dark fibre take up, as discussed further in section 17. This particular benefit is therefore assessed in an internally inconsistent way. We also consider that any such estimates should take account of the additional costs involved in fault monitoring which dark fibre would entail. Even if the greater dark fibre volumes on which Ofcom's assessment of this benefit is based were achieved, these "savings" in fact mainly represent stranded assets for Openreach. These are Openreach electronics which would no longer be required (although alternative costs would need to be incurred by industry as a whole to ensure appropriate monitoring). These are stranded assets as the assumption Ofcom is making for these purposes is that these will be migrated circuits where Openreach electronics will therefore exist and no longer be required. Hence the electronics costs which Ofcom are presenting as a saving, and therefore a benefit arising from dark fibre, are in fact an asset rendered redundant by dark fibre and hence a cost of introducing the remedy.
- 3.26 The final benefit is the potential for a reduction in future regulation of active products. This is extremely speculative and uncertain. This is especially the case as the Consultation does not provide any certainty or guidance on when or under what circumstances such deregulation of active products would occur. BT suggested such clear criteria would be required to take account of such a benefit in its response to the preliminary consultation on passive remedies. A failure to set out clear information about deregulation provides insufficient certainty to enable investment decisions to be made and, as such, should carry little weight as a benefit for this market review. This is especially the case as taking into account such a "benefit" fails to recognise that the current proposals for the next market review period in fact represent a material increase in regulatory intrusion in active pricing rather than any decrease.

Risks and disruption from dark fibre have been underestimated

- 3.27 As we set out in section 17, Ofcom has underestimated the disruptive impact of requiring dark fibre products. Even with a 1Gbit/s EAD minus pricing rule, there will be substantial opportunities for take up which are not based on any innovation or differentiation, but are purely price based. The current basis of EAD active pricing is primarily on the basis of a single fibre per circuit basis, and downstream communications providers will effectively be able to unpick such averaging using dark fibre. It should be stressed that this is purely an arbitrage opportunity which Ofcom is granting CPs in retrospect and where perfectly reasonable and rational network design decisions taken by BT will subsequently be unpicked.
- 3.28 This will lead to significant dark fibre volumes coming from both new connections and migrations (especially where there are opportunities for aggregating two or more circuits over one fibre). This will lead to substantial disruption and risks to Openreach's ability to recover its efficiently incurred costs, especially given the lack of flexibility Ofcom is proposing to give Openreach in relation to its active pricing, which BT will address in more detail in its response to the LLCC Consultation. Put briefly there is a strong interaction between the LLCC design and the incentive to aggregate circuits and where the trade-off is against the investment incentives for the industry as a whole.
- 3.29 The potentially significant aggregation opportunities (which have the potential to lead to significant migrations of existing active products being provided over dark fibre as discussed in detail in section 17) do not represent any differentiation or innovation benefit.¹⁰ Rather this will simply result in existing customers being provided the same products where the only thing which changes is the Openreach input and the contribution such services make to the overall common costs of the Openreach network. As such, this will lead to potentially large volumes of DFA take-up which is based solely on relative prices of active and passive products. This is precisely the type of take up of dark fibre which Ofcom has stated is not desirable and which it would seek to minimise (as opposed to DFA volumes for "innovative" purposes).
- 3.30 Overall, we do not think that Ofcom's assumed future volumes of either relevant active or the DFA products are appropriate. BT's own forecasts are based on a more detailed review given the greater clarity provided by the Consultation on how a DFA remedy would work. These forecasts include greater reductions in high bandwidth active products and a faster ramp of dark fibre take up than the approach set out by Ofcom in the Consultation implies. This is discussed in more detail in section 17 and illustrated by comparing Figures 3.1 and 3.2.

¹⁰ See especially the sub-section in section 17 headed "The source of economic incentives to arbitrage".

Figure 3.1: [X]

[X]

Figure 3.2: [X]

[X]

- 3.31 The Consultation also understates the allocative efficiency and distributional impacts of dark fibre. Ofcom has consistently stated that there are benefits to allowing BT flexibility on how it recovers its common costs and that such flexibility is, in fact, efficient. This was stated in the previous BCMR and Ofcom appears to continue to accept this [paragraph A24.143] in the Consultation. Yet, the current proposals will inevitably lead to the erosion of the bandwidth gradient (especially above 1Gbit/s) and therefore, by implication, a less efficient recovery of common costs. This issue is also discussed in detail in section 17.
- 3.32 Given that dark fibre will have this greater impact and lead to greater disruption than is considered in the Consultation, there will also be a greater impact on investment incentives as a result. The significant revenue impact of dark fibre on Openreach is indicative of the extent to which infrastructure providers more generally will have reduced incentive to invest and innovate. To meet the needs of customers, further building of new fibre infrastructure will be required (a significant portion of new Ethernet connections continue to require actual physical infrastructure to be built as highlighted in BT's response to the preliminary consultation on passives). This needs to be set against any alleged innovation benefits which may be achievable downstream. This will not only impact Openreach but also other providers who are engaged in actually building physical fibre infrastructure.
- 3.33 BT also considers that the practical implications and costs of the introduction of dark fibre have been materially underestimated in these proposals. In particular, the loss of monitoring of the service (to identify any faults), which is inherent within a dark fibre product, will lead to significant additional industry-wide processes and cost to ensure that quality of service is maintained. At the moment BT is able to establish that a high proportion of reported faults are not in the fibre but in equipment, and in future the only way to do this will be to test fibres by physically removing CP equipment from the fibre itself.
- 3.34 As set out further below, BT also considers that the Consultation underestimates the complexity and difficulty in implementing the dark fibre remedy by arguing that its introduction will simply involve an evolution of existing processes and systems. This is discussed in detail in section 4 below, but also needs to be taken properly into account. This is another aspect of the disruption which would be caused by the introduction of DFA being underestimated.

Mitigation of costs of dark fibre

- 3.35 As will be clear from the above, and as discussed in sections 16 and 17 of Part B of this response, BT considers that dark fibre is not a proportionate remedy and that the costs of its introduction would outweigh the benefits if assessed under a proper cost-benefit framework. Without prejudice to this firm view, we also set out in Section 4 of this response our current views on how any dark fibre remedy should be implemented making comments on Ofcom's proposed Reference Offer requirements.
- 3.36 How the price of any DFA product is set and regulated is also a key factor in determining the extent to which the risks of dark fibre identified in the Consultation materialise. Section 17 also sets out our current thinking on these issues, although these are also inextricably linked with the proposed level of dark fibre prices (as implemented through Ofcom's proposed guidance set out in the LLCC Consultation) and the interaction with active prices (as regulated

by the LLCC). BT may therefore provide further comment on these issues once its analysis of the LLCC Consultation is complete.

- 3.37 As is effectively recognised in the Consultation, a higher price for dark fibre reduces the risks Ofcom has identified. In particular the impact on investment incentives and BT's ability efficiently to recover its costs (including common costs) will be mitigated through a higher price. Ofcom considers that this is achieved through linking the price to an existing active product price (the 1Gbit/s EAD product). This is using broadly similar logic to the efficient component pricing rule from the economics literature. This will be discussed in more detail in the external report which we expect to provide shortly. Ofcom's 1Gbit/s EAD minus approach will not mitigate the costs of dark fibre (as discussed further in section 4 below). One of the external reports we are planning to provide will discuss why this is the case in economic terms, and section 17 of this response sets out why this is the case in practical terms. BT therefore considers that any dark fibre price would need to be higher. As discussed in section 4 of this response, BT considers that Ofcom should at least consider the 10Gbit/s EAD product as the appropriate benchmark. However, even this will not address some of the concerns BT has about the long term sustainability of such a pricing approach and therefore whether it will be a suitable basis for making investment decisions.
- 3.38 The Consultation further sets out that, to the extent necessary, BT will be able to rebalance its active prices and this will mitigate any impact on common cost recovery. BT's analysis is showing that the flexibility being provided under the proposed LLCC is limited and that flexibility in pricing itself can only compensate partly for the inability to recover costs when the requirements for overall price reductions is unchanged. Significantly greater flexibility will be required than currently proposed. Further, in underestimating the overall impact, Ofcom has underestimated the ability of BT to recover its costs overall under a dark fibre scenario given the proposed LLCC. BT will provide further comment as appropriate on these issues in its response to the LLCC Consultation, but provides its current analysis showing this in section 17 of this response.

4. How Dark Fibre Access product would work in practice

Response to relevant consultation questions

Question 9.1: Do you agree with our proposals in relation to the dark fibre remedy? If not, what alternative dark fibre remedy would you propose and why?

- 4.1 No. Notwithstanding the fact that BT does not consider a dark fibre remedy to be appropriate, if Ofcom goes ahead with the proposal to mandate dark fibre, then:
- the product design should be more tightly specified and relate directly to Ofcom's stated policy objective;
 - the implementation timescales need to be revised to reflect the significant development challenges, especially for radically different repair processes: BT considers this will take 18 months to minimise adverse risks for other developments during this period;
 - significantly tighter restrictions are required to avoid potential usage of regulated dark fibre by CPs in building competitive core networks; and
 - greater specificity (reflected appropriately in the legal instruments) is needed on the regulatory treatment of potential BT networks and services built on the basis of EOI consumption of dark fibre.

4.2 We set out detailed views on each of these points below.

Question 9.2: Do you agree with our proposals in relation to the pricing of dark fibre? If not, please explain why, and what alternative approach you consider we should take.

- 4.3 BT has significant concerns over the sustainability and certainty which will be provided by the proposed approach to regulating the price of dark fibre. Further, BT does not consider that the proposed EAD minus pricing rule will mitigate the risks, such as inefficient entry, to the degree which has been asserted in the Consultation.
- 4.4 It is certainly the case that the risks of inefficient entry and risks to investment incentives posed by dark fibre are reduced by higher dark fibre prices. Given our view that the current proposals will still lead to significant costs of dark fibre, BT therefore considers that alternative benchmarks which lead to higher prices warrant much more substantial investigation than Ofcom has given them in the Consultation.
- 4.5 Our views on these issues are set out further below and also discussed in section 17. BT's view is that, if Ofcom are to mandate dark fibre, then the regulated price should be higher than that currently proposed. BT will also provide further comments on the detail of the proposed dark fibre pricing approach in its response to the LLCC Consultation.

Pricing of DFA product

- 4.6 BT has concerns about the proposed dark fibre pricing approach, which it considers would need to be addressed in implementing any such remedy. Further, the current proposed pricing design will not mitigate the risks of dark fibre in the way Ofcom is assuming, and therefore a higher price is required and efficient. The implications and repercussions of an EAD1 Gbit/s minus price have not been fully considered. This approach has issues of sustainability and may create inappropriate incentives. Further, as set out in section 17, the impact on Openreach revenues will endanger efficient future cost recovery given the current proposed level of dark fibre prices. If these prices are mandated, at what we currently expect to be an unsupportable price, this will have severe implications on Openreach and other alternative network providers. Ofcom expects the DFA product to replace high bandwidth services, where prices are higher: and these are precisely the uses to which current commercially available dark fibre is put. Any market-based price of dark fibre would therefore also be higher than the EAD 1Gbit/s price.
- 4.7 We believe Ofcom has not properly taken account of all relevant factors. In particular, Ofcom has not considered alternatives reflecting the real value that dark fibre offers to the CPs, nor has it considered the current market value of dark fibre, or the impact on existing dark fibre suppliers. Instead, as per Ofcom's own admission (A26.152), it has set a price with a view to meeting its own assessment of future volumes of Dark Fibre, rather than select a price benchmark that is efficient, prevents distortion in the market, and does not fundamentally impact existing active and passive portfolio of Openreach and its competitors.
- 4.8 We express below our key concerns around EAD 1Gbit/s minus approach, and provide further details in section 17, where we set out the risks of dark fibre arising from aggregation, the risk to revenues, stranded assets, the price pressure on 10Gbit/s products, and the risks of distorting pricing from linking active pricing and passive pricing.
- 4.9 We urge Ofcom to reconsider the reference product on which it sets the price, with the price of EAD requiring to be closer to current prices in the market, i.e. significantly closer to pricing of 10Gbit/s products rather than 1Gbit/s products.

Inefficient impact on investment

- 4.10 The proposed EAD 1Gbit/s minus price of dark fibre caps the price which can be achieved by other infrastructure providers, and this therefore inhibits new investment. No other

infrastructure-building CP will be able to price above this level. The Consultation does not contain any quantitative analysis of how this price compares to existing market prices and the impact on investment by Openreach and other infrastructure providers (although both BT and a number of other providers have raised concerns over the impact on investment incentives). To the extent that this cap bites (i.e. to the extent it is below existing dark fibre prices) this will reduce incentives to invest.

- 4.11 We consider EAD 1Gbit/s minus to be a relatively low price and this will undermine the Dark Fibre pricing already in the market, reducing third party supply of Dark Fibre and for that matter active high-bandwidth products, and thus reducing competition. An annual rental for a dark fibre can range from [£<], depending on the circuit length¹¹. This is very far from Ofcom's proposal of £4,500 to £15,500 for 2017/18¹². We estimate that Ofcom would be setting Dark Fibre pricing at [£<] the level currently in the market. There is no reason to believe current market prices are not efficient – as it is set in the very high bandwidth market which is highly competitive.
- 4.12 In addition, if it were to offer dark fibre in CLA, BT would expect the price to be set by competition. This may lead to an anomalous situation where Dark Fibre prices are higher in a de-regulated, competitive area, than in the regulated, rest of the UK area. This further illustrates the risks of distortions and inefficient entries from Ofcom's proposals.
- 4.13 The proposals in the Consultation will impact on investment incentives, meaning Openreach's direct competitors will be seriously impeded in investing in new fibre network infrastructure. A number of the responses to the preliminary consultation on passives show that there are infrastructure builders whose investment incentives would be harmed by Ofcom's approach, even with EAD 1Gbit/s minus pricing given the effects of this approach as described in this response. It will be important to ensure that these investment impacts are both taken into account in assessing the risk of dark fibre and in designing the pricing approach. This therefore has a fundamental impact on the form of competition and will reduce the extent to which competition based on infrastructure build remains feasible.

Bandwidth gradient & product portfolio impact

- 4.14 The proposed dark fibre pricing approach will also remove the bandwidth pricing gradient at 1Gbit/s and above, which inevitably means BT would need to consider rebalancing lower bandwidth prices, within the limits offered by the charge control. We expect these proposals would lead to the bandwidth gradient being removed in a relatively short period. In practice this will mean that Openreach will rapidly come to a point where customers will only purchase two products: EAD 1Gbit/s and dark fibre; other products will have a lack of demand (and therefore attract no investment) given such a pricing structure. One of Ofcom's unintended consequences is therefore that this will lead to a situation where a narrower set of options will be offered to customers. This is because Openreach will have reduced incentives and ability to develop new variants. In addition this may lead to Openreach reviewing the length of time over which it is economic and feasible to support the broad set of product variants it has today. This is likely to impact, in particular, on smaller CPs who do not have the scale or resources to develop multiple product variants downstream using the input of EAD1 Gbit/s or Dark Fibre.
- 4.15 Any such pricing approach will also need to take account of the interaction between the benchmark price and the dark fibre products. The dark fibre and benchmark active products can be considered to be substitutable as well as having common inputs. It is important to

¹¹ BT insight on market for Dark Fibre up to 50k routes. We believe Ofcom should actively seek to obtain detailed market insights on current pricing of Dark Fibre in both dense/urban and rural areas.

¹² Reflecting main link of up to 50k, and price changes as per LLCC

ensure that this set of relationships does not cause distortions. BT will be presented with opposite incentives due to the tight coupling of dark fibre with EAD 1Gbit/s (these issues are explained in detail in section 17).

Underestimated impact of dark fibre revenue cannibalisation

- 4.16 At EAD1 Gbit/s minus pricing, BT expects there to be a significant take up of dark fibre (see section 17 below for more detail). BT bases this view on direct insight from customers who have indicated that not only new supply for 1Gbit/s and above will be exclusively dark fibre, but also that there will be high levels of migration. In setting the charge control and estimating the impacts of dark fibre, Ofcom is assuming away any meaningful volumes of migration.
- 4.17 The Consultation sets out [paragraph 8.65] Ofcom's expectation that dark fibre will create the competitive constraint on pricing for 10Gbit/s products. [X] This will have significant adverse impacts on both investment incentives and BT's efficient ability to recover costs.
- 4.18 In addition, Ofcom's volume assumptions do not represent the whole or appropriate picture. [X]. Ofcom has totally ignored this major impact, which will result in a material risk to Openreach's ability to recover efficient levels of common costs from these products. This is exacerbating the fact that dark fibre revenue per circuit are themselves lower than the average revenues it will replace for all 1Gbit/s and above circuits.
- 4.19 [X]
- 4.20 [X] This is why BT's view is that Ofcom's volumes of dark fibre take-up are significantly underestimated.
- 4.21 [X]
- 4.22 [X]
- 4.23 [X]
- 4.24 We do not believe Ofcom has taken all factors into consideration or fully appreciated the extent by which its proposed remedy of EAD1 Gbit/s minus pricing will impact opportunities for efficient cost recovery and efficient incentives. As discussed further in the DotEcon report which will be provided shortly to Ofcom, the logic of Ofcom's pricing approach is that the loss of business associated with dark fibre should be taken into account in setting its price: omitting to consider the impact of, for example, aggregation leads to this logic not being followed and Ofcom's proposed prices being too low under the economic framework which is used in the Consultation.

Openreach's incentives for serving customers & stranded assets

- 4.25 Openreach currently averages its prices across different geographies for its Ethernet and optical products, which enables it to serve all customers.
- 4.26 Dark Fibre prices, based on an EAD 1Gbit/s minus pricing rule, create lower investment incentives for Openreach, as more individual routes become less commercially viable. This is because once a DFA circuit has been put in place, it is less likely that any more fibre strands will be used across that particular route (in contrast to the current situation in relation to active products).
- 4.27 This inability to recover averaged costs from averaged contributions (due to dark fibre aggregation and substitution) will incentivise Openreach to react. Openreach will need to consider introducing specific products for all new supply, to reflect the costs of network build with distinct On-Net winners and Off-Net losers which we predict will affect network expansion and create more uneconomic to serve locations.

- 4.28 Low dark fibre prices also create a significant risk of stranded assets, not only the costs of electronics, which is particularly high with 10Gbit/s services, but also the costs of building network infrastructure.
- 4.29 In the transitional period when dark fibre is introduced, we also identify [X] of stranded assets from equipment that is not fully depreciated from circuits which are new connections having taken place since 2012 (BT depreciates such electronics costs over five years). See section 17 for a more detailed discussion of this. Again, we do not believe Ofcom has considered this when estimating what the right levels of pricing should be for dark fibre. Ultimately the costs of such stranded assets will need to be taken into account and will lead to higher pricing for customers.

Sustainability of the EAD 1Gbit/s as the benchmark product

- 4.30 Dark fibre will have high levels of take up when priced at EAD1 Gbit/s minus, which means that active prices may themselves become influenced by dark fibre take up in future. This will increase pressure from some CPs in subsequent BCMRs to base the price of dark fibre on an alternative approach going forward, with most alternative approaches likely to damage even further Openreach's opportunity for cost recovery. This creates further uncertainty for Openreach investments beyond the timeframe of the next BCMR period.
- 4.31 [X]
- 4.32 We are also currently assessing the practicality of Ofcom's proposed pricing approach and how the "minus" element would realistically evolve and be refreshed going forward. We will discuss in more detail further practical implementation considerations in our response to the LLCC Consultation. Overall, we have significant concerns about Ofcom's ability to set a stable long run approach to pricing dark fibre products. In the context of long run investments this creates further regulatory uncertainty and therefore dynamic inefficiencies.

Alternatives for dark fibre pricing

- 4.33 For the reasons set out above and explained further in Section 17 we consider that the following factors point to the proposed EAD 1Gbit/s pricing approach being based on the wrong benchmark:
- Pricing should reflect the value CPs will see in dark fibre, which is the ability to provide virtually unlimited bandwidth;
 - Where dark fibre is available as a commercial offer, the current market price is close to 10Gbit/s pricing;
 - The pattern of usage for dark fibre is as yet unknown, with lower pricing increasing drastically the uncertainty around risks, including inefficient market entry;
 - BT will no longer be able to use efficient pricing structures to recover common costs from high bandwidth services¹³ due to price arbitrage using DFA and additional price pressures on 10Gbit/s services; and
 - [X].
- 4.34 As a result, a proper assessment of dark fibre market prices would point to a price point greater than that of EAD 1Gbit/s minus which would have the benefit of mitigating many of these issues we can see with a dark fibre price set too low. We do not currently see evidence that Ofcom has conducted such a thorough assessment of the negative implications of

¹³ Cost recovery issues could be further aggravated by the rapid migration of existing WES/BES services to Dark fibre, as these legacy services come out of life during the upcoming control and they are exposed to an even higher price arbitrage opportunity than strategic products such as EAD or Optical services.

mandating dark fibre at an inefficient entry price and on this basis we do not understand how Ofcom can propose with confidence this remedy. Ofcom has not considered all relevant alternatives in particular those that would set the price at a higher, for instance EAD 10Gbit/s minus price or market value pricing currently at 10Gbit/s.

Figure 4.1: [X]

[X]

4.35 Notwithstanding the fact that BT does not consider a dark fibre remedy to be appropriate, setting dark fibre pricing against a materially higher price reference would at least provide some possible mitigation of the risks which are identified in the Consultation, while still allowing the purported benefits associated with this remedy to be realised (where such benefits outweigh the costs of their introduction):

- The same opportunities for innovation would be presented to CPs, and it would provide an alternative to an active product, at a price that still enables CPs to obtain significant value from the unlimited bandwidth opportunities offered by dark fibre;
- It would better enable BT to continue investing in active products for those CPs that do not have the scale to consume dark fibre; and
- It may reduce risks of arbitrage by CPs who are incentivised to select a cheap dark fibre product substituting for active products.

Design of any DFA product

4.36 BT does not agree with Ofcom's proposals in relation to the dark fibre remedy as set out in Section 9 of the Consultation. However if Ofcom insists on this approach then at the very least it must make changes to the current specification. In particular:

- The formal SMP requirement should be limited to a 'basic' dark fibre product replicating functionality available today and that any additional product variants are subject to industry negotiation and demand. BT has laid out its set of proposed modifications to the dark fibre proposals below in more detail, but to confirm we do not consider that the additional variants such as the new hand over options should be mandated in the initial DFA Reference Offer.
- To ensure that there is no inappropriate use of dark fibre to by-pass or undermine competitive core infrastructure, Ofcom needs to impose additional constraints to the current proposed distance limitation set out in the Consultation. Ofcom should impose a restriction on pure "TAN to TAN" routes specifying that dark fibre must not be used by a CP for the purpose of building, replicating or extending Core networks; Ofcom could additionally identify areas nominally covered by each listed TAN (i.e. map all points in the UK to a "parent" TAN) – and specify there is no requirement on BT to provide Dark Fibre between any two such areas.
- The radial distance limitation itself should be set at the existing 45km main link distance between BT serving exchanges, rather than 50km end-to-end as specified in the Consultation. The 45km radial distance limitation in use for BT's active products today will meet Ofcom's stated objectives and avoid the need for additional costly systems development and operational impacts.
- The proposed implementation timescales should be extended to a minimum of 18 months from the current 12 months to acknowledge the size and complexity of introducing a dark fibre product. Extending the implementation timescales would

minimise the impact on the current active development roadmap already agreed and prioritised with industry.

- Ofcom should also consider a phased roll out programme for the basic dark fibre product to be negotiated according to industry demand, but set within a maximum 18 month time frame after the agreed product launch for national rollout. This programme could be incorporated into the implementation responsibilities to be carried out by the OTA2. It would allow BT to focus the necessary major retraining programme to support the new basic dark fibre product in specific geographic areas where there was clear volume demand, would create less impact on active improvement programmes and allow BT to build up expertise in the dark fibre product and scale up efficiently to roll out at volume.
- BT also considers that it is inappropriate for Ofcom to mandate a requirement for the Dark Fibre Reference Offer to contain SLAs/SLGs from day 1, but rather it should allow a 'bedding in' period of 6 months from the agreed product launch date. This will allow BT and industry to monitor performance and agree suitable metrics. This is consistent with the dark fibre KPI reporting requirements where Ofcom propose that the reporting obligations should not come into force until 6 months after the dark fibre launch date.

- 4.37 As stated above, BT does not agree with the Reference Offer Specification as laid out in the Consultation. Ofcom has set out a range of features to be included in the new dark fibre product, the majority of which are consistent with and relevant to the existing technology and processes supporting the current EAD and EAD Local Access (LA) product. Alongside these specifications however, Ofcom has also set out an additional set of product variants such as new hand over options that are not available in the current optical and EAD portfolio today and for which Ofcom appears to have overlooked the additional expense, industry negotiation, systems development and operational impact required to deliver these items and for which industry demand (or take up) is so far unproven.
- 4.38 We would therefore categorise the delivery of Ofcom's requirement for a dark fibre product to be a requirement in two parts – a 'boxless EAD' basic product requirement that should form the basis of the dark fibre Reference Offer, plus those additional variants to be negotiated separately with industry, according to industry demand and commercial viability. BT has laid out its proposed modifications to the dark fibre proposals below in more detail, and our comments on implementation and timescales refer to the delivery of the 'basic' dark fibre product, unless specifically referenced otherwise. However to confirm BT does not consider it appropriate that the additional new variants such as the new hand over options should be included in the initial Dark Fibre Reference Offer.
- 4.39 BT also believes Ofcom has unnecessarily played down the complexity of delivering a dark fibre product. Its assumption that BT can adapt existing EAD and EAD LA processes and systems to deliver dark fibre and therefore minimise implementation costs and timescales is completely unfounded. Delivering even a 'basic' dark fibre product cannot merely be considered a carbon copy of the existing active product set. Dark fibre will require completely new systems and processes to support in particular new provisioning and hand over arrangements for the basic dark fibre product. In addition, the loss of active monitoring on circuits will require a new approach to repair processes; these are not simple tasks and will require detailed industry negotiation.
- 4.40 BT is proposing to deliver a 'basic' dark fibre Reference Offer that will contain the following high level product scope

Table 4.1: 'Basic' Dark Fibre Product Specification

Issue	BT Proposed Approach
EAD Standard variant EAD Local Access/Exchange WES & WEES variants	<ul style="list-style-type: none"> - Single Fibre and fibre pair - Offer Resilience Option - Limited to 45k distance radial distance - Available on a national basis (outside CLA/LP)
Termination/handover arrangements	<p>Requires a new demarcation point</p> <ul style="list-style-type: none"> - termination on a new patch panel arrangement - in an environment supported by the current EAD product today (e.g. customer cabinets or adequate Street furniture – i.e. with space and power)
Order handling	Provision and Repair orders to be placed via EMP strategic systems
Provision arrangements & technical specification	<p>Will require a new technical specification to be agreed for provision and technical interfaces specified</p> <ul style="list-style-type: none"> - ITU G652 equivalent fibre - Develop new Fibre SIN 349 Industry Standard - Terminate to patch panel as specified in Fibre SIN - New planning requirements, capturing end to end route distance and estimate calculations for fibre loss (to be part of CP KCI's) - Handover to the new fibre standard (with loss and distance recorded for repair purposes) - Network and systems records to be updated - Specify class of lasers/engineering principles to be used on BT network to conform to BT's current Fibre H&S - Provisioning in shorter timescales than active product
Repair	<p>Fault reporting on EMP, but due to no active monitoring of circuits, additional information from CP will be required</p> <ul style="list-style-type: none"> - Specify test information required from CPs own triage/diagnostics in order to register a fault - BT to validate customer fault against stored provision test results history - Build job pack and send to fibre control - All fibre faults to require a truck roll, to one or both ends of the circuit
SLA/SLGs	<ul style="list-style-type: none"> - Negotiate new SLA/SLGs to reflect differing arrangements for dark fibre – for both provision and repair six months after product launch
Migrations from Active products	<ul style="list-style-type: none"> - Re-terminate any existing Openreach service (Ethernet & Optical) to the specified patch panel termination handover point (i.e. EAD will be turned off) - Testing and handover to the required Fibre standard - Network and systems records updated (with loss recorded for repair purposes) - Equipment recovery process

Issue	BT Proposed Approach
Cease	<ul style="list-style-type: none"> - New cease process required to physically break the fibre connection (potentially at both ends of the circuit) - Truck roll(s) required

- 4.41 BT currently expects to deliver the new 'basic' dark fibre product on the strategic EMP platform only. This is consistent with our stated development policy outlined to industry i.e. that the legacy platform is closed to all further development. In addition, the current repair processes for active products are only accessible via EMP today and all new developments such as the EAD 10Gbit/s and EAD Extended Reach are also being developed for EMP.
- 4.42 The dark fibre 'basic' product will also require brand new handover arrangements to those currently in use on active products today. BT is proposing to use a patch panel configuration to be available as the hand over demarcation point in all environments supported by EAD today. Whilst the client port of the active electronic today provides such a demarcation, in a dark fibre scenario, this would reside in the CP domain. The patch panel proposal provides the optimal engineering solution and a physical demarcation of the dark fibre service end-points. The patch panel provides a robust termination point which would help reduce induced faults from engineering work in and around cabinets (such as installations of other services) and from a repair perspective, would be an acceptable test-point with a fixed location which can be recorded, so the repair engineer does not have to hunt within multiple fibre tails, whilst measured against a repair SLA, potentially inducing further faults on the client side. EAD chassis may contain multiple circuits, and moving to patch panel demarcation allows the CPs full control of their client-side layouts and negates the need for Openreach involvement elsewhere in the cabinet.
- 4.43 In addition, new provisioning arrangements with accompanying technical specification will need to be agreed with industry, including:
- A new technical specification, i.e. a new Fibre SIN 349 Industry Standard will be required;
 - New planning requirements and supporting operational processes to capture the end to end route distance and estimate calculations for fibre loss (this will form part of the agreed KCIs);
 - Handover to the new fibre standard with loss and distance recorded for repair purposes, with network and systems records updated;
 - Specifications for the class of lasers and engineering principles for use on the BT network to conform to BT's current fibre H&S standards;
 - Provisioning in shorter timescales than the active product to be agreed;
 - The Reference Offer will include migration options from the current active product to dark fibre. The migration will facilitate a hard cease of the current active product and terminate the new fibre product on a patch panel arrangement similar to the provision process. The new product will be tested and handed over to the required Fibre standard, with network and systems records updated and loss recorded for repair purposes. We will also facilitate equipment recovery and raise an appropriate charge. However it should be noted that the migration options in the Reference Offer will exclude a migration from a single fibre product to a dark fibre pair, due to the characteristic requirements of a fibre pair, i.e. BT would be unable to guarantee the fibres were in the same sheath and therefore could not guarantee the fibre routing.

- 4.44 The biggest impact however of introducing a dark fibre product will be on repair, where BT will lose the 'eyes on' active monitoring capability in operation today. BT believes Ofcom has underplayed the practical implications resulting from the loss of active monitoring on dark fibre circuits. BT will be unable to operate a proactive repair and monitoring service for dark fibre circuits, and to compensate for the lack of active monitoring additional industry-wide processes will be required to ensure that quality of service is maintained.
- 4.45 Ofcom is aware that over the last 12 months, nearly [80%] of all faults reported to BT were not faults with the Openreach service, but faults that occurred within the CP's network, incorrectly diagnosed despite the CP's NTE being capable of correctly diagnosing the fault location. Under dark fibre, when BT no longer has an NTE and active monitoring capabilities, a number of consequences are therefore inevitable:
- The number of misreported faults into BT will increase as there is no demarcation monitor to distinguish customer faults from Openreach faults.
 - The time taken for Openreach to confirm a fault will increase substantially. This is almost instantaneous today, whereas under dark fibre, BT will be unable to filter out/triage Fault not Found (FNF) or Right When Tested (RWT) faults via existing remote testing capabilities and will be reliant on information from the CP. This information will then need to be validated against circuit information recorded at handover; and
 - Once validated, every fault report will now require a truck roll, possibly to both ends of the circuit merely to determine a fault in the BT network. OTDR tests will be required and possibly power and light source tests which BT will need to record in case of any disputes.
- 4.46 The overall result is that the number of fault reports into BT will increase, and therefore the number of engineering visits; repair times will inevitably be longer than the current active products and it would seem completely probable that the number of SLA disputes will increase.
- 4.47 The dark fibre product will also require a supporting cease product, whereby BT will have to physically break the fibre to sever the connection, with circuit records then updated accordingly for billing and planning. As each cease will require a truck roll, the costs will need to be recovered through an appropriate cease charge.
- 4.48 Ofcom itself recognises that the "performance achieved by Openreach in the delivery of active and passive services" would not be identical and BT agrees. The current SLA Direction does not apply to dark fibre and therefore Ofcom should not assume that the existing SLA/SLG regime for the active portfolio can transfer automatically to the new dark fibre product. New SLAs/SLGS will need to be identified and BT believes the most appropriate mechanism is to negotiate the terms with industry against objectively justifiable criteria, that reflect the differing circumstances of both delivering and the repair of the new basic dark fibre product.
- 4.49 BT would also argue that it is not appropriate for Ofcom to mandate that the dark fibre Reference Offer contains SLAs/SLGs from day 1, but rather allow a 'bedding in' period of 6 months to allow BT and industry to monitor performance and agree suitable metrics. This is consistent with the dark fibre KPI reporting requirements, where Ofcom propose that the reporting obligations should not come into force until 6 months after the dark fibre launch date.
- 4.50 As outlined above, BT believes the dark fibre SMP remedy should be limited to a 'basic' dark fibre product that emulates the existing functionality available for the current active product set today.

- 4.51 In paragraph 9.38, Ofcom speculate that it “would be feasible for dark fibre access segments to be terminated in external structures such as (CP) joint boxes and/or directly spliced to the CPs fibre networks”. However, there is no technical justification given for this proposal (other than power and environmental requirements may not be the same) and therefore Ofcom completely overlooks the cost and complexity to BT to re-engineer its workforce to support these arrangements and for which industry demand is so far unknown.
- 4.52 BT has outlined its arguments above for a patch panel arrangement to be the default demarcation point for dark fibre. This provides a robust engineering solution for BT and CPs via a clear demarcation point, avoids interference or manual fault induction in a repair situation and provides a clean migrations process. Currently BT operates a handover point in street furniture and a similar arrangement could be offered to dark fibre with scope to relax environmental rules on operating temperatures etc.
- 4.53 BT also offers an External Cablelink product that provides dedicated cable handover to within 100 meters of a BT exchange building – a direct cable connection between BT and a CPs network. In a dark fibre scenario where a CP terminates a basic dark fibre ‘boxless EAD’ product in a BT exchange, the CP would be able to patch directly to the patch panel demarcation point specified above directly to the Cablelink product.
- 4.54 However, were BT forced to offer handover in CP footway boxes, with direct splicing to the CPs fibre, the additional cost, complexity and logistical issues that BT and industry would need to address would not provide CPs, in BT’s opinion, with any particular material benefit beyond the capability already offered by the existing External Cablelink product. Ofcom should acknowledge that to pursue new footway-type handover arrangements would give rise to the following issues and result in complex negotiations with industry, a major change in BT current engineering practices, with additional implementation costs to those identified for the ‘basic’ dark fibre product.
- 4.55 Dark fibre provision and repair engineers would be required to be Underground Trained (UG) to work in footway boxes and manholes and Overhead Trained (OH) for wall mounted furniture.
- 4.56 Provision and repair timescales would be longer, with potentially separate SLA/SLGs
- 4.57 Complex contractual arrangements would be required to address:
- i) Health and safety and liability issues;
 - ii) Authority to enter manholes;
 - iii) Authority to break fibre for repair and testing purposes.
- 4.58 A premium price may be necessary to cover additional provision costs incurred.
- 4.59 The complex negotiation with industry required to agree the above could not be determined, agreed and delivered within the same timescales as outlined for the ‘basic’ dark fibre product. Should Ofcom proceed along these lines, it should allow these negotiations to be conducted with interested industry parties along the current SoR processes in operation today. Given that volume take up and interest for these arrangements are unknown, then it is disproportionate for Ofcom to consider that these arrangements should form part of any dark fibre remedy.

The proposed 50km limit

- 4.60 BT also has several concerns regarding Ofcom’s new distance limitation proposals of 50km. As currently written they are un-enforceable as a mechanism to prevent dark fibre from being purchased for use in “core network” markets, and in addition they ignore the existing distance limitations in place today for active products. Mandating this requirement will not only

undermine existing infrastructure investments for BT and industry, but also impose significant unnecessary systems development and operational implementation costs on BT.

Practical Impacts of imposing a 50km limit

- 4.61 In proposing a 50km distance limitation, Ofcom has ignored or overlooked the historical 45km 'main link' (exchange to exchange) radial distance limitation in use today for BT's active Extended Reach (ER) products, upon which all current operational planning processes and billing/tariffs are based. The current limitation in use for the active portfolio is based on proven engineering principles, with 45km deemed to be the optimum reach of the optical circuits before additional end point amplification is required via an alternative Optical based OSA or OSEA product. BT considers that Ofcom could achieve the same policy objective of a distance limitation outcome by stipulating a 45km 'main link' radial distance rather than 50km and thus avoiding significant unnecessary systems development costs and operational complexity in requiring the dual running of 45km and 50km processes in tandem.

50km to prevent the use of Dark Fibre in the competitive Core Market

- 4.62 Ofcom has identified (in paragraph 9.29) a concern that dark fibre service, mandated to be supplied from Openreach on regulated terms, may undermine existing infrastructure investments in the competitive core market. With this concern in mind, Ofcom considers and proposes that a 50km limit on the Openreach Dark Fibre obligation would be appropriate.
- 4.63 We agree with Ofcom that this is a concern. In fact, we strongly believe that Ofcom is drastically understating this concern, which affects not just parties such as Openreach, many other CPs and fibre network operators' existing network assets and services, but also any prospect of future investment in fibre networks connecting towns and cities anywhere in the UK. It is highly unlikely that any future investment in such fibre, whether to build new cable routes or to augment capacity on CPs' existing cable routes, will take place, without considering as an alternative the use of dark fibre at regulated rates from Openreach.
- 4.64 If operators do have a choice of using regulated Openreach dark fibre instead of self-build, the relatively very low price proposed by Ofcom for dark fibre would mean that it is very unlikely that any further competitive build would take place – Openreach would become the default supplier of fibre capacity.
- 4.65 Given that Ofcom proposes to set a maximum price for dark fibre with reference to Openreach's prevailing 1Gbit/s EAD product price, a price which via the LLCC is derived from a historic average of BT's own costs, across its whole population of on-net and off-net circuits, and priced on the basis of a bandwidth which is likely to be way below typical bandwidths used in inter-town core or backhaul routes, then the Openreach dark fibre price is likely to be considerably below the cost of building any new fibre route.
- 4.66 Furthermore, where competitive core fibre is in place, and operators are selling services, especially for higher bandwidth services, or indeed where operators are selling dark fibre capacity on their own network, the ability for their customers to choose the relatively low priced Openreach dark fibre (under Ofcom's proposals) would likely have an immediate effect, reducing competitive operators' returns on the investments they have historically made in good faith, with the expectation of being able to earn commercial returns on those investments.
- 4.67 We welcome the fact that Ofcom has recognised this concern at least to a degree. We welcome that Ofcom has proposed the 50km limit on the proposed dark fibre obligation. We also accept that Ofcom does not mandate dark fibre for a single route with one end at a listed TAN node and another TAN node. However, we are extremely concerned that these limits alone (and we note that Ofcom has proposed absolutely no other constraint which would

protect against the disastrous impacts set out above for competitive investment returns in the competitive core) will have very little impact on limiting a CP's ability to use regulated Openreach dark fibre to build any long distance or core route at all.

- 4.68 Ofcom's proposals would lead to an immediate and catastrophic undermining of all existing and future investment in long distance fibre networks – over-turning regulatory policy which has been in place for several decades.
- 4.69 [X]
- 4.70 [X]
- 4.71 [X]
- 4.72 It is imperative, therefore, that even if Ofcom remain wedded to their proposal to mandate dark fibre, that additional constraints are placed which remove the possibility of CPs using dark fibre on regulated terms, to by-pass or undermine competitive core infrastructure.
- 4.73 We suggest that Ofcom, in addition to a distance limit, and the restriction on pure "TAN to TAN" routes, should apply all of the following constraints:
- Dark fibre not to be used by a CP for the purpose of building, replicating or extending Core networks. Strict definitions of what constitutes this type of usage would need to be developed, for example by negotiation with appropriate industry group.
 - Ofcom should identify areas nominally covered by each listed TAN (i.e. map all points in the UK to a "parent" TAN) – and there should be no requirement to provide dark fibre between any two such areas. This would be the only method to ensure no inappropriate use of dark fibre, undermining core network fibre investments.

Implementation

- 4.74 The 12 month implementation timescales as set by Ofcom in the consultation are unrealistic and fail to recognise the significant operational impacts of introducing a new dark fibre product. 12 months is totally insufficient for a development of this scale and complexity and BT would require as a minimum an 18 month timeframe for implementation. We note that the 12 month timeframe was applied by Ofcom to the introduction of the Passive Infrastructure Access (PIA) product in 2011, however PIA required little or no systems development and was 'soft launched' as a manual product for which automation would follow when PIA was consumed at scale. This approach cannot work for dark fibre; notwithstanding the complex systems development required and the impact on the development cycle, the operational impact of introducing and training sufficient people to support new planning, provision and repair processes on a national basis has been completely overlooked by Ofcom in the consultation.
- 4.75 For the basic dark fibre development of this size and complexity, based on the current Ethernet systems development capacity, BT has estimated 3 full developments release cycles will be required. This estimate is calculated on the complexity of systems development required across the operational support systems (OSS) delivering new capabilities across, order handling, provision, fault handling, billing and MIS.
- 4.76 There are typically six releases per year and in order to meet Ofcom's current timeframe, BT would need to start the design of the product, at risk and cost to BT, six months before the Final Statement was published.
- 4.77 Although BT has yet to complete a full feasibility study into the development and operational requirements to support a basic dark fibre product, the following high level system changes are likely to be required. For the avoidance of doubt, this is not an exhaustive

list, the complete requirement, cost and complexity can only be established following a full feasibility against an agreed product specification:

Process	Systems Enhancements
Pre-Order Tools	<ul style="list-style-type: none"> Update line checker distance loss to provide estimated loss calculations (from fibre end to fibre end rather than box to box today) Managed Product Availability line check: updated to allow fibre only products
Ordering systems / provision	<p>Systems changes to EMP required to support new Provision Processes :B2B and Portal changes with new Siebel product model and order validations to include:</p> <ul style="list-style-type: none"> New dark fibre product and Service IDs i.e. prefix for fibre only products Cls for new product variants (Order accept; Survey Complete - with estimated route distance/ loss/ resilience offer; Planning Complete - with ECCs; Build start; Build complete; Order complete - summary of measured test results/ resilience confirm/ charges) Termination, Management and Optical Profiling and records upload to network records inventory New L2C MIS reporting structure New fibre only services to be 'mastered' (one truth system) in back-end planning system New orchestration tool required to handle new products
Planning and Build Systems changes	<p>Define and design for fibre termination and management;</p> <ul style="list-style-type: none"> 'Work Flow' changes to downstream order requirements – A End, B End, External/Mid-Point Handover etc. New workflow templates) Desktop survey/ physical survey for new products, records only updates and to trigger billing. Updates to ECC types New fibre patch panel termination handover options New Network Investment Management Systems estimate to trigger build at backhaul locations
Test and Diagnostics (part of L2C provision and T2R)	<ul style="list-style-type: none"> Fault notification, intrusive and non-intrusive test (measure loss and record results), diagnostics tools and processes for fibre only products developed on B2B and Portal New way of capturing fault records and handover of those records Increased engineer dispatch function to cover additional fault circumstances New premium fibre tests – Polarisation Mode Dispersion (PMD) to test quality of fibre for optical delivery to meet performance needs New training and test equipment to do 10/100Gb tests with PMD plus
Billing Systems	<p>New product variants</p> <ul style="list-style-type: none"> Additional ECC mechanisms as required

Process	Systems Enhancements
Modify/Migration	<ul style="list-style-type: none"> New order journeys for modify and migrate, <ul style="list-style-type: none"> Variants of end point re-arrangement process New modify journey that allows fibre only product New migrations process to support active to fibre product (according to spec) with engineering visit triggered to re-terminate and equipment recovered
Cease Orders	<ul style="list-style-type: none"> New solution to remove fibre reservations / records. New process step to ensure fibre route is broken and triggers engineer intervention (truck roll)
T2R Fault Work	<ul style="list-style-type: none"> Additional validation of fault reporting against fibre provision records New T2R fault process using for fibre only circuits New MIS reporting structure with fibre test results Changes to optical profile Cost recovery for Fault not found / abortive visit Multiskilling to allow NTE and Fibre only troubleshooting
Planned engineering works/ Major Service Outages	<ul style="list-style-type: none"> Ensure Planned Engineering Works/ Major Service Outages notified
Fibre Capacity Management	<ul style="list-style-type: none"> Uplift plan & build for new fibre deployment to take account of fibre take up, run rates, time in hand measures and triggers for new fibre build Forecasts, pre-build, monitor & replenishment) Uplift of plan & build process to consume new forecast data, estimate new build required, drive authentication process and deploy new infrastructure New tools record forecast, capacity assigned to CP and capacity reports Fibre and terminating capacity e.g. manholes, duct, rack space etc.

- 4.78 Ofcom should also be cognisant of the fact that the design and development resource required to deliver the basic dark fibre product will be in direct competition with the resources developing the current active products and for which the Ethernet Development Roadmap has already been agreed with industry. Developments at risk are those underpinning the Ethernet Evolution programme, the Single Visit journey, alongside industry requested developments of CP self-appointing; these active developments will all be delayed

or placed in abeyance, with obvious repercussions for the active Ethernet improvement programme if a 12 month implementation timescale is enforced. For this reason the 12 month timeframe may create inconsistencies between the active obligations Ofcom are imposing and the dark fibre remedy.

- 4.79 Alternatively, Ofcom could accept a more reasonable time frame of 18 months, allowing BT to develop and deliver the dark fibre basic product over six 'half' releases, allowing the committed Ethernet 'active' releases to proceed in parallel with the basic dark fibre requirements.
- 4.80 Notwithstanding the impact on the current development cycle, Ofcom must recognise that to introduce the basic dark fibre product with resulting new provision and repair process, circa 20,000 planners, engineers and agents will need to be retrained to support a national roll out, all within the same 12 month time frame.
- 4.81 A programme of this size and complexity will need to be underpinned by a major internal transformation programme to roll out the necessary re-training for the provision, fault handling and new system changes. This transformation programme will need to run concurrently with improvement programmes for the active products and the operational impact cannot be underestimated. Ofcom suggests in paragraph 9.125 that the operational impact of running two major programmes will be minimised by allowing BT to recover additional development costs for the introduction of dark fibre; however, Ofcom is proposing to allow BT to recover only one third of its 'one-off costs' associated with operational implementation. BT's position on Ofcom's proposals for recovering 'one off costs' are covered in detail our response to the LLCC.
- 4.82 A good example of the operational impact of introducing a basic dark fibre product is on fault identification and repair. The current engineering practices today for active products do not rely solely on testers to identify faults. The active and remote testing capabilities allow BT to use the 'electronics' to pinpoint, identify and locate the fault either within the BT or CP domain; testers are an additional facility and used for more complex faults, and not all engineers are trained to use them. For example, where an NTE fault is established via the active remote testing facilities BT does not dispatch a fibre engineer to deal with the issue.
- 4.83 Going forward, fibre fault engineers will have to be retrained in all fault aspects i.e. NTE and fibre and will be totally reliant on the results from the test equipment to identify and pin point a fault. They will need to be familiar with underground fault reporting and processes to call out UG support as required and ultimately this will result in a significant change to BT's current engineering field force and national resource planning.
- 4.84 BT's operational resource planning is linked and totally dependent upon robust industry forecasting. The total absence of clear industry and committed demand for a basic dark fibre product will cause additional operational issues for BT in trying to provide national resource from Day 1 for a basic dark fibre product. BT would argue that it would be more efficient for industry if a roll out programme was allowed to be negotiated according to industry demand, but set within an 18 month timeframe after the agreed product launch date for national rollout. This programme could be incorporated into the implementation responsibilities to be carried out by the OTA2. It would allow BT to focus the necessary major retraining programme on specific geographic areas, would create less impact on active improvement programmes and allow BT to build up expertise in the dark fibre product and scale up to volume.
- 4.85 Ofcom itself recognises that industry negotiations for a basic dark fibre product are likely to be complex and protracted and that "BT may not be able to reach agreement about charges and

other aspects of dark fibre.”¹⁴ In the likelihood of a dispute and subsequent consultation required to settle the disagreement, BT are looking to Ofcom to introduce a facility in the Final Statement that effectively ‘stops the clock’ on the implementation timescales should a formal dispute be raised. BT should not be expected to proceed at risk, incurring costs on developments that ultimately may be overturned and replaced by new requirements that they in turn result in increased systems costs and longer development timescales.

- 4.86 Ofcom is also proposing to direct BT to provide KPIs on dark fibre once the product is launched.
- 4.87 Openreach does not object to the publication of KPIs to enable Ofcom to monitor performance outcomes on the product and to provide CPs with visibility of the performance levels it achieves. However we believe that specifying the KPIs for the basic dark fibre product at this point in time is premature.
- 4.88 The basic dark fibre product will not be available for at least another 18 months and the product still needs to be specified and agreed with industry. Ofcom itself recognises that “not all of Openreach KPIs for Ethernet will map directly onto the dark fibre product”.
- 4.89 On that basis, we suggest that Ofcom should wait until the basic dark fibre product has been fully specified before in turn specifying the KPIs that should apply. The new Quality of Service SMP condition (condition 8) would enable Ofcom to modify the KPI direction within a relatively short period of time and as soon as the basic dark fibre product specification has been finalised.
- 4.90 Finally we agree with Ofcom that the reporting obligations should not come into force immediately following launch, but after a suitable period of time to ensure that provision and repair processes have bedded in and the product is being used by CPs. Openreach will have a better view as to how long this period should be once the implementation work is further advanced.

Regulation of downstream products using DFA input

- 4.91 The introduction of the DFA remedy should not create any competitive distortions. Downstream BT must therefore be able to use the product on a level competitive playing field with any other downstream CP, given that Ofcom is proposing the product should be provided on an EOI basis. As such, BT appreciates the clarification Ofcom has provided on this point in its ‘clarifications and corrections’ publication on 9 July 2015. To the extent that this is saying downstream BT would be free to compete on the same terms as any other downstream purchaser of dark fibre products, we agree with the broad policy approach being suggested.
- 4.92 However, BT considers that there should not be ambiguity on this point as this is important to ensure no distortions of competition or downstream investment incentives.
- 4.93 It should be clear that BT is able to fulfil completely all of the SMP conditions relating to upstream products subject to *ex ante* regulation solely through the provision of Openreach products, including compliance with the charge control. The SMP conditions and the Undertakings should be sufficient to ensure that all CPs are then able to compete on a level basis. All downstream CPs will then have the same choice of purchasing the same set of regulated products from Openreach (active and passive), and be in the same position to compete on equal terms in any market or markets downstream of the regulated Openreach inputs. Downstream divisions of BT could therefore replicate regulated products using such inputs on an EOI basis – and would have exactly the same incentives and ability to do so as

¹⁴ BCMR paragraph 9.127.

any other downstream CP, on exactly the same terms that any other such downstream CP would enjoy.

- 4.94 Such an approach appears to be the clear policy intention set out in the 9 July document, but we do not currently believe that is currently reflected in the relevant legal instruments (see section 9 below) and this needs to be rectified. The statement made in the 9 July document itself could also be open to some interpretation, and BT considers this could usefully be further elucidated by Ofcom. For example, it is not clear what circumstances Ofcom has in mind when making stating “If Openreach were to fulfil all BT’s obligations in relation to active services” (emphasis added). Is the conditional element of this statement referring to the possible circumstance where Openreach fails to meet the charge control? If a relatively trivial breach automatically exposed downstream BT to *ex ante* charge controls this would be unlikely to be proportionate. We also note that the 9 July explanation is limited to downstream BT purchasing products mandated by the DFA remedy: the same principles could apply equally to other Openreach provided inputs where the *ex ante* regulatory conditions are met by Openreach (such as EFM).
- 4.95 To provide a firm basis for future investment, ensure fair regulation and a level playing field BT therefore urges Ofcom to explain its policy approach on this issue at greater length and to ensure that the relevant legal instruments properly reflect this.

5. CI market analysis

Response to relevant consultation questions

CI Product Market Definition

Question 4.1: Do you agree with our approach to wholesale product market definition and our proposed wholesale product market definitions in relation to services provided using contemporary interfaces? In particular, do you agree with our proposal to define a single product market for Contemporary Interface Symmetric Broadband Origination (CISBO) services? If not, what alternative would you propose and why?

- 5.1 Ofcom has incorrectly defined the single product market for CISBO. Ofcom’s analysis of product markets contains a number of flaws and incorrect or unreasonable conclusions, based on the evidence it has adduced, and a number of assumptions that do not appear to be backed up by any substantive evidence.
- 5.2 Our response sets out a more robust and correct analysis of these markets. Applying the correct approach to market definition (as set out more fully in the annex at section 9 of this response), we strongly believe that, if Ofcom corrects the flaws in its analysis, it will be found that there is a clear break in the chain above 1Gbit/s services, creating two distinct product markets for Ethernet products up to and including 1Gbit/s and Ethernet products above 1Gbit/s and products using WDM technology in customer premises at any bandwidth – i.e. in line with the AISBO and MISBO product markets identified in the 2013 BCMR.
- 5.3 Ofcom’s analysis of potential chains of substitution is particularly flawed, relying upon insufficient evidence and analysis. Significant differences in competitive conditions can also be observed between the 1Gbit/s service market, and the market for services below 1G (effectively the market for services of around 100Mbit/s). Such differences are not as stark as the break between 1Gbit/s and above 1Gbit/s, but are nevertheless particularly apparent, especially within more dense business areas such as London and the city business districts (CBDs) of other provincial cities across the UK.

- 5.4 Having corrected the product market definition in this way, Ofcom should also correct a number of flaws in the geographic market definition as set out below – which would lead to an increased geographic area around London, as well as competitive areas within City Business Districts (CBDs) of major UK cities, where the presence of multiple fibre networks provides thriving competition in the higher bandwidth product markets.

CI Product Market SMP Assessment

Question 4.2: Do you agree with our assessment of competitive conditions for very high CISBO services? If not, what alternative would you propose and why?

- 5.5 BT does not agree with Ofcom’s assessment of competitive conditions for very high CISBO services. Ofcom has understated the degree of competition for very high bandwidth and WDM-based services. In particular, Ofcom’s estimated service shares exclude volumes of circuits self-provided by end user organisations using commercially available dark fibre from 3rd party providers. Ofcom itself quantifies the likely significant volume of such circuits, but observes that it is possible that only a proportion is used for very high CISBO services. Ofcom then completely ignores any effect on the estimated services shares – whether for very high, or high, CISBO services. Correcting for this error alone would show service share estimates for very high CISBO as below 10% in CLA and LP, below 20% in CBDs and less than 25% in the Rest of the UK.
- 5.6 Ofcom has also incorrectly dismissed the observable evidence on very high CISBO market shares as unreliable, based on weak and unsubstantiated arguments. These market shares show very clearly that there are significant differences in competitive conditions between very high CISBO services and other CISBO services, which clearly points to two separate markets but Ofcom fails to properly take this into account. BT’s more detailed views are set out in our economic analysis in Part B of this response and summarised in our additional comments later in section 5 below.
- 5.7 The market for very high CISBO services (which BT contends should be a separate product market) is not susceptible to regulation at all – and Ofcom’s proposed approach of applying increased regulation (with the radical new proposed dark fibre remedy) across these services everywhere outside of CLA seems perverse and based on incorrect analysis and insufficient evidence. Ofcom appears to assert that unless regulation is applied, BT will somehow grow its power in this market (see paragraph 4.137 for example), and therefore Ofcom needs to apply regulation in spite of BT’s lack of power and lack of market share. This flies in the face of the available data, and the correct approach to market definition and the designation of SMP: it would in any case be a totally inappropriate action for regulatory good practice – seemingly “regulation just in case”. In this response, BT sets out its views on Ofcom’s market analysis, along with a set of improved methods of analysing and drawing conclusions on the degrees of competition in the market.

Geographic Market Definition

Question 4.3: Do you agree with our approach to geographic market definition and our proposed geographic market definitions? In particular do you agree with our proposals to define the Central London Area (CLA) and the London Periphery (LP) as separate geographic markets? If not, what alternative would you propose and why?

- 5.8 Ofcom has erred in its definition of geographic markets. Correcting the flaws in Ofcom’s market analysis, as well as identifying separate product markets for services up to and including 1Gbit/s and services above 1Gbit/s, would identify a larger competitive London area as well as areas in CBDs – where the degree of competition is greater especially for higher bandwidth products - that are fully competitive and where BT does not have SMP. In the London Periphery, for example, it is clear that Ofcom should find this market for higher

bandwidth services to be fully competitive. Ofcom should certainly not apply the dark fibre remedy, given the high degree of competition in the same high bandwidth services that Ofcom itself identifies as being attractive for dark fibre. BT sets out in Part B of this response more rigorous and robust market analyses covering product and geographic market definition and SMP analysis.

Geographic Market SMP Assessment

Question 4.4: Do you agree with our approach to SMP assessment? In particular, do you agree with our proposals to find no CP to have SMP in the market for CISBO services in the Central London Area (CLA), and to find BT to have SMP in the markets for CISBO services in the London Periphery (LP) and the Rest of the UK (RoUK)? If not, what alternative would you propose and why?

5.9 In BT's view, it is self-evident that Ofcom's approach to analysing these markets is clearly wrong from both product and geographic market definition and SMP analysis viewpoints. On the one hand, Ofcom identifies that very high CISBO services are subject to very high degrees of competition, with very low (15% or below in some defined areas) service shares for BT (below the levels of SMP in all areas) and several competitor CPs with higher shares – all based on multiple competing fibre and duct network infrastructure across all business areas across the UK. Ofcom's own analysis shows these trends have increased significantly since the Ofcom analysis of 2013 – there are more competitors, with more competing fibre networks, with greater shares. Ofcom appears to dismiss this evidence as somehow unreliable. On the other hand, Ofcom has proposed "simplifying" market definitions, erroneously asserting that boundaries between different product and geographic markets are somehow less evident – and on that basis Ofcom is:

- re-regulating whole geographic areas (MISBO services in LP – where BT services shares have now fallen below 15% on Ofcom's own over-estimated figures);
- continuing to regulate outside London, even for MISBO services and for CBDs outside of London where BT service shares are low, and competing fibre network infrastructures abound; and
- imposing a strict new remedy of Dark Fibre Access, which by Ofcom's own description is intended to be most attractive and impactful to these very product sectors – high bandwidth, very high bandwidth, WDM-based – where Ofcom finds competition to be most vigorous.

5.10 Therefore, Ofcom's proposed imposition of such regulation, targeted specifically at sectors where its own analysis shows high levels of competition, must be seriously flawed. BT sets out its view on the flaws and errors in the Ofcom analysis in Part B of this response.

5.11 Even if Ofcom remains wedded to the proposed market definitions and SMP findings, Ofcom must consider whether the proposed remedies are actually justified across the whole of the markets where BT is designated as having SMP. Specifically, Ofcom should consider differentiating areas and sectors where competition is thriving. Ofcom should avoid mandating dark fibre for higher bandwidth applications, or within more competitive areas of CLA, LP and CBDs.

Further Comments on Market Boundary Analysis and SMP Assessment

Product market definition

5.12 The Consultation sets out a novel market definition for Ethernet and optical services, postulating a chain of substitution across all bandwidths in the market Ofcom has dubbed "Contemporary Interface". BT does not consider that the evidence and analysis put forward in the Consultation is sufficient to support such a market definition. The key elements of this

analysis, which are used in the Consultation to justify such a key change in the market analysis, are that the incremental cost differentials between different bandwidths have reduced over time and that price differences between the different products have also narrowed.

- 5.13 Ofcom's analysis is flawed in a number of respects as set out in detail in sections 10, 11 and 12 of this response. In particular:
- i) Ofcom has deviated, without any clear reasons being provided, from the approach set out on the Commission's SMP Guidelines¹⁵ which state that observed prices should be the starting point of the analysis;
 - ii) A bandwidth gradient is standard industry practice and has previously been accepted by Ofcom as an appropriate and efficient way of recovering common costs across a range of different products: focusing on equipment cost differentials ignores how common costs are recovered; and
 - iii) Customer switching costs between different bandwidths have not been taken into account.
- 5.14 We set out the errors in Ofcom's product market analysis in detail in section 12 of this response, and section 9 sets out the appropriate legal framework which Ofcom has not properly applied. As a result we consider that the CI market definition cannot be justified. A proper consideration of the hypothetical monopolist test would conclude that it would be profitable to impose a price rise on the totality of very high bandwidth Ethernet (i.e. above 1Gbit/s) and optical services: the current MI and AI markets are still appropriate.
- 5.15 In general, Ofcom has tended to find narrow technology based markets (TI is a separate market from CI for example) and a broad bandwidth market (CI). We believe that the rationale that Ofcom has used to arrive at these conclusions is both flawed and inconsistent. A proper and consistent analysis would tend to opposite conclusions, i.e. broader technology markets and narrower bandwidth markets (i.e. the existing AI and MI markets).
- 5.16 A full and detailed response is given in sections 10 to 14 of this response (specifically dealing with economic analysis) and BT has also commissioned a number of reports from external independent experts to comment on the validity of Ofcom's analysis and the conclusions drawn.
- 5.17 In summary we find there are important errors in both the approach taken by Ofcom and in the analysis itself.
- 5.18 Regarding the underlying methodology and approach we note the following:
- i) Ofcom has made the serious error of assuming "homogeneous competitive conditions" (paragraph 4.34) across the broad product market. Ofcom's erroneous assumption is that underlying competitive conditions are determined only by proximity to networks, and do not vary at all by bandwidth, customer size, etc.
 - ii) Ofcom makes the hypothesis of a chain of substitution across all CISBO bandwidths and considers only whether the evidence supports this hypothesis or not. Ofcom does not consider any alternative hypotheses or counterfactuals which might be more plausible given the same evidence.
 - iii) In the matter of a chain of substitution, Ofcom has not given due consideration to the relevant European Commission guidelines and CMA guidance which imposes a high

¹⁵ "Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services", OJ C 165, 11.7.2002.

threshold in terms of the evidence required to find a chain of substitution compared to markets composed of immediate substitutes. This high standard is also highlighted in the Article 7 Framework Directive Commission Decisions set out in the annex to section 9 of this response.

- iv) Ofcom has not considered demand side switching in the context of downstream services. In particular, the consequences on downstream multiplexing and switching/routing equipment costs have been completely ignored, as well as the capability of such equipment to mitigate switching costs arising from the technical features of upstream services.
- v) Similar issues arise with regard to supply-side switching. In particular, Ofcom does not consider all the downstream revenue and margins which attract a CP to supply a customer and has only considered revenue and margin from the regulated upstream service or direct CP equivalents. Correctly considering total value of a site to a CP greatly enhances the value of very high bandwidth sites and leads to significant differences in conditions of competitive supply to these sites (as demonstrated by the service shares in Ofcom's Table 4.4).
- vi) In approaching geographic markets, Ofcom makes a hypothesis that geographic markets are either local or national and again considers only whether evidence supports this hypothesis or not. Ofcom does not consider any alternative hypotheses or counterfactuals such as those set out in the paragraphs below. This hypothesis does not match with the actual build strategies of CPs, which normally seek to cover a maximum number of a particular customer's sites within the CP's own geographic footprint.
- vii) In this matter of geography, Ofcom should have considered geographic markets based on actual CP infrastructure build, including both access infrastructure and core infrastructure, which do not just include the dense areas of customer sites but also follow the major communication links between them. Such a geographic footprint is neither local nor national but might be described as "spindly".
- viii) There is frequent reference to modified prices which deviate from those set by regulation as the base price for the hypothetical monopolist test (HMT). This is counter to the European Commission's SMP Guidelines, which state that regulated prices should be assumed to be set at what would otherwise be a competitive level unless there is evidence to the contrary - this is not evidenced by Ofcom.

5.19 Regarding the analysis itself we note the following:

- i) In considering the market breaks by bandwidth, only the immediate difference in price and costs of the products in question have been considered and not as it would be perceived by the end-user; the consequential costs for the downstream CP and the end-user have not been taken into account and these are likely to be significant. End users would be deterred from switching bandwidths in response to a SSNIP by the need to buy different terminal equipment, multiplexers etc. Ofcom has ignored these costs and consequently conclude wrongly that a SSNIP by a hypothetical monopolist would be unprofitable. This leads Ofcom erroneously to define a single broad market rather than several narrower ones.
- ii) Moreover, the approach taken on bandwidth breaks is inconsistent with the approach taken in assessing the potential break between CI and TI - where consequential costs are cited as a major factor in finding such a break.

- iii) Major differences in market shares between very high bandwidth services (MI) and other CISBO services (AI) are inappropriately dismissed, as are the very stark differences in competitive conditions between these two markets.
 - iv) Differences in geographic characteristics at different bandwidths have not been adequately analysed and we have requested additional data analyses in this regard.
 - v) Dark fibre sold to end customers directly or through other third parties has not been adequately taken into account in the market boundary or the market power assessments and this will likely have a major impact on service shares for very high CISBO where BT is clearly below the SMP threshold already throughout the UK.
- 5.20 When these issues are properly accounted for, it is clear that there is a distinct break between services “above 1Gbit/s” and “services at 1Gbit/s and below”. This is as Ofcom found in the previous market reviews in 2013 and 2008. Between these two distinct markets, there are distinct differences in price, consequential switching costs to CPs and end users, market shares, and geographic presence of competition.
- 5.21 In addition, when taking account of these factors, we also find that the barriers to switching and differences in competitive conditions between 10/100M services and 1G services have been understated. At the same time, the barriers to switching and differences in competitive conditions between TI and AI have been overstated.
- 5.22 Ofcom relies on four key strands of argument to support its conclusion that there is a chain of substitution leading to a single CISBO market:
- i) the differences in services features and quality between WDM services and Ethernet services are less significant than in 2013;
 - ii) price and cost evidence no longer points to a clear “break” in the chain of substitution;
 - iii) service share differences for very high bandwidth services do not point to a fundamental and sustainable difference in competition conditions, pointing to a separate product market; and
 - iv) other evidence points to a lack of effective competition.
- 5.23 As stated above, these four key strands centre on the products themselves and do not consider the necessary consequential costs on the CP and the end user to switching bandwidth. In considering each of these four, we also add the impact of this necessary extra switching cost.

Issue 1: Differences in services features and quality between WDM services and Ethernet services are less significant than in 2013.

- 5.24 In the last BCMR, Ofcom had already placed WDM based services and 10G Ethernet services in the same MISBO market. We see no significant change in this situation since the last review and see no need to change from this position now.
- 5.25 However, we would reinforce that point that the demand side and supply side switching is determined by the total value at the customer site, which will also reflect cost components which are downstream of the access service. When properly viewed from this downstream perspective, any technology distinction between “above 1Gbit/s Ethernet” and WDM is even less significant. It is the overall value of services to a particular site which determines the demand side and supply side switching and overall bandwidth (where WDM-based services are regarded as equivalent to Ethernet of over 1Gbit/s in this respect) can act as a good proxy for this value.

Issue 2: Price and cost evidence no longer points to a clear “break” in the chain of substitution

- 5.26 Ofcom looks at three factors to conclude that there is no longer a bandwidth break at 1G: (a) BT’s price differentials, (b) cost differentials and (c) product prices and positioning by OCPs.
- 5.27 It is at this stage that Ofcom’s analysis has omitted the significance of consequential costs on the CP and the end user which are outside of the immediate price and cost of the upstream service. When these costs are included, the switching costs involved in changing bandwidth are considerable. Moreover, the importance of the factors that Ofcom has considered becomes less significant. In summary, for Ofcom to find that there is no break in the market, Ofcom would need to show that its original three factors (price differentials, cost differentials and product prices and positioning), plus the additional factor of consequential costs, are all met cumulatively. Even if Ofcom were correct in its analysis of the three factors it has considered, significant consequential costs alone would be enough to create a clear break in the markets.
- 5.28 In the economic analysis included within this response we discuss these consequential switching costs in detail and conclude that they are indeed significant and are likely to be considerably greater than the equivalent consequential switching costs in changing from TI to AI on which Ofcom has based finding the market break between TI and CI.

BT’s price differentials

- 5.29 While BT is launching a new 10G EAD service, a 10G Ethernet WES service has been available for some time. Notwithstanding that the price of the new service may be cheaper than the original WES service, we do not agree that this leads to the conclusion that there is no longer a bandwidth break above 1Gbit/s.
- 5.30 Ofcom notes in paragraph 4.54 of the Consultation that the gap between the price of 1G and 10G Ethernet services is less stark than in 2013. This is to ignore the fact that there is still a significant gap between EAD 1Gbit/s and the new EAD 10Gbit/s service which will be 2.6 times more expensive than a 1Gbit/s service when it is launched¹⁶. This is a 160% switching cost which is unlikely to be overcome by a 5-10% SSNIP. Ofcom has not explained why this still large price step change does not still point to a bandwidth break above 1Gbit/s.
- 5.31 CPs are indeed very cost conscious and a 10% difference in price can lead to them selecting one product or another. In that context, a 160% price increment on a product cannot be justified unless the CP needs at least three times the bandwidth, or is in a position of aggregating circuits.
- 5.32 Ofcom makes the following statement in its footnote 92: “In this context, it is important to recall that our price analysis is concerned with possible likely substitution behaviour from an end-user perspective. In particular, the complexity of a given end-user’s requirements in terms of commissioning and design costs would be quite similar at different bandwidths, whilst such costs might be spread across a number of services of different bandwidths purchased as part of a single contract.” This is not the case - commissioning and design costs are not similar at all bandwidths. Openreach activities and costs tend to increase for higher bandwidth services, with dual fibre working and bespoke design required for higher sensitivity technologies
- 5.33 However, Ofcom has not applied this same logic to equipment from the end user (and downstream CP) perspective. The Ofcom statement above is also not true when exactly the same logic is applied to the consequences on equipment costs for an end user and any

¹⁶ For example, EAD 1Gbit/s LA connection is currently £2,050 and rental is £3,000. EAD 10Gbit/s LA will be £6,000 connection and £7,500 rental.

intervening downstream CP. In this case, the consequential costs do very much depend on the bandwidth of the access service. The CP's own equipment cost for higher bandwidth applications, as well as their own design and installation costs will also be significantly higher.

- 5.34 There is an additional problem with Ofcom's price comparisons which use a standard distance of a reference main link of 10km. This choice is arbitrary and does not reflect actual distributions of typical main link distances. Different assumptions on distance can make considerable differences to the relevant price comparisons but Ofcom has not considered this.

BT's cost differentials

- 5.35 There are still significant differences in the costs between 1G and 10G EAD and between 1G EAD and WDM equipment. For example, a 1G EAD box costs BT approximately [£], compared to [£] for a 10G EAD. The box cost for a 10G OSA service costs even more at [£]. In addition, a 10G EAD service requires different equipment to a 1G EAD service, including a different chassis and a different box, which is significantly more expensive than the 1G equivalent. 10G EAD also requires additional testing, which means that BT needs to purchase additional testing kit and provide additional training to its engineers to carry out this testing. These cost differences themselves point to a break, but as discussed above, these costs need to be considered alongside the consequential costs on the CP and the end user.
- 5.36 Ofcom states in paragraph 4.59 that a component of the differences in BT's prices and underlying costs of Ethernet and WDM services is not related to incremental differences in equipment costs. BT does not accept this, as it is clear that higher bandwidth and WDM-based Openreach services do tend to have higher fibre costs (Openreach OSA does use dual fibre working) and more bespoke circuit design work at the planning stage. Ofcom, however, makes the implicit assumption that these costs should be recovered equally apportioned on a per service basis. BT prices its Ethernet and WDM services on a bandwidth gradient basis which includes an element of differential cost recovery of these underlying common costs. This is something that Ofcom is fully aware of and indeed has previously endorsed as efficient. Ofcom appears to effectively dismiss this efficient method of cost recovery, but offers no coherent explanation as to why it no longer considers this to be a relevant factor and instead focuses almost exclusively on the differences in incremental costs.

Product prices and positioning by OCPs

- 5.37 The main thrust of the argument presented by Ofcom (paragraphs 4.60 to 4.66) would appear to be that when OCP prices are added in with the price differences between BT's services, any break between 1G and above 1G is less clear than when just comparing BT prices¹⁷.
- 5.38 It is difficult for BT to make detailed comments as all the important information is redacted. Based on what is available to us in the public document, we offer a number of points.

¹⁷ In Figure 4.2, Ofcom sets out typical starting prices for services at 1Gbit/s and above, which Ofcom relies on to say that "it is difficult to see a clear break in the pricing schedule between high bandwidth and WDM products and single service Ethernet products" (paragraph 4.62). Ofcom does not explain what it means by "starting prices" in this context nor has it said over what time period it has calculated these prices but this could be absolutely critical to how the evidence should be interpreted. For example, if it had just looked at the total cost of ownership ("TCO") for one year, i.e. any connection charge and one year's rental, this is likely to show significant differences between BT's pricing and the unnamed BT competitor. This is because many of BT's competitors do not charge connection fees at the same level as BT does and some even offer free connection. Instead, they recoup their costs over a longer time period through their rental charges. In this case, by looking at a one year TCO only, BT will look more expensive and will have a bigger step change between 1Gbit/s and above 1Gbit/s services than its competitors. Ofcom therefore needs to explain in more detail exactly what prices it has compared here and make sure that it is comparing services on a like-for-like basis to ensure a fair analysis. Without such clarity, Ofcom's evidence shown here is uninformative and certainly does not support the significant change in regulatory structure proposed by Ofcom.

- 5.39 When considering demand side and supply switching it is the downstream value of the site that is the primary differentiator leading to a market break, and bandwidth is a useful proxy for this value.
- 5.40 On the specifics of WDM services offering 1Gbit/s wavelengths, as Ofcom recognises, WDM requires a greater upfront cost compared to a single Ethernet 1Gbit/s service. The installed capability of WDM services offers considerably more bandwidth than 1Gbit/s. This means that WDM is distinctly different from 1Gbit/s Ethernet (also noting that the upfront costs of 10Gbit/s are more in line with WDM).
- 5.41 Ofcom states that some CPs will pre-install WDM kit at some sites. This pre-installation marks out these sites as having an important difference from other sites and therefore this collection of sites is the key distinguishing feature here. However a set of sites is more a matter of geography and not directly one of product. Either Ofcom must consider product and geography simultaneously, as BT proposes, or such pre-installation of equipment at specific sites must be excluded from the product analysis.
- 5.42 Overall, BT does not agree with Ofcom's conclusions in paragraph 4.66 that the cost and pricing evidence "does not point to a clear break in the chain between very high CISBO ... and up to and including 1G products". As we have clearly shown above, the evidence, especially when including evidence omitted by Ofcom on consequential costs, does not support this conclusion.
- 5.43 In addition, this conclusion starts from the perspective of Ofcom's alleged chain of substitution across the bandwidths. This has entirely failed to consider other potential scenarios which under the evidence available would be considerably more plausible than Ofcom's hypothesis. We would again note the European Commission and CMA guidance which strongly advocates the need for actual evidence in order to find a chain of substitution.

Issue 3: Service share differences for very high bandwidth do not point to a fundamental and sustainable difference in competition conditions, pointing to a separate product market

- 5.44 Ofcom accepts in paragraphs 4.67 and 4.131 that BT's share in very high CISBO is below the level normally associated with SMP and is significantly lower than its share of any other part of the overall CISBO market. However, it then goes on to dismiss this evidence by saying it does not believe this fact points to a fundamental and sustainable difference in competitive conditions to the rest of the CISBO market, such that it would be appropriate to define a separate market.
- 5.45 BT cannot support this analysis and conclusion. In the last market review, BT pointed out many errors in the methodology for assessing market shares, nonetheless Ofcom stated it had confidence in its numbers and pressed ahead on that basis. Between that review and this review Ofcom has made considerable adjustments and improvements to its methodology and the calculated market share in very high bandwidth has changed dramatically as a result. However, this time, having made all the adjustments and ostensible improvements, Ofcom now says (paragraph 4.133) that it cannot place sufficient reliance on the figures to draw robust conclusions on differences in competitive conditions. It is inconsistent and inappropriate for Ofcom to dismiss the differences in service shares in this way.
- 5.46 Ofcom also argues (paragraphs 4.35 and 4.36) that BT has a lower share of higher bandwidth circuits because of its "choice of pricing structure, rather than any inherent differences in their competitive position" i.e. Ofcom suggests that BT prices to achieve a higher margin on those services, and that this attracts more competition. This is of course completely incorrect. Firstly, BT has a small share of the higher bandwidth market and does not set the market price. Second, the higher margins on higher bandwidth services reflect their value to consumers and the costs of provision i.e. the underlying economics of service provision. And

third, these differences in underlying economics give rise to some big differences in competitive conditions by bandwidth, contrary to Ofcom's frankly untenable assumption of homogeneous competitive conditions.

- 5.47 In short, the service share differences for very high bandwidth services do most emphatically point to a fundamental and sustainable difference in competition conditions and hence do point to a separate product market - and yet Ofcom chooses to place no trust on this evidence. We refer again to the high burden of proof placed by the Commission to justify a chain of substitution and consider Ofcom's treatment of its own evidence is unsustainable in that regard.
- 5.48 Ofcom sets out in paragraphs 4.133 and A13.26-A13.27 four reasons why very high bandwidth CISBO shares are subject to a number of limitations, reducing their reliability. Each of these reasons is vague and unsubstantiated and so flawed:

Missing information on on-net provision

- 5.49 Ofcom has identified this as an issue as a higher percentage of Very High Bandwidth circuits are missing this data than either TI or AI circuits. Ofcom has itself identified ways to correct for this based on various assumptions [A15.108]. BT believes that Ofcom's 200m rule will underestimate the number of these circuits that are on-net, but as BT has provided on-net/off-net details for all circuits it will systematically over-estimate BT's market share. If Ofcom does not consider those corrections to be robust then it should not make them. If it does consider them robust, then this is an invalid reason why these market shares are not reliable.
- 5.50 Ofcom has allocated some of the missing data using the assumption that if a circuit end is more than 200m from the supplier's flexibility point then it will be off-net. We believe this assumption is not robust. Even after this second assumption, 2% of leased line ends still do not have an on- or off-net information, so an up-lift allocation is made. It is unclear why these unknown circuit volumes (originally >10%, 10% after interface assumption and 2% after distance assumption) do not appear to be identified in table A15.7 which shows only "0%" of TI and "1%" of AI circuits have unknown on/off-net information. Conversely, the data for BT's circuits is not subject to this source of error – BT has submitted data for all its wholesale circuits.
- 5.51 We consequently think, given these relatively large errors, that the BT market shares presented are systematically over-stated to a potentially significant degree.

The effect of limited volumes

- 5.52 Ofcom's concern here is that the lower volumes for very high bandwidth services make less reliable indications of current and future competitive conditions. Ofcom has not explained why this would be the case, and it is not a concern that it has previously raised when considering the MISBO market. It also refers to narrow geographic markets here, but Ofcom is not proposing to define narrow geographic markets. CLA may physically be a small geographic market but demand for very high bandwidth services is concentrated in this area and so it is not clear what Ofcom's concern is here, which appears unfounded. Ofcom also refers to large contracts as an additional reason for dismissing these market shares as unreliable, without explaining what its concern is or evidencing it in any way. Large contracts for these services are heavily competed for and there is no guarantee that any particular CP will win such contracts (as shown by the OSS lost bid data supplied by BT to Ofcom). The large growth in volumes is also not a factor that can be relied upon by Ofcom here. Ofcom's estimates show BT's market share has declined significantly since the last market review in relation to these services, which shows the increasingly competitive nature of the market: Ofcom should therefore not assume that BT will win a significant proportion of this future growth.

The effect of migration from medium/high to very high CISBO

- 5.53 This shows a misunderstanding by Ofcom as to how the market works for very high bandwidth services. Given the high charges paid by customers for these types of services and the high consequential costs on themselves and the fact that such a migration will usually involve a break in service, a customer will not necessarily simply migrate up the bandwidth chain with its existing supplier. While only indicative of overall switching, BT is able to analyse cases where a CP ceases a circuit (either a legacy Ethernet service (e.g. WES/WEES) or EAD) to identify whether it has migrated to a different service. This demonstrates very clearly that there is very little migration from medium/high CISBO services to very high CISBO services (around [X] only for EAD to OSA and [X] for WES/WEES to OSA).
- 5.54 Analysis by BT in relation to migrations to EAD suggests most migrations happen whenever an occasion occurs that requires a major change to the circuit (e.g. change of contract, re-site, re-design of the end customer network). The end user will use this opportunity to review offers from different CPs, to ensure it is getting the best deal when it migrates its services. Openreach estimates (using data up to June 2015 tracking what happens to Ethernet circuits when they are ceased) that when WES/BES/WEES circuits are ceased and re-provided as EAD circuits, [X] are level transfers (i.e. retaining the same bandwidth) and [X] are upgrades to higher bandwidths. However, [X] are to bandwidths above 1Gbit/s. [X] of these migrations involve a change of CP. EAD ceases follow a similar pattern, with [X] of migrations being level transfers and [X] being upgrades, with only [X] being migrations to optical services. [X] of these migrations involve a change of CP.
- 5.55 This data clearly points to very significant switching of supplier at the point of bandwidth upgrade and Ofcom should not therefore assume that the current supplier of a customer will automatically retain that customer when they migrate up the bandwidth chain.
- 5.56 Ofcom appears to have done no analysis of this sort. If Ofcom does wish to rely on such evidence, it has the powers to obtain data from CPs to understand in more detail the effect of migrations from medium/high bandwidth services to very high bandwidth services.
- 5.57 Our position is that there is no basis for assuming that BT will “re-assert” a notional position of dominance at very high CISBO on the basis of upward migration from 1Gbit/s customers. BT has never had a position of such dominance in any case in supply of connectivity to these customers’ sites.

The effect of CPs’ pricing and positioning of their CISBO products

- 5.58 Ofcom first ignores the efficiency of bandwidth gradient pricing here as a valid reason why BT prices very high bandwidth services at higher levels. Ofcom also states that another CP uses WDM-based services to meet connectivity needs for which BT would offer 1Gbit/s EAD. However, BT’s view is that it is the service that is being provided that counts towards service shares, not the underlying technology used to provide it. As discussed above, WDM and 10Gbit/s Ethernet have many common features which neither share with 1Gbit/s Ethernet.

Issue 4: Other evidence points to a lack of effective competition

- 5.59 BT does not understand how any general analysis of the effectiveness of competition even in the context of geography, should have a bearing on defining product market boundaries – as Ofcom implies. The relevant question for the analysis of market boundaries is whether there are differences in effective competition. Ofcom does not appear to discuss in this section the proper question for market boundaries which is whether differences in effective competition by product or geography point to breaks in the market.
- 5.60 Ofcom points in paragraph 4.134 to the suggestion that there is only one major rival (Virgin Media) and this is unlikely to offer an effective constraint on BT. Again, Ofcom has misunderstood how the very high bandwidth market works. Given the high value of sites

supplied with very high bandwidth services, a CP does not need to be a large scale supplier to be able to successfully enter the market. Very often, CPs will focus on particular areas where demand is high (such as Colt, which focuses in particular on London and other metro areas) and have no apparent intention of becoming a national player offering services everywhere in the UK beyond their networks. BT therefore faces significant competition, even though there is only one large scale national competitor. As discussed under geographic markets, Ofcom has started with a mistaken hypothesis that geographic markets are either local or national. They are in fact neither and are 'spindly' (see section 11 of this response) and Colt is a good example of this.

- 5.61 Furthermore, Ofcom has misunderstood the constraint placed on by BT by the presence of Virgin Media. A large proportion of very high bandwidth services is purchased under large scale tendered contracts by CPs with considerable countervailing purchasing power. In these circumstances, the presence of Virgin Media alone is highly effective competition.
- 5.62 Ofcom's statement in paragraph 4.135 that BT's returns for this segment have increased from 2012/13 to 2013/14 is also flawed. Reported costs in 2012/13 and 2013/14 are not directly comparable without making adjustments to these costs to account for changes in cost attribution between the two years. Indeed 2013/14 can be characterised as being an unrepresentative year as it was a particularly high growth year for these services (resulting in higher average proportion of connections compared to rentals).
- 5.63 One of the reasons why 2013/14 was a high growth year for MISBO non-WECLA services was that BT reacted to competitive pressure and customers took advantage of the reduced prices. It takes time for price changes to crystallise in reported returns but average prices have reduced considerably for MISBO non-WECLA since 2013/14 and one would expect returns going forward to be consequently depressed as a result. These price reductions were a direct impact of competition for these services.
- 5.64 Finally, Ofcom makes the assertion in paragraph 4.137 that BT's strong position across the CISBO range is likely to reassert itself over time as prices change and users move between bandwidths without fully explaining why it reaches this conclusion or providing any evidence which supports it. The only major change in BT's market position is in very high bandwidth services, where Ofcom's estimates of BT's market share has declined significantly since the last BCMR.
- 5.65 Overall, Ofcom's conclusions in paragraph 4.138 are fundamentally flawed. Ofcom started with a single hypothesis that a chain of substitution exists and considered no other plausible hypothesis or counterfactual. It has not given credible reasons as to why it has chosen to disregard the observable evidence before it, especially in relation to BT's service shares in very high bandwidth services. In addition, Ofcom has omitted critical consequential costs and activities in considering demand side switching which significantly impacts supply-side switching.
- 5.66 These errors and omissions are set in a context where the European Commission and CMA guidelines underline the importance of actual evidence in finding a chain of substitution. An analysis taken in this context would demonstrate that Ofcom should not have centred its market definition analysis on a chain of substitution without full and prior consideration of the separate applicable markets. It should then have only moved to a chain of substitution analysis once its assessment of demand-side substitution rendered this appropriate.

Geographic market definition

- 5.67 Ofcom continues to use post codes as the basic unit of analysis for defining geographic markets. This approach ignores the very different mixes and distributions of businesses within and across specific post codes. As such, this approach fails to take account of:

- i) clustering of businesses (within specific areas of post codes);
 - ii) economic dig distance; and
 - iii) location of business according to bandwidth requirements.
- 5.68 Postal sector areas are not all the same, nor are businesses evenly distributed within individual postal sectors. CPs will, in practice, target dense areas of businesses within postal sectors and can chase specific sources of value in the market. Different CPs can also target different types of customers, who have differing bandwidth needs (which is a further factor undermining Ofcom's proposed conclusion of an unbroken chain of substitution across all bandwidths). As such, CP networks in fact represent "spindles" with dense areas of network build where the business customers are and tend to congregate. Such a network topology does not mirror postal sectors – which are designed for very different networks based on postal needs.
- 5.69 The dig distance assumed to be economic in the Consultation and the number of network operators required to be within such a distance of customers, based on the postal sector form of analysis, therefore significantly understates the extent of competition. Applying Ofcom's methodology to BT's network through our worked examples suggests that BT would only cover [3<] of business sites, when in fact BT will serve significantly more of these sites in practice. The approach is therefore producing an unrealistic picture of the extent of network reach.
- 5.70 Section 11 of this response sets out our detailed analysis of why Ofcom's geographic market analysis is incorrect, using a number of detailed specific examples showing how Ofcom's approach, which effectively averages across and within postal sectors, fails to capture the true nature of competition. The net result is that the Consultation substantially understates competitive forces and Ofcom has inappropriately shrunk the competitive London area to the CLA and not properly recognised the degree of competition in a number of other central business districts.
- 5.71 In addition, Ofcom should consider adding postal sector area "N1C 4" to the CLA area. This area encompasses the redeveloped urban area around St. Pancras. It can be seen from the map itself that there is little infrastructure existing – and for that area, what telecoms infrastructure, ducts etc. there are, have been installed by INFL – not by BT. It would therefore be inappropriate to regulate BT for any services in this area. Consumers and businesses in this area would potentially benefit greatly from inclusion within the CLA area – as BT would be in a much better position to deliver tailored solutions, possibly in conjunction with INFL, and may even be able to provide a compelling competitive choice for such end users. Inclusion in CLA, under the current Ofcom proposals, would mean any bespoke solutions would not need to be notified in advance, or formally published.

Market power analysis

- 5.72 The net result of the incorrect market definitions is that Ofcom has underestimated the degree of competitive constraints on BT.
- 5.73 In only looking at the Ethernet and optical market in its totality (as an unbroken chain of substitution), Ofcom has failed to capture the significant competition which BT faces at very high bandwidths. Our views on Ofcom's assessment of SMP and market shares are set out in detail in section 12 of this response, but in summary:
- i) Ofcom has erred in not taking account of the high degree of competition for very high bandwidth CI services which clearly point to a separate very high bandwidth CI market;
 - ii) further, Ofcom has overstated BT's market shares in this very high bandwidth CI market through not taking proper account of dark fibre already being sold in the market.

- iii) Ofcom's geographic market and data analysis, for the reasons set out in section 11 below, has failed to take account of the extent to which CPs can and do expand their networks to meet demand and hence the degree of competition;
- iv) In assessing BT's market position Ofcom has assumed its network is ubiquitous and sunk, which fails to recognise the significant extent to which BT builds out new fibre network for business connectivity ([§<] of new Ethernet provides involve some form of new network build): this leads to the wrong conclusion about the extent to which individual business sites are contestable; and
- v) Ofcom's market share analysis has a number of specific deficiencies (for example, excluding mobile backhaul) which leads to an overstatement of BT's market position.

5.74 The combined effect of Ofcom's incorrect product and geographic market definitions, which underlies the erroneous SMP analysis in the Consultation (see sections 11 and 12 below) leads to Ofcom's diagnosis of market power in some sectors being too extensive. This, in turn, provides an unsound basis for a set of remedies which is too intrusive and not justified by the nature of the (incorrectly identified) market power problem.

6. Core networks and Data Centres market analysis

Response to relevant consultation questions

Core Networks Market Definition

Question 4.5: Do you agree with our approach to product and geographic market definition for wholesale CI core conveyance services and do you agree with our proposed market definitions for wholesale CI core? If not, what alternative would you propose and why?

- 6.1 We agree with Ofcom's decision to update the definition of the competitive core market, compared to the Ofcom position in the BCMR 2013 which radically under-stated the extent of competitive core network infrastructure. We welcome Ofcom's recognition that the competitive core extends to a significantly increased number of identified TAN nodes – and that the emergence of large third party carrier-neutral Data Centres (with competitively provided core connectivity) can be treated effectively as part of this extended defined competitive core. However, we believe Ofcom has overlooked a number of additional data sets, relating to the list of TANs including competitively connected Data Centres – and we set out in section 13 of this response a number of additional nodes Ofcom should recognise as part of the competitive core.

Core Networks Market SMP Assessment

Question 4.6: Do you consider that our list of candidate competitive exchange and data centre locations is correct?

- 6.2 We believe that a number of additional nodes should be added to the lists. There are likely to be additional BT exchanges which would meet Ofcom's criteria and therefore increase the number of 181 candidate TAN exchanges nodes. Additionally, there are additional Data Centres with core connectivity where either BT is not present or is not the preferred provider, which should be added to the list of 60 candidates. Ofcom should not group the BT TAN nodes into TAN groups – and should therefore not regulate "intra-TAN" routes. We set out our views on Ofcom's approach to core networks and Data Centres in section 13 of this response.
- 6.3 Firstly, Ofcom should note carefully that the data sets representing purchases of Openreach Cablelink reflect the OCP actually purchasing that product – which in many cases may not be

the same OCP that owns the fibre backhaul/core cable to which the Cablelink connects. Therefore, in Ofcom's counting of competitive fibre cable providers/owners, it is important not to only include Cablelink purchases by players who do not own their own fibre. We have made these points to Ofcom in response to a formal data request Ofcom issued subsequent to this BCMR consultation document – and we will be keen to ensure Ofcom has included all the appropriate data when counting competitive BT exchange TAN nodes. This may lead to a number of additional TAN nodes requiring to be added to Ofcom's proposed list of 181.

- 6.4 There are some detailed corrections needed to the BT Exchange nodes listed in the draft legal instrument schedules. In particular there seems to be some duplication between Schedule 3 (List of Core Nodes) and Schedule 5 (Trunk Aggregation Nodes): core node locations at Hemel Hempstead, Plymouth, Southend, Norwich and Bedford appear on both lists. See section 9 of this response for further comments on Ofcom's proposed legal instruments.
- 6.5 We would encourage Ofcom to check through these lists carefully prior to publication of the Final Statement. If Ofcom is able to share updated drafts at that stage, we would be happy to double-check the data against Ofcom's final proposals.
- 6.6 For Data Centres, by excluding from the list of Data Centres all those which are non-carrier-neutral, and which therefore favour provision by one or more OCP network(s), or indeed effectively bar the use of core connectivity provided by BT, Ofcom is perversely making an implicit decision to regulate BT in a sector where BT is effectively not currently present. It is clear, therefore, that Ofcom should add these Data Centre locations to the defined competitive core – enabling a more level playing field should opportunities for BT to enter these markets arise in future.
- 6.7 In addition to the above, carrier-neutral Data Centres that Ofcom should also add to its list of 60 include the following:

Name	Address	Postcode
Sungard	Sungard Elland	HX5 9DA
ATOS	ATOS, Data Centre 2, Crofton Centre, Longbridge	B31 4PT
Ark	Ark – Corsham	SN13 9GB
Ark	Ark – Farnborough	GU14 0LX
Equinix	Equinix LD5 - Slough	SL1 4NB
Level 3	Level 3 Data Centre, Unit 11, Robert Davies Court, Nuffield Road, Cambridge CB4 1TP	CB4 1TP
Pulsant	Pulsant - South Gyle Data Centre (AKA ScoLocate), The Clocktower Estate, South Gyle Crescent, Edinburgh, Midlothian EH12 9LB	EH12 9LB
NTT	631 Ajax Ave Slough	SL1 4BG
HP	Wynard	TS22 5TB
HP	Doxford	SR3 3XN
Virtus Hayes	9 Western International Markets, Hayes Road, Southall, UB2 5XJ	UB2 5XJ
Virtus Enfield	Unit 3, Tradecity, Crown Road, Enfield, EN1 1TX	EN1 1TX
IBM	North Harbour Portsmouth	PO6 3AU

Question 4.7: Do you agree with our assessment that connectivity between additional candidate nodes and data centres are competitive?

- 6.8 We do agree that such connectivity is fully competitive and not susceptible to regulation. BT has no SMP in providing connectivity in this marketplace. Ofcom should not group the BT TAN nodes into TAN groups – and should therefore not regulate “intra-TAN” routes.
- 6.9 We urge Ofcom to change its position regarding the grouping of competitive TAN nodes into groups - such that connectivity between TAN nodes within each TAN group are subject to the full gamut of regulation. This Ofcom approach is flawed, and leads to a significant sector of over-regulation of the BT services – which could lead to artificial incentives for investment in building competitive fibre infrastructure, and will distort the efficient design and evolution of BT and other existing competitive core infrastructure.
- 6.10 What Ofcom seems to be saying is that, although the presence of BT plus two other strong fibre infrastructure-owning OCPs enables Ofcom to identify the extent of competition across 181 nodes, because some additional OCPs who own or have arranged commercial access to smaller or less pervasive core network infrastructures are also present at some of these 181 nodes, BT should remain obliged to provide regulated and potentially subsidised (via the price averaging enforced (directly or indirectly) by Ofcom in parts of the regulated Openreach portfolio) services to enable these smaller OCPs to operate in competition with OCPs who have invested in building out larger networks – but without making any such investment themselves.
- 6.11 A far more appropriate approach, which would also have the beneficial effect of radically simplifying the structure of Ofcom’s regulation in this area – and support a more level playing field for existing and new investors in fibre infrastructure across the UK core – would be simply to identify a single list of competitive TANs. There is no need or benefit from trying to group these further.
- 6.12 Where Ofcom has concerns that making such a change in the scope of regulation may cause short term challenges for some of those OCPs who would need to consider alternatives on some routes, then Ofcom could consider applying some form of transitional measures for an appropriate period to allow the OCP to consider alternative supply options.
- 6.13 Obviously, Ofcom should consider practical consequences of such simplifying and de-regulatory changes – but in this case we would observe that there will only be impacts for a small number of OCPs, and in each case impacting a small handful of circuits. These are on routes where Ofcom’s analysis shows at least three CPs have competing infrastructure – and the geographic distances are very short. As we set out below in section 13, the major infrastructure-owning CPs are present with their own core fibre network at all the proposed 181 exchange sites, and buy virtually no Openreach circuits to connect between them. One further CP currently buys 31 “intra-TAN” circuits from Openreach, and of all the remaining CPs none purchase more than eight in total across such circuits in the UK. Ofcom’s approach to grouping TAN exchanges into TAN groups is therefore not justified and is not needed to protect any CP interests. There is very likely to be a high degree of competitive interest in supplying such circuits to any CP who does have a need to purchase rather than self-build.
- 6.14 At any rate, Ofcom should clearly identify all inter-TAN routes (including routes between TAN nodes within the suggested TAN groupings) as fully competitive, outside the regulated CISBO (or AISBO or MISBO) markets. It is important that Ofcom remove this regulation on such circuits now, to ensure no undue barrier to further technological evolution opportunities within the BT core network – where Ofcom’s current proposed regulation constrains BT from being able to compete and invest on a playing field level compared to the two major OCPs Ofcom has identified. Ofcom should note that circuits from a site which is not a listed TAN site (e.g. a business customer site) to a listed TAN exchange site, would not be affected by this simplification of the regulate market definition – such circuits would still be regulated and within the CISBO market.

- 6.15 We set out our views on Ofcom's approach to Core networks and Data Centres in section 13 of this response.

7. TI market analysis

Response to relevant consultation questions

Question 5.1: Do you agree with our proposal to identify a single product market for Traditional Interface Symmetric Broadband Origination (TISBO) services at low bandwidths with a single geographic market for the UK (excluding Hull)? If not, what alternative would you propose and why?

- 7.1 We disagree that Ofcom should define a single national low bandwidth market. Given the similarities with the high bandwidth services such as rapid substitution by other products we are disappointed that Ofcom did not also consider if the low bandwidth services met the three criteria test for a market susceptible to *ex ante* regulation.

TI market decline and existence of alternatives mean Three Criteria Test not fulfilled

- 7.2 The inexorable decline in TI services and evident ability of customers to move to direct substitutes suggests strongly that these services fail to meet the cumulative conditions of the Three Criteria Test. The sheer scale of decline in PPC services implies that the current availability of substitutes is allowing transition to happen under existing regulation, and that there is a clear tendency towards effective competition for the provision of the replacement services. As Ofcom's own research shows¹⁸, there are different alternatives available, both regulated and unregulated, and taken together, they do not suggest there are high and non-transitory barriers to entry into the supply of these low bandwidth connectivity services. We do not believe the TI services are appropriate for *ex ante* regulation and there is no reason to suppose that further regulation will facilitate effective competition for TI services for the benefit of end users in the long term. BT would be open to providing safeguard assurances of provision of service and on pricing absent formal regulation.
- 7.3 BT has further concerns with Ofcom's approach to analysis of TI services. Fundamentally, these are legacy services that are in decline with one way substitution to other newer services using alternative technologies. In such legacy markets, with products approaching the end of their life cycle, it is reasonable to expect high market shares and for those to remain unchanged or even increase over time. This is because market shares carried out from a technology point of view abstracts from the size of the market and the one-way migration to newer services. Rational market entrants would choose to meet demand using a modern equivalent technology, so as migration occurs one would expect to see a gradual reduction in providers of the service using the legacy technology and the incumbent provider becomes the provider of last resort.¹⁹
- 7.4 We disagree with Ofcom's analysis of the substitutability between TI and EFM, broadband and Ethernet services. As shown in table 7.1 below there are a wide range of alternatives to low

¹⁸ See, for example, plans by Critical National Infrastructure (CNI) providers to find alternative solutions for in Ofcom's consultation on very low bandwidth leased lines. There are also investment and innovation in alternative services summarised in Plum Consulting's report on "Leaving a legacy: enabling efficient network transition", February 2015. http://stakeholders.ofcom.org.uk/binaries/telecoms/market-reviews/Plum_February_2015_Leaving_a_legacy.pdf

¹⁹ Dotecon observed that in a declining market one would not expect competitive entry, and that this "barrier" is not one that the incumbent operator can enjoy, as the operator itself is also facing a declining market. http://stakeholders.ofcom.org.uk/binaries/consultations/isdn30/responses/Openreach_DotEcon_Ltd.pdf

bandwidth TI services available to business users. The fact that circuit volumes are falling by 20% per year is clear evidence that TI services are being substituted by other technologies.

Table 7.1: Comparison of characteristics and prices for alternatives to low bandwidth PPCs

	PPC	Point- to Point Ethernet (carrier class)	National Ethernet Fibre	National Ethernet EFM/ GEA	Broadband Access (FTTC)
Contention	Dedicated	Dedicated	Dedicated	Dedicated	Shared
Distance Limitations	Not Limited	Not Limited	Not Limited	Not Limited	Not Limited
Service Availability	99.85%	99.93%	99.93%	99.93%	N/A
Coverage	99%	99%	99%	EFM 90% GEA 73%	73%
Symmetry	Symmetric	Symmetric	Symmetric	Symmetric	At least 2M each way
Price*	£3,490	£6,770	£3,711	£1,875/£2045	£574

*Pricing based on 3 year contract for 2M for 10km circuit

- 7.5 Having decided that EFM and broadband should not be included in the low bandwidth TI market, Ofcom's analysis appears to discount their effect as a constraint on the TI market entirely.²⁰ This appears to be because Ofcom considers that the features of TI services are such that some users, such as Critical National Infrastructure (CNI) operators and those that use TI services for telemetry, will be unable to switch to new technologies.
- 7.6 Ofcom provides no evidence to support this view, merely speculating that CNI operators who do not move must by definition have a problem. This is the case even though in the consultation on very low bandwidth services Ofcom does not identify any CNI operator that had specific issues preventing them from using other technologies in place of TI services.
- 7.7 Separately, a number of CPs already run telemetry networks using broadband services and telemetry users can readily purchase telemetry converters relatively cheaply to convert traffic into IP over Ethernet.
- 7.8 The fact is there is abundant evidence that end-users and CPs are substituting TI services for a range of solutions of broadband, EFM and Ethernet. In our view, the only sensible way to think of TI services is that they are 'contained' in a broader market of one-way substitution even if that broader market might be regarded as a distinct economic market in its own right.
- 7.9 Furthermore, Ofcom has failed to identify end-users of low bandwidth services which are unable to substitute to an alternative network. Ultimately Ofcom's market boundary

²⁰ Ofcom has mistakenly identified the cost of an EFM circuit as £614 which has led Ofcom to conclude that the price differential between a PPC and an EFM circuit precludes them being substitutes. The correct EFM circuit price is £1,875 which negates this reasoning.

assessment is not yielding helpful policy conclusions by assertion of a need for customer protection in the face of evidence of substitution and that this protection actually has to grow over time for the remaining customers. BT's detailed comments on Ofcom's market analysis are provided in section 15 of this response.

- 7.10 The consequence is that Ofcom eventually arrives at a set of proposed remedies, particularly in the LLCC Consultation, which is entirely disproportionate for this market.
- 7.11 In proposing a PPC charge control which is substantially greater than any since the introduction of PPCs in 2002, Ofcom appears to give no consideration to the impact this has on incentives for end users to migrate to new technologies. Ofcom's proposal of tighter price regulation on PPC services is counter to its anchor pricing approaches adopted elsewhere, where it had stated a number of benefits such as allowing efficient technology choice by suppliers and downstream users, encourages innovation in alternative solutions, and minimises the informational burden.²¹
- 7.12 We also note that Ofcom's proposed price regulation in the LLCC would leave users facing a major discontinuity in prices after 2019 because an increasing proportion of the SDH network, currently shared with voice and broadband services, would fall almost entirely on the remaining TI services. This would result in perpetuating the use of TI services, leading to increased migration cost for those users, and additional costs to the industry from an inefficient technology choice. In putting forward these proposals Ofcom has not considered the wider implications of enabling a higher quality of services to meet the demands of TI users in the long term. These issues are covered in detail in a report prepared by Plum which will be provided to Ofcom shortly.
- 7.13 As a way forward, Ofcom should adopt an approach consistent with its previous decisions on managing transitions from legacy technologies by applying the anchor product principle, thereby giving BT the flexibility to manage the migration efficiently. The appropriate anchor here would be the services that Ofcom identified as falling within AISBO in the last BCMR.

Analogue services

- 7.14 Ofcom states [A10.6] that analogue leased lines are included in the wholesale low bandwidth TISBO market. We therefore seek clarification that it is not Ofcom's intention that analogue leased lines are subject to SMP obligations.
- 7.15 In our view an SMP remedy would be disproportionate for a number of reasons:
- There is currently no wholesale analogue leased line product, so any obligation to supply would require product development. In the light of analogue leased lines approaching end of life such product development would be a waste of resource.
 - Analogue leased lines are a legacy product in decline, and Ofcom is currently consulting on removing all regulation at the retail level.

EFM

- 7.16 We welcome Ofcom's "Clarifications and corrections to the Business Connectivity Market Review" Consultation of 15 May 2015 which clarifies that EFM-based CISBO services are not subject to SMP regulation.
- 7.17 EFM uses Openreach copper loops (MPF) with the addition of electronics in the exchange and customer premises to provide Ethernet connectivity. The service is not unlike broadband which similarly consumes Openreach copper loops and so could easily be implemented by any

²¹ For example, on the copper-fibre transition, on the WBA market where IPStream is regulated and not WBC. Plum, February 2015, op. cit.

CP and in particular by CPs who use LLU at BT's exchanges. The availability of LLU is an appropriate remedy.

SDSL

- 7.18 Ofcom [A10.3] includes SDSL in the wholesale TI market yet as Ofcom notes in A9 this product has been withdrawn from new supply and volumes are falling rapidly. We would welcome clarification from Ofcom that the SMP obligations do not apply to SDSL.

Question 5.2: Do you agree with our proposal not to identify any other Traditional Interface Symmetric Broadband Origination (TISBO) services above 2Mbit/s? If not, what alternative would you propose and why?

- 7.19 BT supports Ofcom's proposals not to identify any TISBO services above 2Mbit/s. We agree with Ofcom's conclusion that these services do not pass the three criteria test for a market susceptible to *ex ante* regulation. Other services such as Ethernet are one way substitutes for these services. As a result volumes have fallen rapidly and are expected to continue to fall over the period of the review. By the end of the market review we expect volumes to be negligible.

Question 5.3: Do you agree with our SMP assessment with respect to low bandwidth TISBO services? If not, what alternative would you propose and why?

- 7.20 As outlined in the response to question 5.1 above, it is reasonable to expect high market shares and for those to remain unchanged or even increase over time in legacy markets such as TI. We disagree with Ofcom's assessment that high market shares indicate there is a regulatory issue that requires a remedy.
- 7.21 Any assessment of SMP should consider the extent to which there are barriers to users switching to other technologies. The very fact that volumes are falling rapidly is clear evidence that users are able to switch and are doing so in large numbers.
- 7.22 BT believes Ofcom's SMP assessment has failed to take suitable account of the constraints from alternative services such as broadband and EFM based services.

Question 5.4: Do you agree with our approach to, and proposed product and geographic market definition for, wholesale TI trunk, including our proposal to treat 'regional trunk' segments as part of the TISBO market? If not, what alternative would you propose and why?

- 7.23 BT disagrees with Ofcom's proposals to treat segments that are currently 'regional trunk' as terminating segments. Further, Ofcom has presented no evidence of a finding of SMP in the regional trunk market. Ofcom should treat the regional trunk as a trunk segment and in line with the EU markets recommendation it should be deregulated. Several CPs have a presence at BT nodes and are able to supply their own 'regional trunk' segments.
- 7.24 Ofcom has not actually reassessed the TI trunk market and has instead rolled over its previous analysis. As part of the last BCMR response and the CFI BT suggested that it would be more appropriate to use the presence of other CPs at a BT node to define the boundary between trunk and terminating. Ofcom appears to have adopted this approach in its proposals for the CISBO market and it has chosen not to do so for the TI market assessment without justification. BT believes that Ofcom should adopt the similar approach to that proposed for the CISBO market and use competitor presence to define the boundary between terminating and trunk.
- 7.25 In section 15 we describe in detail our concerns with the method of analysis that Ofcom has used to define the market and the conclusions it has reached.

Question 7.1: Do you agree with our approach to assessing what remedies are appropriate to address the competition problems we have identified in the markets in which we propose to find that

BT and KCOM have SMP? If not, please explain why, and what alternative approach you consider we should take.

- 7.26 We consider that the remedies proposed in relation to legacy TI services are disproportionate and not justified in the context of these declining markets (and hence provide inappropriate and inefficient incentives). Ofcom does not indicate how it proposes to assess the effects of regulating a legacy market in rapid decline. Ofcom fails to present any evidence of how the legacy TI market may be affected by the imposition of regulation. In particular, the extent to which Ofcom is driving TI prices down may artificially extend the life of the TI services, and this is a serious concern to BT.

Question 8.1: Do you agree with the general remedies that we propose for BT in the wholesale TISBO and CISBO markets? If not, what alternative remedies would you propose and why?

TI Remedies: Charge Control

- 7.27 BT has significant concerns over the imposition of a charge control, and in particular a control that will see prices fall by around 40% in real terms over the 3 years. Given the expected migration away from TI services, and the range and availability of potential substitutes for them, we do not believe there is a need to price regulate. Ofcom's anchor pricing approach adopted in other markets would be more appropriate.
- 7.28 As set out in Plum's report on regulation of legacy services²², in addition to regulated Ethernet services there is a growing range of innovation and alternative sources of supply which may meet the needs of different customers in the business market. Evidence from transitions in other markets suggests that the status quo of price controls on both old and new services is unlikely to be consistent with efficient transition, and that Ofcom's previous anchor pricing approach acknowledges this.
- 7.29 The impact of imposing a charge control on legacy services will be to reduce the rate at which end users migrate to new technologies and thus artificially extend the life of the TI network. Ofcom has failed to consider the impact on the network lifetime and migration rates when imposing a charge control. Ofcom's proposals reduce the prices for the declining number of TI users at the expense of increasing the costs to all users in the long run due to an inefficient running of multiple networks to support legacy and new services.
- 7.30 Ofcom's proposal is also in stark contrast to the proposal in its Call for Inputs in which it sought views on a safeguard cap anchored to current prices. This would send a more appropriate pricing signal to users. This is discussed in more detail in section 15.
- 7.31 The proposed TI charge control, with of a start price reduction of 7.75% followed by CPI – 12.25% for three years, is in stark contrast to the current charge control of RPI + 2.25%. Ofcom itself says that if BT's ROCE was at its WACC of around 10% and there were no efficiency improvements, a charge control of CPI + 4.5% would have resulted. BT finds it hard to believe how such a dramatic change in the price control can be explained by the ROCE in the base year and the efficiency factor. This is because the rapid reduction in volumes would be expected to cause an increase in unit costs as fixed and common costs are spread over a diminishing volume base. The ROCE in the 2011/12 base year (used in the current charge control) was 24%, which contrasts to a figure of 28% now (using 2013/14 figures after applying the 7.75% starting price adjustment), whilst the inflation factor has increased from 1.5% to 5%. It is hard to understand how these factors could cause such a large swing in the value of X (from + 4.5% to -12.25%). This suggests that there are other factors in the modelling which might be responsible for causing this unusual result.

²² Plum Consulting, February 2015. Op cit.

- 7.32 Ofcom's focus on TI service returns as reported in the RFS ignores the fact that the ROCE calculated is based on accounting returns, which are sensitive to the accounting depreciation applied to assets used to provide the services in question. For the legacy TI services, some assets (for example transmission) are nearly fully depreciated. Any returns calculated as a ratio to a low capital employed figure will look inflated when compared against a WACC assumption. In other markets where this has been the case, Ofcom has made adjustments to take this into account, but has not done so in this market review.
- 7.33 We will respond in more detail to Ofcom's TI charge control proposals in our response to the LLCC.

TI Remedies: TI TANS

- 7.34 The definitions of TANS in the Legal Instruments A6 schedule 5 as currently drafted relate only to the CI TANS. In Annex 19 Ofcom indicates that it is rolling over the TI TANS from 2008 and 2013. However the legal instruments of those reviews also did not include a list of TI TANS and also missing were definitions of TI Trunk and Regional Trunk. For clarity we ask Ofcom to include them in the legal instrument.

Question 11.1: Do you agree with the PPC Direction that we propose for BT in the wholesale TISBO market? If not, what alternative would you propose and why?

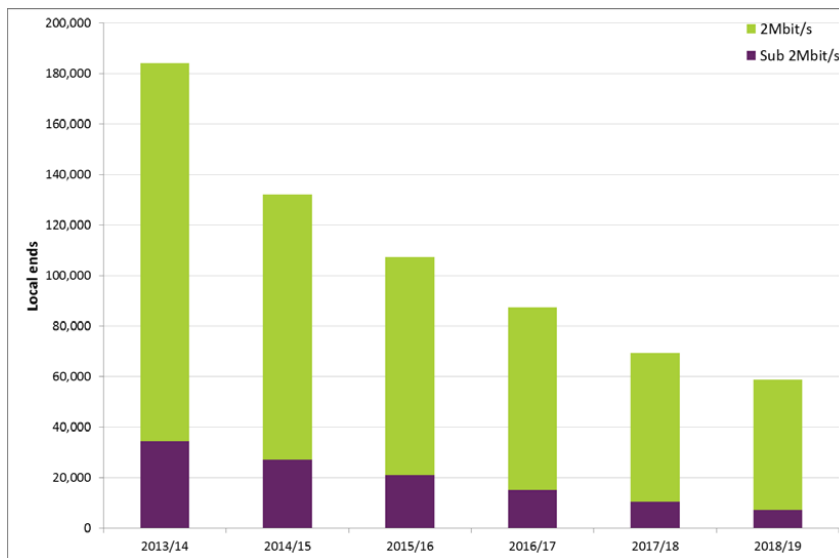
- 7.35 As highlighted in our response to the Call for Inputs, the PPC Directions are now redundant and unnecessary. Our Call for Inputs response provided a detailed analysis of the Directions demonstrating where each was provided for in BT's PPC contracts. BT is only able to change the terms of the contract with the agreement of industry. If we cannot come to an agreement about any proposed change, then BT or CPs have the ability to ask Ofcom to consider the proposal under a dispute under Section 185 of the Communications Act.
- 7.36 Re-imposing the Directions as they stand has the effect of delaying or preventing alternative arrangements being put in place where commercially beneficial to CPs and agreed with industry. One such example relates to the provision of demand forecasts; given TI services are now in decline, BT no longer needs demand forecast information from CPs for the purposes of network planning.
- 7.37 Both BT and those involved in the contract negotiations are agreeable to this. However, the PPC Direction requires BT to include them in the reference offer. These terms will remain in the contract and a side letter will be agreed with CPs to confirm that BT no longer requires forecast information. Side letters of this kind are less than satisfactory as we would rather have the correct reference offer in the first place. At a minimum, we request that the section of the PPC Direction (paragraphs 11 to 20 inclusive) relating to forecasting should be removed.

Question 12.1: Do you agree with the interconnection and accommodation remedies that we propose for BT in the wholesale TISBO and CISBO markets? If not, what alternative remedies would you propose and why?

- 7.38 BT does not offer IBH for PPCs and we have not received an SoR for such a product. Given the rapid decline in volumes of the PPC product it would be unreasonable to require BT to develop such a product.

Overview of Ofcom's approach to Traditional Interface Services

- 7.39 TI is a legacy technology which as Ofcom's own data shows in Figure [7.1] is in rapid decline. TI technology at all bandwidths is rapidly being substituted by new technologies such as Ethernet, EFM and Broadband.

Figure 7.1 Ofcom's forecast of volumes taken from the BCMR consultation

- 7.40 In medium and high bandwidth services Ofcom has recognised the rapid decrease in volumes as these services are substituted by new technologies and has concluded that these services do not pass the three criteria test for *ex ante* regulation. BT agrees with this conclusion.
- 7.41 However we have material concerns with Ofcom's treatment of low bandwidth TI services, which are in sharp decline. The trends seen in the medium and high bandwidth services are equally observable in the low bandwidth services and yet Ofcom has concluded that not only should this market continue to be regulated it has proposed a harsher and disproportionate set of remedies since the introduction of PPCs. We are disappointed that Ofcom did not take a similar approach to the high bandwidth market.
- 7.42 We disagree with aspects of Ofcom's analysis on the substitutability between TI and Ethernet, EFM and broadband. As the volumes of TI are falling rapidly there is clear one way substitution to alternative products and services. Yet Ofcom's analysis approaches the TI services in isolation from these alternatives and therefore concludes that continued regulation is needed, including a disproportionately harsh charge control. In particular Ofcom has failed to consider how the imposition of a harsher charge control will influence the incentives for migration of TI users to substitute technologies and therefore to what extent this may artificially extend the life of the TI network.
- 7.43 In legacy markets, with products approaching the end of a product life cycle, it is reasonable to expect high market shares and for those to remain unchanged or even increase over time. We disagree with Ofcom's assessment that these characteristics indicate there is a regulatory issue that requires a remedy.
- 7.44 BT also disagrees with Ofcom's proposals to treat segments that are currently 'regional trunk' as terminating segments. Ofcom has not analysed the regional trunk market and not presented any evidence of a finding of SMP. Ofcom should take a consistent approach to the CISBO market where it assesses the presence of other CPs at BT nodes to determine the boundary between terminating and trunk.

8. Active remedies

Response to relevant consultation questions

Question 7.1: Do you agree with our approach to assessing what remedies are appropriate to address the competition problems we have identified in the markets in which we propose to find that BT and KCOM have SMP? If not, please explain why, and what alternative approach you consider we should take.

- 8.1 Our response to this question is set out in the early paragraphs of section 3 above, including the elements relevant to the CI products.

“General” remedies

Question 8.1: Do you agree with the general remedies that we propose for BT in the wholesale TISBO and CISBO markets? If not, what alternative remedies would you propose and why?

- 8.2 There are a number of aspects with the proposed general and specific remedies that need to be changed, and we set out our specific comments below for each of the relevant areas.

Requests for New Forms of Network Access

- 8.3 Ofcom proposes to retain the current requirements on requests for new network access, requiring BT to publish SOR guidelines and to provide CPs with information to help them raise an SOR as well as setting out timescales for acknowledging and processing SOR requests (requests for new types of network access) .
- 8.4 BT does not object to Ofcom maintaining obligations requiring BT to publish SOR guidelines and to help CPs, however we do not agree that the obligations still need to specify the timescales for acknowledging and processing such requests. The specifying of the timescales was removed from the FAMR markets from October 2010 and has since been embedded in the SOR processes and associated guidelines in operation in Openreach.
- 8.5 BT does not agree that the concerns raised by CPs in their response to the CFI are founded. As for Ofcom’s assessment of the situation, it relates to comments made by CPs in 2014 in the context of the FAMR which Ofcom has not updated in light of its 12-month monitoring programme of the Openreach SOR process which is ongoing.
- 8.6 Openreach developed a collaborative approach to managing SORs with industry which has now been in operation since 2010. Under this approach, CPs draft, share and collaborate openly on all SORs, including BT lines of business, via the industry forums where SORs are presented and agreed by industry before being submitted into Openreach where they follow an industry agreed process. In addition, the Openreach SOR management tool tracks progress against all SORs and ensures visibility of progress for all CPs as well as provide opportunities for individual CPs to support specific SORs.
- 8.7 To date, the Openreach collaborative approach has:
- Removed the ability of individual CPs to make changes to SORs resulting in a solution or development not suitable for the wider range of CPs;
 - Resulted in better engagement from industry and stronger solutions being developed.
- 8.8 BT produces monthly SOR KPIs that are shared with the OTA2, the EAO and Ofcom (as part of its monitoring programme of Openreach SORs). These KPIs show fair treatment of all CP SORs and have been used by the EAB in its assessment of BT’s SOR processes as evidence that in 2014/15:
- BT received more SORs from non-BT CPs than from BT CPs (just under twice as many);
 - BT delivered more SORs from non-BT CPs than from BT CPs (just over twice as many)

- BT rejected a higher percentage of SORs submitted by BT CPs (71%) than by non-BT CPs (50%). Openreach rejected the same number of SORs from non-BT CPs and from BT CPs;
 - In addition, Openreach delivered non-BT CP SORs more quickly than BT CP SORs.
- 8.9 Based on the above data, the EAB concluded in its Annual Report 2015 that Openreach had improved the transparency of its SOR process and accelerated its decision making process with regard to rejecting or progressing SORs. The EAB also concluded that it was satisfied that BT is committed to running an equivalent SoR process and that BT Wholesale's SOR process is operating equivalently and without issues.
- 8.10 The EAO also confirmed in its 'Overview of BT's Behavioural Dashboard H2 2014/2015' that the SOR process was 'green' (i.e. there are no concerns) and noted that there was improved delivery of Ethernet SoRs.
- 8.11 Based on the above analysis, Ofcom should therefore align the proposed SMP condition for dealing with new forms of network access in the BCMR with the condition imposed in the FAMR, whereby the key requirement is limited to the publication of industry agreed guidelines which must meet an agreed set of principles including setting reasonable timescales for each stage of the process.
- 8.12 To the extent that the current SOR process operated by Openreach uses the same timescales as that mandated by Ofcom in the proposed SMP condition, Ofcom would still meet its policy objectives of ensuring that requests for new forms of network access are dealt with within reasonable timescales. In addition, a limited SMP condition would provide flexibility for BT and CPs to agree future changes to the process (including timescales) without the need for regulatory intervention.
- 8.13 **Discounts – Volume/Geographic/Term.** BT believes that discounts should be included in the basket. We respond in detail on this point in our basket design section of the LLCC response.
- 8.14 **Requirement to notify changes to charges, terms and conditions.** BT welcomes Ofcom's proposal to remove the need to send a copy of the ACCN to Ofcom and the need for including the amount applied to network component / usage factor.
- 8.15 **Price Control Remedies.** Please see BT's detailed response to the LLCC, specifically in the 'basket design section'
- 8.16 **Requirements for Cost Accounting.** Please see BT's detailed response to the LLCC on Cost Accounting

Specific remedies for the CISBO Markets

- 8.17 **Project Services.** BT welcomes Ofcom's views that a prescriptive approach to regulating Project Services is unnecessary and that a charge control for the service is not required.
- 8.18 We believe that Ofcom should also acknowledge the fact (as it did in the 2013 review) that some project services offerings could be fully replicable by CPs and that in such cases, regulation should not apply.²³
- 8.19 **Requirement to provide specific types of network access.** BT's comments on this point are laid out in detail in Section 4 of this response.
- 8.20 **Transitional Measures.** We expect Ofcom to include a clear policy statement in the BCMR 2016 Final Statement providing grandfathering provisions for circuits which Openreach has provided or has agreed to provide under a particular agreement on an unregulated basis (i.e. MISBO services in WECLA) but which will be in regulated areas (i.e. MISBO services in the

²³ BCMR 2013 paragraph 12.97 and 12.264 at <http://stakeholders.ofcom.org.uk/consultations/business-connectivity-mr/final-statement/>

London Periphery) from April 2016. Given that these deals were negotiated with customers in good faith in an unregulated environment, Ofcom should allow these circuits to run out on their existing terms without the commercially confidential details of these terms (which only vary from Openreach's published Connectivity Services contract in terms of the prices offered) being published.

8.21 **Excess Construction Charges (ECCs).** BT's views on the ECC regime are covered in detail in our response to the LLCC, however our key points on Ofcom's proposals for ECCs can be summarised as follows.

- BT agrees with retaining the flexibility to withdraw the £2,800 exemption at any time (and correspondingly lower the connection price).
- BT agrees with retaining flexibility to change the balancing charge of £548.
- BT disagrees with fixing the exemption level at £2,800. We feel it would be more appropriate to have the flexibility to change the exemption value as ECC costs or circuit demand change over time. Also if there was to be a material shift in ECC costs and or circuit demand patterns, then Openreach would like the flexibility to set a revised exemption value and balancing charge to meet Industry's preferred level of ECC cost confidence.
- BT disagrees with the sub cap of GCBI – 0% since third party contractors costs have increased beyond GCBI as the contract term expired.
- BT agrees that ECCs should be treated as a separate component of the connection charge (so that any increase in ECCs charged as a proportion of the fixed connection cost is not offset by an equal reduction in the overall connection cost, since this does not permit recovery of higher costs as above).

Ethernet pricing differentials (STD vs LA)

8.22 In paragraph 10.18 of the BCMR consultation, Ofcom considers the pricing differentials between EAD LA and EAD STD variants, and proposes to impose of a basis of charges control. We believe Ofcom's proposed remedy consisting of a basis of charges to be ill- justified, disproportionate, and inappropriate.

8.23 We believe Ofcom's fundamental justification for introducing this remedy to be flawed for a number of reasons:

- There are very limited risks of discrimination towards internal CPs.
- The propensity for both external and internal CPs to use LA circuits as opposed to STD is converging, with all CPs increasingly taking LA circuits.
- [§<]
- Where geographic coverage is concerned, the CP that has the most exchanges using LA circuits is an external CP and because it has built more PoPs, they are now better equipped to benefit from LA circuits in the future than downstream CPs.
- Standard circuits are significantly more complex than LA circuits, and Ofcom should allow BT to recover more costs from these circuits
- Contrary to Ofcom's beliefs, LA circuits can be available from any type of exchanges not just Access Service Nodes (ASNs), hence any concerns of geographic risks are not founded.

8.24 Ofcom's analysis has been conducted on historic data, and pricing data used for the analysis is not factually correct.

8.25 Ofcom has discarded wider information available on cost, e.g. FAC and DSAC which show that the cost structure for Standard is fundamentally different to that of LA.

8.26 Ofcom's proposed remedy is disproportionate. It requires adjustments of [X] on EAD 1Gbit/s rental, and [X] on EAD10/100Mbit/s rental by April 17/18 resulting in [X] revenue reductions, which is [X] of the required revenue reduction for the first two years of the control and [X] of the total revenue reduction required for the three years of the control.

8.27 We believe Ofcom's remedy to be inappropriate:

- It undermines Ofcom's CPI-X charge control approach, and creates complexities of implementation.
- It prevents BT from responding to market demand or competitive pressures on prices.
- It creates a linkage between prices and incremental cost on an absolute basis, rather than on a relative basis.

8.28 We set out our position to the Ethernet Pricing Differentials in detail in the BT's response to the LLCC consultation.

Regulatory reporting remedies

8.29 The proposed SMP Condition 11 sets out revised regulatory reporting requirements for BCMR markets, which follows on from previous processes and Ofcom's review of regulatory reporting arrangements. BT notes that the proposed wording of this condition mirrors that which has been imposed through the Wholesale Broadband Access and Fixed Access market reviews. BT has some concerns about how these arrangements are working in practice and believes that some wording changes of the relevant SMP conditions are appropriate. There are interactions with the CAR and the LLCC, and BT's principal concerns are about the detailed implementation of the proposed reporting requirements (covered in the LLCC Consultation) rather than the appropriateness of their being imposed as an SMP remedy (raised in this Consultation). Therefore, BT will be responding in detail on the updated regulatory reporting requirements (including any comments on SMP Condition 11 in the Consultation) in its response to the LLCC Consultation.

9. Legal analysis

9.1 This section provides additional comments on the applicable legal framework, and Ofcom's application of this framework, especially as relevant to the DFA remedy proposals and market definition approach which Ofcom has taken. This section also provides specific comments on the draft legal instruments set out in the Consultation.

Comments on the regulatory framework applying to the imposition of a dark fibre remedy

Legal basis for imposing a dark fibre access remedy

9.2 The legal basis for imposing new network access conditions in relation to passive infrastructure is section 87(3) of the Communications Act 2003 ("CA03"). As per section 87(4)(d) CA03, one relevant factor in determining the most appropriate network access condition is "the need to secure effective competition in the long term". This is therefore a relevant factor at the time of determining the nature of the condition, but not the sole criterion for deciding that a new network access condition is in and of itself appropriate.

9.3 SMP conditions are derogations from the general position laid down by Article 3(2) of the Authorisation Directive that only general conditions are to be imposed.

9.4 Article 8(4) of the Access Directive ("AD") states that conditions imposed must be "based on the nature of the problem identified, proportionate and justified", and Article 8(5)(f) of the Framework Directive ("FD") provides that ex ante regulatory obligations should only be

imposed “where there is no effective and sustainable competition” and that such obligations must be relaxed or lifted “as that condition [i.e. effective and sustainable competition] is fulfilled”.

- 9.5 Of further relevance are Ofcom’s duties, as set out in sections 3 and 4 CA03. The principal duty is “(a) to further the interests of citizens in relation to communications matters and (b) to further the interests of consumers in relevant markets, where appropriate by promoting competition”. In addition, Ofcom must have regard in all cases to “(a) the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed; and (b) any other principles appearing to Ofcom to represent the best regulatory practice”.
- 9.6 The imposition of new specific network access conditions is therefore only appropriate in response to specific identified competition problems and only where that action would be, amongst other things, justifiable and proportionate. Prior to deciding that passive remedies are necessary, Ofcom must identify what additional risks are now present that could negatively impact competition in the business connectivity markets. It is not sufficient to rely upon a general need to secure effective competition.
- 9.7 Given the objective of deregulating where possible, regulatory remedies are not to be seen as the first step. This is recognised in Ofcom’s own regulatory principles and policy statements, namely:
- i) Regulatory Principle 3: “Ofcom will operate with a bias against intervention, but with a willingness to intervene firmly, promptly and effectively where required”; and
 - ii) the first paragraph of its guidance on how it will conduct impact assessments: “The decisions which Ofcom makes can impose significant costs on our stakeholders and it is important for us to think very carefully before adding to the burden of regulation. One of our key regulatory principles is that we have a bias against intervention. This means that a high hurdle must be overcome before we regulate. If intervention is justified, we aim to choose the least intrusive means of achieving our objectives, recognising the potential for regulation to reduce competition.”
- 9.8 This therefore sets out the legal background against which Ofcom needs to identify its regulatory objectives regarding any dark fibre access remedy.

Principle of proportionality

- 9.9 Even if the jurisdictional threshold for imposing a dark fibre access remedy were to be passed, Ofcom still has to satisfy the principle of proportionality before it can impose such a remedy, both as a matter of general law under the European Common Regulatory Framework and in light of the following specific provisions:
- i) Article 8(4) AD and Article 8(1) FD and sections 3 and 4 CA03 all require that regulatory action by Ofcom should respect the principle of proportionality;
 - ii) Section 87(4)(b) CA03 provides that Ofcom must consider “the feasibility of the provision of the proposed network access” when determining the conditions to impose; and
 - iii) Section 87(4)(c) CA03 further imposes a positive requirement on Ofcom to take into account “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”.
- 9.10 In order to perform a proper analysis of whether a dark fibre access remedy is required or whether the current status quo is sufficient to address competition problems in the business

connectivity markets, Ofcom must place due weight upon the proportionality of remedies imposed in relation to any competition problems identified.

The need for a sufficient impact assessment

- 9.11 A detailed, rigorous and careful impact assessment will need to form a vital part of Ofcom's analysis of whether a dark fibre access remedy is appropriate. Ofcom has failed to carry out a separate impact analysis in this Consultation, merely referring to its analysis throughout the document (paragraph 2.49). This appears inadequate.
- 9.12 In its impact assessment, Ofcom must show that the regulatory status quo in terms of i) active remedies, ii) BT's Equivalence of Inputs (EOI) obligations under its Undertakings accepted by Ofcom in 2005 and iii) and competition law are insufficient to address specific competition problems in the business connectivity markets and that, therefore, additional regulatory obligations are required. Even if, contrary to BT's view as set out in section 3 above, those protections are inadequate to address Ofcom's concerns, then a sufficient impact assessment would require Ofcom to consider a range of options that could meet those concerns, prior to concluding that passive remedies would be the only (or preferred) solution. Ofcom has not done this.

Legal comments on market definition

- 9.13 Ofcom's conclusions on market definition in relation to the CISBO market are wrong as set out in sections 5, 10 and 12 of this response. In particular, these conclusions:
- i) rest on unsustainable assumptions about price and cost;
 - ii) fail to provide clear, robust and quantifiable evidence for its proposed market definition and incorrectly dismiss available evidence on very high bandwidth CISBO market shares as unreliable;
 - iii) fail to take "utmost account" of relevant Commission guidelines and fail to provide any explanation as to why Ofcom has done this;
 - iv) depart from Ofcom's previous conclusions (i.e. in the 2013 BCMR and in the Colt appeal following the last BCMR) without adequate explanation; and
 - v) depart from Ofcom's own approach (for example in relation to carrying out SSNIP tests) in this market review in relation to TI services.
- 9.14 As a result, Ofcom's proposal to define a single CISBO product market would not meet the standard of "profound and rigorous" scrutiny required by the Competition Appeal Tribunal. The Annex to this response sets out BT's legal analysis of these points in more detail.

Comments on the draft Legal Instruments

General Comments on the draft Legal Instruments

- 9.15 Other than in relation to the introduction of the dark fibre remedy and the minimum service levels, Ofcom's draft legal instrument broadly carries over the existing legal framework with a number of practical and sensible updates. In particular, in relation to price regulation, BT welcomes Ofcom's alignment of the BCMR with the 2014 FAMR statement in Condition 1 to clarify that the fair and reasonable charges obligation does not apply to products which are subject to a more specific form of cost regulation (basis of charges or a charge control).
- 9.16 As explained in sections 5 and 12, BT disagrees with Ofcom's CISBO market definition and we consider that Ofcom should revert to AISBO and MISBO product markets. Our detailed comments on geographic market definition are provided in sections 5 and 11, and the schedules 1 and 2 to the draft direction need to be updated accordingly. Schedules 3 and 5 of

the draft Legal Instrument also need to be amended to address the duplication that BT has identified in paragraph 6.4 above.

- 9.17 In relation to dark fibre, as set out in section 3, BT does not agree with Ofcom's proposals to mandate the introduction of a dark fibre product via SMP regulation. Therefore all relevant text in the draft Legal Instrument intended to facilitate dark fibre is redundant and should be removed. If, contrary to BT's views, Ofcom continues to impose a DFA remedy then the Legal Instrument should be updated in line with the comments in section 4.
- 9.18 In relation to Ofcom's minimum service level proposals, BT has a number of concerns and points of clarification as set out in the separate Openreach service response.
- 9.19 In relation to requests for new network access, this condition should be amended to be in line with the corresponding condition in the FAMR, as set out in paragraph 8.11 above.

Omissions from the current draft Legal Instrument

- 9.20 If Ofcom does not accept BT's views around the correct product and market definition and the lack of a proper justification for a dark fibre remedy, and nevertheless proceeds with the current proposals, there are a number of missing elements from Ofcom's draft Legal Instrument. BT sets out its comments here on a without prejudice basis:

- Ofcom should clarify in the Legal Instrument that where downstream BT consumes a dark fibre input and uses this to provide a product or service to a customer (whether a CP or an end user), this product is not caught by any SMP regulation, including the LLCC.
- BT understands that Ofcom's intention is that dark fibre should not be used for CPs to build their core networks. This should be reflected in the Legal Instrument, as the current proposal limiting the use of a dark fibre access product up to a maximum straight-line distance of 50 km in Condition 2.1(c) does not address the ability of CPs to daisy-chain several dark fibre circuits together.
- Ofcom should confirm in the Legal Instrument that circuits which Openreach has provided or has agreed to provide under a particular agreement on an unregulated basis (i.e. MISBO services in WECLA) but which will be in regulated areas (i.e. MISBO services in the London Periphery) from April 2016 can run out on their existing terms without the commercially confidential details of these terms being published (as explained in paragraph 8.20 above).
- Ofcom should include in the Legal Instrument a list of TI TANs and definitions of TI Trunk and Regional Trunk, as explained in paragraph 7.34 above.
- The section of the draft PPC Direction relating to forecasting should be removed, as explained in paragraph 7.37 above.
- Ofcom should include provision in schedule 4 of the draft direction in Annex 7 of the Consultation to allow Ofcom to disapply the SLG regime to legacy Ethernet products (i.e. WES/BES/WEES) once full support for these products is withdrawn by Openreach on 1 April 2018. This issue is covered in more detail in the separate Openreach response in relation to service.

The BT Undertakings

- 9.21 BT will approach Ofcom separately to seek an exemption from the BT Undertakings so that any products or services provided by Openreach in relevant product and geographic markets where Ofcom has found that BT does has SMP do not need to be provided on an EOI basis. This is consistent with Ofcom's current proposals in Condition 4 which would not apply to these markets.

Annex: BT's Legal Submission on Wholesale CISBO Product Market Definition

Summary

1. This annex sets out the relevant legal framework within which market definition should be assessed and the key areas of deficiency in Ofcom's analysis. It should be read in conjunction with the remainder of BT's response, including BT's economic analysis which sets out relevant omissions in Ofcom's treatment of the evidence required to support its proposed CISBO market definition.
2. Under the European Common Regulatory Framework (CRF), Ofcom is required to carry out a full market definition analysis in order to correctly define the relevant product and geographic markets, based on the principles established under competition law, which properly assesses the evidence available and competitive conditions. These principles are also set out in the Commission's SMP Guidelines²⁴. Ofcom is required to take the "utmost account" of these Guidelines, as well as the Commission's Markets Recommendation²⁵ and accompanying Markets Explanatory Memorandum²⁶.
3. In this context, in order to reach a single product market definition relying upon a chain of substitution across the AISBO and MISBO bandwidths, Ofcom is required to adduce strong, reliable and quantifiable evidence that such a chain of substitution exists. Ofcom has omitted to do this in the case of its CISBO market assessment: the failure to carry out sufficient demand and supply side analysis exposes the analytical errors Ofcom has made about the leased lines markets. It has also dismissed certain evidence available to it as unreliable, such as the market shares for very high bandwidth services.
4. This is inconsistent with the approach it has carried out in other markets it has reviewed in this market review, (for example, the TISBO market where it has carried out a SSNIP test) and the approach it has taken in previous Business Connectivity Market Reviews (BCMRs). Ofcom has not provided any explanation as to why it has not followed the same approach for the CISBO market and, more importantly, has not explained why it has changed its position on some key issues that are directly relevant to market definition, such as dismissing very high bandwidth market shares as unreliable and ignoring efficient bandwidth gradient pricing, instead focusing on incremental costs of services.
5. Ofcom has also made several errors in its assessment, which it relies on to support its CISBO market definition (as set out more fully in Section 5 above of BT's response).
6. Ofcom's errors and its failure to consider relevant evidence renders its proposed CISBO product market definition (which relies heavily upon a chain of substitution across the bandwidths) unsustainable and incompatible with EU law. Ofcom's proposed market definition therefore:
 - a. attracts the risk of an Article 7 Commission veto decision forcing it to revisit the evidence and revise its draft measures; and

²⁴ "Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services", OJ C 165, 11.7.2002.

²⁵ "Commission Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services Text with EEA relevance", OJ L 295, 11.10.2014.

²⁶ "Explanatory Note accompanying the Commission Recommendation", SWD(2014) 298, 09.10.2014.

- b. would, in its failure to reach the required legal and evidential standards, be wholly inadequate to meet “profound and rigorous”²⁷ scrutiny by the Competition Appeal Tribunal (CAT).

Introduction

7. In the Consultation, Ofcom defines one market for all Ethernet and Optical services (relying upon a chain of substitution across AISBO and MISBO bandwidths) which, on the basis of the available evidence and the price, intended use and characteristics of services within the wholesale leased lines markets, is not a sustainable position.
8. In particular, Ofcom has:
 - a. **failed to reach the correct conclusion on market definition** by reason of certain errors in relation to the evidence required for demand substitutability (including a chain of substitution) and by failing to consider relevant evidence to support its analysis; and
 - b. without cause **dismissed evidence on existing bandwidth breaks** and competitive conditions in order to bolster its single product market conclusion.
9. In this respect, there are **particular principles** in the Commission’s Market Definition Notice²⁸ and SMP Guidelines of which Ofcom ought to take the “**utmost account**” in its assessment of the appropriate market definition, particularly as regards demand substitutability and a chain of substitution analysis.
10. On the basis of the evidence available to BT and a proper understanding of the reality and features of the leased lines markets, a market definition which takes into account a bandwidth break at 1Gbit/s is a more reasonable (and likely correct) market definition.
11. Without providing robust analysis including, most importantly, sufficient evidence to support its position, Ofcom’s proposed market definition risks being overturned by an Article 7 Commission Decision with the result that it would have to reconsider its draft proposals and the proposed SMP remedies in the Consultation would also need to be fully reconsidered.

Purpose and role of market definition

12. Before Ofcom can reach any conclusion on significant market power (SMP), Ofcom is required under the CRF to identify and analyse the relevant markets. A robust analysis leading to an evidenced-based market definition is therefore the necessary pre-cursor to any decision about SMP, including SMP remedies. This is because, as the Framework Directive²⁹ (FD) makes clear, *ex ante* regulation should only be imposed where there is not effective competition, i.e. where one or more entity has SMP and existing remedies are not sufficient to address any competitive problems.
13. Ofcom cannot properly consider whether there is effective competition in a market without first correctly defining the scope of the relevant markets. This is an important step because market definition acts as a framework within which to assess the crucial question of whether a firm possesses SMP. Accordingly, although market definition is not an end in itself, it is a critical stage in Ofcom's analysis in any market review.

²⁷ *Hutchison 3G v Ofcom* [2008] CAT 11 [164].

²⁸ “*Commission Notice on the definition of relevant market for the purposes of Community competition law*”, OJ C 372, 09.12.1997.

²⁹ Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services.

14. Moreover, market definition is an essential first step³⁰, not only for the purposes of calculating market shares as part of an SMP assessment, but more importantly because it involves an analysis of substitutability. Substitution patterns are central to evaluating the competitive effects of a firm's behaviour. The relevant market should therefore be defined in such a way that competitive constraints (i.e., demand- and supply-side substitution) are captured as accurately as possible³¹. Substitution patterns are central to any link between potential anti-competitive behaviour (which requires the use of market power) and market effects.

Commission's Guidance on Market Definition

Commission's Market Definition Notice

15. As established by the jurisprudence of the European Court and as set out in the Commission's Market Definition Notice, the basic principles for market definition involve two key considerations: demand substitutability and supply substitutability.
16. Demand substitutability is the essence of market definition and involves determining the products that are viewed as substitutes by the customer³². Supply substitutability involves a consideration of whether suppliers are able to switch production to the relevant products³³. This is reiterated in the Commission's SMP Guidelines and its Explanatory Memorandum to its Markets Recommendation. Demand substitutability represents the most important constraint on a firm's behaviour and is therefore central to any assessment of market definition. This also emphasises that a chain of substitution analysis, which is a species of demand substitution, must be adequately substantiated as it has such a profound effect on market boundaries.

Commission's Markets Recommendation

17. The starting point for an NRA's assessment of the relevant wholesale market is an analysis of the corresponding retail market, considering demand-side substitutability (and also supply-side substitutability, where appropriate)³⁴. This is emphasised by the *Commission's Notice on the application of the competition rules...*³⁵ which specify that in the telecommunications sector, the two types of relevant market to consider are retail and wholesale markets. Ofcom

³⁰ See, for example, Case 6/72 Continental Can 1973] C.M.L.R. 199, where the European Court of Justice ("ECJ") referred to market definition as being "*of essential significance, for the possibilities of competition can only be judged in relation to those characteristics of the products in question*" (Paragraph 14). Here, the Commission unsuccessfully defended its market definition: it had failed to justify adequately its reasoning in defining the three relevant markets and had used inconsistent facts to support such a definition.

³¹ See further, Case 85/76 Hoffman La Roche [1979] ECR 461, the ECJ referred to the need to carefully evaluate competitive conditions and product characteristics, cautioning against the automatic assumption that potential substitutes fall into a single product market: "*...if a product could be used for different purposes and if these different uses are in accordance with economic needs, which are themselves also different, there are good grounds for accepting that this product may...belong to separate markets which may present specific features which differ from the standpoint both of the structure and of the conditions of competition...However this finding does not justify the conclusion that such a product together with all the other products which can replace it...forms one single market...The concept of the relevant market in fact implies that there can be effective competition between the products which form part of it and this presupposes that there is a sufficient degree of interchangeability between all the products forming part of the same market in so far as a specific use of such products is concerned..*". (Paragraph 28).

³² Markets Definition Notice, paragraph 14.

³³ Without incurring significant cost or risk in response to small and permanent changes in relative prices.

³⁴ Recital 7 to the Commission's Markets Recommendation.

³⁵ Markets Recommendation, Paragraph 45.

has not provided an adequate analysis of the corresponding retail market for CISBO services and the consequent impact on the relevant wholesale market analysis.

Commission's SMP Guidelines

18. The Guidelines provide that NRAs enjoy discretionary powers when identifying markets to "reflect the complexity of all the relevant factors that must be assessed (economic, factual and legal)"³⁶. That discretion therefore is predicated on a proper consideration of all of those factors.

Errors in Ofcom's analysis

19. Ofcom's analysis is vitiated by material errors in relation, in particular, to its failure to acknowledge the impact of bandwidth pricing on BT's pricing policy³⁷: it is not correct to assume that BT's prices are not set at competitive levels. Other errors relate to Ofcom's flawed understanding of the price, intended use and characteristics of services within the wholesale leased lines markets. These are explained in further detail in BT's analysis in sections 5 and 12.
20. Focusing in particular on the issue of pricing, as provided in the Commission's SMP Guidelines, where a product or service is offered at regulated prices, those prices should be "presumed, in the absence of indications to the contrary, to be set at what would otherwise be a competitive level"³⁸. Ofcom does not appear to have followed this guidance.
21. Ofcom has previously recognised the bandwidth gradient as being an efficient way to recover these costs (in both the last BCMR and the appeal by Colt that followed that market review³⁹) but it has not given any explanation as to why it has now implicitly changed its position on this⁴⁰. The bandwidth gradient of BT's pricing is permitted on the basis that BT can price within "baskets" of products and services in line with the overall framework for common cost recovery set by Ofcom. If a presumption of efficiency is made and that it is permitted as part of the regulatory regime, we consider these should be taken as a positive justification to take observed prices as a proxy for competitive prices.
22. Ofcom cannot ignore such factors and their impact on competition in the leased lines markets as they currently operate⁴¹. Further, as BT has already explained, the introduction of a dark fibre remedy would cause BT to move to a less efficient pricing structure (see further, Sections

³⁶ Markets Recommendation, Paragraph 22.

³⁷ Paragraph 4.36, BCMR Consultation 2015. Prices at higher bandwidth will necessarily reflect not merely cost but the economic value that customers place on those services.

³⁸ SMP Guidelines, paragraph 42.

³⁹ Case No. 1212/3/3/13 *Colt Technology Services (supported by others) v Ofcom (supported by BT)* [2013] CAT 29.

⁴⁰ See further, Case No. 1212/3/3/13 *Colt...* [2013] CAT 29, where Ofcom "did not regard reducing the bandwidth gradient as beneficial. Whilst there might be some products available to customers more cheaply, this could undermine the Openreach "settlement" (that is the arrangements put in place with BT to establish Openreach following the 2005 Strategic Review of Telecommunications) and not be efficient or in the interests of customers overall".

⁴¹ In this regard, it is important to emphasise Ofcom's duties in relation to telecommunications markets, specifically, that in carrying out its functions, Ofcom's principal duty is "(a) to further the interests of citizens in relation to communications matters and (b) to further the interests of consumers in relevant markets, where appropriate by promoting competition" (Section 3(1), Communications Act 2003). In addition, Ofcom must have regard in all cases to "(a) the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed; and (b) any other principles appearing to Ofcom to represent the best regulatory practice" (Section 3(4), Communications Act 2003).

4 and 17 above of BT's response). This is, however, a separate issue that is not dealt with in this annex.

Chain of Substitution: requirement for robust evidence

Approach to chains of substitution

23. Ofcom's analysis of a chain of substitution across all bandwidths does not, in light of the evidence it relies on in support and a correct assessment of competitive conditions in the current AISBO and MISBO markets, lead to a reliable single product market definition. As explained further below, a chain of substitution cannot be used to predetermine the market definition, it is merely one factor to consider in the analysis of demand-side substitution.
24. The concept of a chain of substitution is recognised in precedent and guidelines, including the Commission's Market Definition Notice⁴² and the Competition and Markets Authority's (CMA) Market Definition Guidelines⁴³. However, a chain of substitution between two or more products that do not fully constrain each other directly does not necessarily mean that those products should be part of the same relevant market. The key question is whether products at one end of the chain do in fact exercise a competitive pressure on products at the other end (through intermediate products), even if they are not directly substitutable. In the present case, Ofcom's chain of substitution analysis does not show that there is only one such market.
25. The Commission's Market Definition Notice refers directly to chains of substitution:

*"In certain cases, the existence of chains of substitution might lead to the definition of a relevant market where products or areas at the extreme of the market are not directly substitutable."*⁴⁴

However, an important caveat is as follows:

*"[T]he concept of chains of substitution has to be corroborated by actual evidence, for instance, related to price interdependence at the extremes of the chains of substitution, in order to lead to an extension of the relevant market in an individual case [emphasis added]."*⁴⁵

This therefore cautions against a simplistic use of a chain of substitution to include products into one relevant market and makes clear that some sort of indirect price constraint between the ends of the chain must exist. Ofcom has not provided any reliable evidence of a chain of substitution, as further explained in BT's response and its economic analysis. This is absolutely critical. As the Commission's SMP Guidelines provide:

*"Given the inherent risk of unduly widening the scope of the relevant market, findings of chain substitutability should be adequately substantiated."*⁴⁶

⁴² Market Definition Notice, paragraph 57.

⁴³ *OFT Market Definition Guidelines*, first published 1 December 2004 and adopted by the CMA, paragraph 3.11.

⁴⁴ Market Definition Notice, paragraph 57.

⁴⁵ Market Definition Notice, paragraph 58.

⁴⁶ SMP Guidelines, paragraph 62.

“Evidence should show clear price interdependence at the extremes of the chain and the degree of substitutability between the relevant products or geographical areas should be sufficiently strong [emphasis added].”⁴⁷

Ofcom has failed to reach this legal and evidential standard.

26. The OFT’s Market Definition Guidelines (as adopted by the CMA) provide that:

“Sometimes a focal product will be part of a long and unbroken chain of substitutes... Even though all products in the chain are substitutes, this does not mean that the whole chain is the relevant market. For example, it may be that a hypothetical monopolist of three products next to each other in the chain could profitably sustain prices 5 to 10 per cent above competitive levels. In short, the hypothetical monopolist test is a way of determining what range of products in the chain constitutes the relevant product market [emphasis added].”⁴⁸

This again cautions against the use of a chain of substitution to draw a conclusion of a wider relevant product market and makes it clear that there needs to be a strong evidence base on which to base any chain of substitution analysis.

27. It also highlights the importance of the SSNIP test to correctly defining the relevant product market. Although it is not obligatory to do a SSNIP test, the Commission’s SMP Guidelines⁴⁹ say that in order to complete market definition analysis, NRAs should examine “where necessary” conditions of demand and supply by doing a SSNIP test. Ofcom’s reliance primarily on its chain of substitution analysis suggests that it is absolutely necessary in this case to do such an assessment. However, Ofcom has failed to clearly present the conclusions of a hypothetical monopolist test undertaken using adequate empirical analysis in the Consultation, thereby making its conclusions unsound.

Ofcom’s failure to meet this legal and evidential standard

28. Ofcom’s analysis of chains of substitution does not meet the required evidential standard. Services up to and including 1Gbit/s are commodity services offered by several hundred CPs⁵⁰, whereas above 1Gbit/s services are used by far less customers with more niche requirements (Openreach only has around [X] CPs purchasing optical products from it). 1Gbit/s and 10Gbit/s services are not substitutes in terms of price or characteristics or in many cases intended use and so the fact that customers are migrating up the bandwidth chain does not point to a single market but separate markets which meet different customer needs. Over the period of review, 1Gbit/s services may start to become the main service to be used for access services (as customers move up from 100Mbit/s as the entry level Ethernet service). However, that does not mean that these customers will migrate up to 10Gbit/s services (in response to a hypothetical price increase) in sufficient numbers to support a single market.
29. Ofcom recognises that “if the evidence suggests clear breaks in the chain of substitution then this could justify the definition of separate relevant product markets”⁵¹. However, it goes on to say that the definition of a single market for differentiated products may be appropriate if “there are interactions between the various links of the chain, clear boundaries are difficult to determine, prices are conditioned by the choices of the firm that may have SMP, or if the

⁴⁷ SMP Guidelines, footnote 50 to paragraph 62.

⁴⁸ CMA’s Market Definition Guidelines, paragraph 3.11.

⁴⁹ SMP Guidelines, paragraph 48.

⁵⁰ Openreach has around [X] CPs purchasing EAD/WES/BES/WEES services from it.

⁵¹ Paragraph A8.17, Annex 8 to the BCMR Consultation 2015.

boundaries are otherwise unstable as demand patterns evolve over time”⁵². It is not clear where Ofcom derived this list of factors, as they are not mentioned in any of the relevant Commission or CMA guidance on chains of substitution, nor has Ofcom adequately explained how these factors are present in the separate AISBO and MISBO markets and what actual evidence supports the finding of chains of substitution necessitating a single market definition.

30. Taking each of these in turn:

Interactions between the various links of the chain

31. Ofcom has not shown there are interactions between different services in the current AISBO and MISBO markets, in particular, any interaction between 1Gbit/s and 10Gbit/s services. It is not clear precisely what Ofcom means by the term ‘interaction’ in this case but, assuming this means substitutability between the two products, in BT’s experience, there is very little interaction here.

Clear boundaries are difficult to define

32. We suggest the evidence is clear that there has been a break at the 1Gbit/s point since 2008 when Ofcom first reviewed the Ethernet market and it has not changed since that time. The definition of such a boundary has not created any material practical difficulties or ambiguities during the current market review period. Furthermore, Ofcom recognises that BT’s MISBO/very high CISBO market share is below the level required for dominance⁵³. However, it firstly dismisses these market shares as being unreliable for vague and unsubstantiated reasons (as explained in paragraphs 5.49 to 5.57 of the response) and, secondly, concludes without any evidence that this evidence does not point towards fundamental and sustainable differences in competitive conditions in relation to the rest of the proposed CISBO market. This is again a further example of Ofcom’s selective use of the evidence available to it.
33. Equally, the differences between market shares for AISBO and MISBO⁵⁴ demonstrate that, from a demand-side perspective, there is limited switching between up to and including 1Gbit/s services and services above 1Gbit/s. Ofcom concludes that very high CISBO services cannot form a separate product market given convergence of competitive conditions. This is completely unfounded as the evidence (including market shares) is the opposite: BT’s competitive position is considerably weaker in MISBO than in AISBO and this has in fact maintained over time.

Prices are conditioned by the choices of the firm that may have SMP

34. As explained above, the need to recover common costs from higher bandwidth services dictates the pricing structure BT applies. Without taking due account of this commercial context, Ofcom’s view that BT has absolute choice over pricing due to any SMP is incorrect.

Boundaries are otherwise unstable as demand patterns evolve over time

35. Boundaries are clearly not so unstable that a reasonable assessment cannot be made: even as customers move up the bandwidth gradient, over the period of this review, there will still be a clear break at 1Gbit/s due to the different product characteristics and uses of AISBO and MISBO services.

⁵² *Ibid.*

⁵³ Paragraph 4.67, BCMR Consultation 2015.

⁵⁴ See Table 4.4, Page 73 of the Consultation.

Insufficient consideration of the factors that influence the length of a chain of substitution: potential bandwidth breaks

36. A variety of factors may influence the potential for a chain of substitution to be effective. Ofcom recognised the importance of bandwidth breaks in 2013:
- “...the existence of a chain of substitution is an empirical question specific to the circumstances of the markets under review. In leased line markets, the number of end-users is smaller [than in the wholesale broadband market] and the ‘gaps’ in the chain, in bandwidth and price, are larger [than in the wholesale broadband market], reducing the likelihood that a chain of substitution exists. Indeed, in the 2003/4 and 2007/8 Reviews, we found that a chain of substitution did not exist and that there were separate markets based on bandwidth.”⁵⁵*
37. In the present case, Ofcom has failed to consider product characteristics across the bandwidths or intended use which may mean that two products are not in fact closely substitutable. For example, customer migration has shown that customers do not tend to migrate on price alone, for example, between 1Gbit/s and 10Gbit/s. There is a significant cost for customers to move between those two bandwidths in terms of upgrading their own equipment to operate at higher speeds, a cost increase which is not trivial.
38. A chain of substitution is a possible scenario for products that do not fully constrain each other to be part of the same relevant market. However for this to be the case, the constraining influence of each adjacent product should be clearly analysed and evidenced. Ofcom has not met this requirement.
39. Ofcom instead relies on a blanket assessment relating to homogeneity of competitive conditions, a converging of prices and costs between AISBO and MISBO services and a reduction in the differences between these services in an attempt to sweep up any concerns of bandwidth breaks into a conclusion that the markets are in any event similar.

Duty to take “Utmost account” of Commission Guidance

40. The Framework Directive makes clear the importance of ensuring a “consistent approach”⁵⁶ to the application of the CRF across the European internal market, and the central role of the Commission in securing that objective, especially in the designation of SMP.
41. In particular, Article 15(3) FD provides that NRAs “shall, taking the utmost account of [the Commission’s recommendation on relevant product and service markets and the SMP Guidelines] define relevant markets appropriate to national circumstances...in accordance with the principles of competition law”.
42. This obligation was transposed into national law by sections 79(2) and (3) Communications Act 2003, which provides that Ofcom “must” take “due account” of all applicable recommendations issued by the Commission pursuant to an EU instrument and relating to market identification, analysis or the determination of what constitutes SMP.
43. As stated in the SMP Guidelines, the exercise of this duty “will be an important factor in any assessment by the Commission of the proportionality and legality of proposed decisions by NRAs, taking into account the policy objectives laid down in Article 8 of the Framework Directive”⁵⁷.

⁵⁵ Paragraph 3.232, BCMR Consultation.

⁵⁶ SMP Guidelines, paragraph 11.

⁵⁷ SMP Guidelines, paragraph 7; see further, Article 15(3) of the Framework Directive.

44. Therefore, Ofcom must properly consider the SMP Guidelines and the Markets Recommendation issued by the European Commission when it carries out its market definition analysis.⁵⁸ Although this does not mean that Ofcom is compelled to follow these guidelines, it may not disregard them or treat them lightly, and if it chooses to depart from the approach set out in these documents, it must set out clearly its reasons for this. Ofcom has not provided any explanation in this respect, as further detailed in this annex.

Correct Market Definition

45. In light of the above, any correct wholesale product market definition should retain two separate product markets:
- a. Ethernet services at bandwidths up to and including 1Gbit/s; and
 - b. Ethernet services at bandwidths above 1Gbit/s and Optical services at any bandwidth.
46. This is the most likely conclusion of a market analysis which properly considers competitive conditions in the leased lines markets, together with the factors raised in the remainder of BT's response and its economic analysis. Ultimately, the only market definition conclusions which could withstand the "profound and rigorous"⁵⁹ scrutiny of the CAT is one that retains the current AISBO and MISBO bandwidth breaks. This is all the more important given the CAT would not be concerned with whether the decision was "within the range of reasonable responses but whether the decision was the *right* one **[emphasis added]**"⁶⁰.
47. BT's position on the correct market definition is wholly consistent with the obvious features of leased lines markets which Ofcom has previously acknowledged⁶¹, including the efficient recovery of common costs from higher bandwidth services and the increased opportunities which this provides for competitors at higher bandwidths. It is also consistent with BT's experience of customer demand for products across the range of bandwidths.

Risk of Commission Intervention

Commission decisions pursuant to Article 7 of the Framework Directive

48. Pursuant to Article 7 FD, NRAs are required to share draft measures with the European Commission "together with the reasoning on which the measure is based"⁶². For those measures involving, for example, the designation of SMP, the Commission may indicate to the NRA that (1) the measure may create a barrier to the internal market; and/or (2) the Commission has serious doubts as to compatibility with EU law and the objectives under Article 8 of the FD⁶³.
49. Whilst market definition must be approached on a case-by-case basis, BT refers to the following Commission decisions which underscore the importance of the principles of market definition as established under competition law in ensuring the consistent application of the CRF in the European internal market:

⁵⁸ For example, Recital 28 to the Framework Directive.

⁵⁹ *Hutchison 3G v Ofcom* [2008] CAT 11 [164].

⁶⁰ *Ibid.*

⁶¹ For example, BCMR Statement 2013.

⁶² Article 7(3), Framework Directive.

⁶³ Article 7(4), Framework Directive. It is important to note here Ofcom's duty under Section 4(2) of the Communications Act 2003 to "act in accordance with the six Community requirements", giving effect to Article 8 of the Framework Directive. These requirements include the promotion of competition in the provision of electronic communications networks and services and contributing to the development of the European internal market.

- a. In Case AT/2013/1442: *Wholesale terminating segments of leased lines in Austria*⁶⁴, the Commission originally vetoed the Austrian regulatory authority's draft measure on the basis it did not rely upon any conclusive evidence supporting a single product market definition and was incompatible with EU law, creating barriers to the internal market:
 - i. The Commission considered that the NRA's conclusions on market definition (and its SMP assessment) did not "adequately reflect the conditions of competition in the different bandwidth segments"⁶⁵; and moreover
 - ii. "...on the basis of the evidence available...[the NRA had] not demonstrated that the wholesale terminating segments of leased lines market [was] characterised by uniform competition conditions across bandwidths"⁶⁶.
 - b. In Case CZ/2014/1583: *Wholesale terminating segments of leased lines in the Czech Republic*⁶⁷, the Commission, in inviting the Czech regulatory authority to adduce additional evidence, expressed serious doubts as to:
 - i. the compatibility of the Czech regulatory authority's draft measures with EU law, especially the market definition, which it believed may lead to the designation with significant market power of an operator which could potentially not have such a position on a properly defined market;
 - ii. the sufficiency of the evidence to support the market definition (in this case, of two separate markets) including "detailed analysis regarding in particular the demand side substitutability such as...differences in network coverage, price evolution and cross-price elasticity"⁶⁸; and
 - iii. whether the proposed measure would promote "regulatory predictability"⁶⁹ and whether "the relevant product market [had] been delineated in accordance with the principles of competition law and therefore whether it [complied] with Article 15(3) of the Framework Directive"⁷⁰.
50. These decisions highlight that the Commission will require Ofcom to have strong, reliable and quantifiable evidence to support its proposed market definition and perspective on competitive conditions within the relevant market. Without such robust reasoning, Ofcom may be required to undertake its analysis again to allay the Commission's concerns. At the very least, the Commission's position on the draft measure could result in a delay in its adoption of up to two months⁷¹. Therefore, it is important that Ofcom assesses market definition properly. This is one of the key reasons why it should take "utmost account" of the Commission's guidance.

⁶⁴ In this case, the Austrian regulatory authority proposed to regulate the wholesale market for terminating segments of leased lines, reintroducing regulation of dedicated capacity lines in densely populated areas and regulating access to very high bandwidths in all parts of Austria.

⁶⁵ Paragraph 46 of the Commission's Decision of 2 July 2013.

⁶⁶ Paragraph 47 of the Commission's Decision of 2 July 2013.

⁶⁷ In this case, the Czech regulatory authority proposed three separate markets instead of the two it had defined in the previous market review.

⁶⁸ Section 3, Commission Decision Letter of 5 May 2014.

⁶⁹ Section 3, Commission Decision Letter of 5 May 2014.

⁷⁰ Section 3, Commission Decision Letter of 5 May 2014.

⁷¹ Article 7(4), Framework Directive.

Wrong Conclusions on Market Definition

51. For all of these reasons, Ofcom's conclusions on market definition are wrong:
- a. they rest on unsustainable assumptions about prices;
 - b. they depart from directly applicable Commission guidelines without any explanation;
 - c. they depart from Ofcom's previous conclusions (i.e. in the 2013 BCMR and in the Colt appeal) without adequate explanation;
 - d. they rely on errors of fact and judgment; and
 - e. they depart from Ofcom's own approach/conclusions in this market review in relation to TI services (see further, BT's economic analysis).

Conclusion

52. Firstly, Ofcom has failed to follow key steps in its competition law assessment by according priority to the chain of substitution effect and not performing a full analysis of demand substitutability. Although an assessment of competitive constraints should take into account factors such as a chain of substitution, the existence of a chain of substitution *cannot predetermine* the market definition: it is merely one factor to consider in the analysis of demand-side substitution. It also relies strongly on robust evidence, a point emphasised in the Commission's Market Definition Notice of which Ofcom is bound to take the 'utmost account'.
53. Secondly, Ofcom's wholesale CISBO product market definition is flawed in three key respects:
- a. It has **failed to reach the correct conclusion on market definition** by reason of certain errors in relation to the evidence required for demand substitutability (including a chain of substitution) or by failing to consider relevant evidence to support its analysis;
 - b. It has without cause **dismissed evidence on existing bandwidth breaks** and competitive conditions to bolster its single product market conclusion;
 - c. It has failed to take "**utmost account**" of Commission guidance on market definition and provide clear, robust and quantifiable evidence for its proposed market definition (which is particularly important in the context of an alleged chain of substitution) and has not provided a full explanation as to why it has departed from this guidance.
54. Thirdly, because of these flaws, Ofcom's proposal to define the wholesale AISBO/MISBO markets as a single product market would not meet the standard of "profound and rigorous" scrutiny required by the CAT. The objective here therefore is to reach the right decision that could withstand such a high standard of scrutiny. It would not be sufficient to assert that the decision is one in a range of reasonable responses (which would not in any event be the case here).
55. Lastly, without such robust and rigorous analysis, Ofcom lies exposed to the risk of an Article 7 Commission veto decision and the need to reconsider its draft market definition, SMP and remedies proposals for the wholesale AISBO/MISBO leased lines markets. This could introduce delay in the regulatory process, risking legal and regulatory uncertainty. In the context of the impact of regulation on commercial strategy and forward-planning, Ofcom's duty is to reach the only correct conclusion available that is "transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed"⁷².

⁷² Section 3(4), Communications Act 2003.