Wholesale Local Access Market Review

Response to Ofcom's Consultation on proposed charge control designs and implementation – Volume 2

Non-confidential Version

22 June 2017

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Foreword

On 31 March 2017, Ofcom published its consultation on proposed charge control designs and implementation for the wholesale market, associated with services that use a fixed connection from the local telephone exchange to a home or business premises for broadband and fixed telephone services.

This submission is provided by Openreach, a functionally separate line of business within British Telecommunications plc ("BT"),[1] in response to proposals related to Openreach's business. This document should be read in conjunction with Openreach's other related responses, namely our response to Ofcom's Consultation on proposed market, market power determinations and remedies (Volume 1), the Quality of Service for WLR, MPF and GEA, Duct and Pole Access and the Narrowband Market Review.

[1] As part of BT's implementation of its formal notification dated 10 March 2017 under section 89C of the Communications Act 2003 (the Act) and subject to pre-conditions being met, the Openreach business will be operated by Openreach Limited, which was incorporated as a separate legal entity on 24 March 2017.

1. Executive Summary

Overview

1. This market review will shape the direction of the UK telecoms market for the next decade. In particular it will set the foundations for investment in superfast and ultrafast networks in the UK. It is therefore critically important that Ofcom gets the balance right between: (i) the potential short-term consumer benefits of lower prices; and (ii) the risk of undermining investment, and competition more generally in the medium to long term, if those prices do not allow investors the opportunity to earn a fair return on investments, taking account of risks faced in an evolving marketplace. We do not consider Ofcom has achieved the right balance in this consultation.

2. In this response, we set out why we are concerned that Ofcom's proposed charge controls would depress prices to levels where returns on past and prospective investments are expected to be well below the relevant forward-looking cost of capital. Under our Medium Term Planning process, we forecast the expected costs of meeting customer demand for fixed connections based on projections of the capital and operating expenditure required to both maintain and expand access network capabilities. From these forecasts, we have produced a set of in-year forecasts consistent with regulatory financial reporting standards[2] for both copper and fibre access services. We have then assessed the revenues we would expect to generate at Ofcom's proposed prices. The chart below shows the outputs of this analysis and highlights the annual returns we would expect to make if Ofcom's consultation proposals were implemented.

Figure 1: Openreach forecast annual returns after Ofcom price cuts

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Source: Openreach internal analysis

3. We do not believe it is Ofcom's intention to impose prices that would restrict returns to such low levels. Such prices would send inefficient pricing signals and chill incentives for Openreach and other potential access network suppliers to invest in access networks, including in ultrafast networks such as those based on 'full fibre'. Our view is that Ofcom's proposed prices are too low due to incorrect assumptions and modelling issues which drive forecasts of the costs of meeting future customer demand which are significantly lower than we believe is achievable.

4. Our concerns with Ofcom's forecast modelling arise in three areas:

[2] e.g. expressed on a Fully Allocated Cost, Current Cost Accounting basis with annual depreciation charges reflecting assumed accounting lives for existing and any planned new investments .

- A top-down model of the costs of supplying copper access services, such as fully unbundled loops (MPF) and Wholesale Line Rental (WLR) based on projections from reported costs in the 2015/16 Regulatory Financial Statements (RFS), but which (i) inappropriately excludes or omits valid costs of supply from the base year data; (ii) uses a series of forecasting parameters which are not supported by an objective review of the evidence for example in relation to assumed volumes over the forecast period, the scope for efficiency savings and the estimated forward-looking cost of raising capital; and (iii) underestimates certain costs expected to be faced over the review period.
- A bottom-up model of the costs of supplying fibre access services to a growing base of customers which significantly understates the investment costs we identify in our business plan as necessary to ensure we have the network capabilities to support such demand over the period of this review and beyond.
- An approach to forecasting costs that are common across both copper and fibre access services that raises concerns that such costs will be understated.

5. Further, the impact of the resulting cost recovery shortfall would be compounded by Ofcom's proposal for prices to reduce sharply to align with the forecast unit costs by April 2019 rather than following a traditional, even glidepath over the full period of this market review. Even on the basis of
Ofcom's forecasts, the gap between costs and current prices is not wide enough to justify such rapid reductions.

6. We estimate that:

   - Ofcom's proposed pricing would result in a revenue shortfall of c. £✂ in copper access revenues over the charge control period compared to prices necessary to provide a fair opportunity to earn our forward-looking cost of capital;
   - There is a gap in the total costs we expect to incur over the period until 2020/21 and the costs included in Ofcom's bottom-up fibre model of around £✂. This drives significantly lower projections of the unit costs of supplying fibre connections and leads to significant differences between Ofcom and Openreach of the projected 20 year returns on fibre investments that would result if Ofcom's proposed pricing approach was introduced from April 2018. Specifically, while Ofcom believes Openreach would make returns of almost 12% (which would, as noted in Volume 1, still be inconsistent with the fair bet principle), we project that returns would fall to less than ✂% across all fibre lines and to about ✂% on lines supplied in commercial areas. Any pricing regulation introduced on fibre access services must allow returns that are consistent with the fair bet principle i.e. a sufficient amount above the project-specific cost of capital faced ahead of the start of the investment programme such that it allowed upside outcomes to be enjoyed where these were necessary to offset the *ex ante* risk of downside outcomes. We estimate this would require

     prices to be above the top end of Ofcom's consultation range.

7. Additionally Ofcom's copper and GEA pricing proposals will need to be reviewed later in 2017 as a result of Ofcom's planned pricing consultation on Duct and Pole Access (DPA) remedies. There will be interaction between the DPA pricing proposals and the WLA charge control, and Ofcom should ensure that when the DPA pricing consultation is issued any impacts from this are reflected in the cost modelling underpinning the WLA charge control. For example, a significant reduction in the DPA rental prices is likely to increase DPA volumes. The volumes model that drives the WLA charge control and the DPA cost adjustment would need to be amended accordingly. Openreach provides its initial views on this area in its response to Ofcom's consultation on DPA.

8. Throughout this response we have sought to provide complete answers to Ofcom's questions. Further, as explained in Openreach's response to the WLA Consultation Volume 1[3], Ofcom has requested and Openreach has provided new information on a range of substantive issues. This means that a great deal has changed since the publication of the consultation document and therefore we believe re-consultation may be necessary.

9. We look forward to working with Ofcom to address the concerns set out in this response, in particular to ensure that our modelling assumptions are aligned and that the proposed charge control preserves incentives for investment by Openreach and others in future networks and services.

10. Against this background, we set out below Openreach's observations on:

    - Ofcom's economic principles for setting charges for LLU and VULA;
    - Ofcom's charge control design; and
    - Ofcom's charge control cost modelling.

Economic principles for setting of cost-based charges for LLU and WLR

11. Openreach agrees with Ofcom's broad principles and broad approach to setting cost-based charges for LLU and VULA, including:

    - an inflation indexed price cap with CPI as the relevant measure of inflation;
    - that FAC and LRIC+ are generally appropriate cost standards and that it might be appropriate to adopt a LRIC only standard, albeit in limited circumstances;
    - Ofcom's hybrid approach that relies upon both FAC and LRIC+ data in estimating the costs of MPF and GEA 40/10 services;
    - The duration of the MPF and VULA charge controls to 1 April 2018; and
    - The use of an anchor pricing approach as long as such an approach enables delivery of Ofcom's stated strategic objectives.

12. Openreach does not however agree with the speed of aligning charges with costs i.e. imposing a truncated one year glide to 2019/20 for MPF and GEA services. This non-linear

[3] Openreach response to Ofcom, WLA Market Review – Volume 1, March 2017, paragraphs 79 et seq.

glidepath approach effectively introduces start price adjustments: This is not supported by the degree of cost

misalignment and it is not consistent with previous regulatory decisions.

Ofcom's charge control design

13. We have a number of concerns about the design of the proposed charge controls. The most serious of these concerns relate to the pricing of GEA.

14. First, we do not agree that prices for GEA 40/10 products have been set at the correct level. The proposed prices are not consistent with the fair bet principle, would limit Openreach flexibility with regard to other GEA bandwidths and would significantly impact business cases for future fibre investment (including FTTP). Ofcom should revisit its analysis of the impact of the proposed GEA 40/10 price control on other GEA variants, in particular 18/2, 40/2 and 55/10.

15. Second, we do not believe that Ofcom has fully captured the consequences of extending its proposed charge control to FTTP 40/10 and FTTP connections, as the proposals do not adequately take into account the very different cost bases between the two products and the subsequent potential impact on rollout.

16. We also have a number of specific concerns about the way in which Ofcom applies its principles to its modelling approach:

    - Prices for products that are broadly similar should be aligned and should be subject to similar charge control arrangements. This does not appear to be the case for Tie Pair Modification services as compared to MPF New Provide Services.
    - For certain products, the case for deviating from a FAC/LRIC+ standard has not been made out and therefore these should not be set by reference to a LRIC-only cost standard (e.g. MPF Migrations and LLU ceases).
    - For Time Related Charges (TRCs) and Special Fault Investigations (SFI), Openreach agrees that FAC is the correct cost standard but believes that the proposed prices are based on significantly understated costs. As a result, the proposed prices will not allow Openreach to recover its efficiently earned costs.
    - In choosing between a real or nominal price cap, Ofcom should not rely on past inflation as a predictor of the level of inflation during the charge control period. We encourage Ofcom in light of current trends, and particularly in light of Brexit with the uncertainty this brings, to assess inflationary impacts at the latest possible date during this consultation. We believe this would support the imposition of real rather than nominal caps.
    - Ofcom has not taken into account the impact of its proposals on BDUK.

Ofcom's charge control cost modelling

17. Ofcom's modelling is more complex than in previous reviews, especially as it proposes to introduce price controls for GEA 40/10 products at a time when significant fibre investment is planned and at the same time maintain MPF price controls.

18. Whilst Ofcom has sought to design a conceptual modelling approach that deals with these issues appropriately, we consider the design needs to be revised to ensure that:

    - The key parameters driving its top-down forecast of copper access costs reflect the evidence set out in this submission about the forward-looking drivers of efficient costs; and

    - The bottom-up forecasts of the costs of supplying superfast fibre connections in the period to 2028/29 are consistent with Openreach's updated business case, capturing all assets necessary to ensure the network is capable of delivering the forecast level of services at the required speed and service quality. Specifically Ofcom's model should include the costs in the Openreach 20 year business case which are £✂<bn higher than assumed in Ofcom's model.

19. Our analysis of Ofcom's approach has been complicated by a lack of transparency in Ofcom's approach in a number of places as we have separately flagged to Ofcom.

20. In addition, in terms of approach, we have found it difficult to assess the impact of Ofcom's adjustments and carry out high level sense checks. For example Ofcom does not set out in its consultation and models its estimates of the total costs, either for the WLA or WFAEL markets either in their entirety or for the charge controlled services.

21. Our particular concerns with the results of Ofcom's charge control modelling and the assumptions made on some key parameters, include the following:

    - **Weighted Average Cost of Capital (WACC**): Ofcom has lowered its estimate of BT's WACC for WLA services since its last estimate in the Business Connectivity Market Review (BCMR), which concluded in 2016. This reduction has mainly been driven by a reduction in the cost of debt and a new adjustment to reflect a conjectured impact of BT's pension deficit on the level of systematic risk of the share price. These changes are not justified and result in the relevant rates for this control, the copper WACC of 8.0% (down from 8.8%) and the Rest of BT WACC of 9.4% (down from 9.8%) applied to fibre, being understated. The copper WACC itself appears to be the lowest ever rate allowed by a UK regulator despite the fact that telecoms has a higher level of risk than other regulated sectors, and is thus out of line with other estimates. The report from Oxera, attached to this response, explains why the data supports a WACC for the Openreach copper business of 8.5% and for other regulated telecoms of 10.8%, with the latter reflecting the higher level of the equity beta for the BT Group since Ofcom's last review. We consider Ofcom should therefore increase its estimate of Openreach's cost of capital.

    - **Incorrect Quality of Service (QoS) uplift:** Openreach is willing to step up to new and more challenging Minimum Service Levels (MSLs) and we welcome Ofcom's acknowledgement for the need for a cost uplift to enable this. However we believe

Ofcom has significantly under-estimated the cost uplift required - our modelling indicates a cost uplift of 24.9% is required to meet Ofcom's Year 2 MSL of 90%, significantly higher than the 5.3% estimated by Ofcom. Further detail on our views associated with the modelling approach to QoS as carried out by Analysys Mason is provided in section 8 of our response to the QoS consultation.

- **Efficiency targets:** Ofcom's proposed efficiency targets are too high. Given that Ofcom's efficiency targets of 5.5% on opex and 3% on capex are expected to be additive to savings modelled on specific cost items, we estimate the true efficiency target required by Ofcom as being 10.5% per annum. This suggests that in nominal terms Openreach needs to remove £250m of operational costs in 2018/19. We do not consider such a target to be achievable or supported by the available evidence. Openreach has not historically delivered more than 5% per annum and is only targeting ✂% per annum in its latest medium term plan. Further

  to support its proposal, Ofcom take out of context an EY report, commissioned by Openreach for an entirely different purpose. This report it does not support Ofcom's targets and we attach to this response a report by EY on the purpose of their report.

22. Our view is that when Ofcom's assumptions on fault reduction, economies of scale (greater volumes), input price, efficiency and service proposals are considered in combination, the resulting targets for efficiency and service are unachievable. This is shown in Figure 2 below. *Figure 2: Summary of Ofcom's service and efficiency adjustments*

Costs £m excluding Cumulo & SLG	2015/16	2018/19	2019/20	2020/21	Average over charge control period
Ofcom base case	**3,102**	**2,918**	**2,949**	**2,936**	**8,803**
Application of usage factors	-	-34	-33	-28	
5.5% Opex efficiency	-	-216	-291	-368	-9.9%
3% Capex efficiency	-	-24	-41	-61	
Cost savings from FVR programme	-	-43	-54	-65	
Hypothetical ongoing network adjustment	-	283	278	264	
Uplift for QoS improvement	-	40	43	43	
Economies of scale impact	-	-148	-206	-260	
Total impact		**-142**	**-305**	**-475**	**-923**
% of total costs		-4.9%	-10.3%	-16.2%	-10.5%

Source: Openreach analysis

Note: Hypothetical ongoing network adjustment is defined as cost adjustments that Ofcom makes to reflect a steady state network, the majority of which is an increase to WLR line cards because they are almost fully depreciated.

23. In addition we have a number of key concerns with Ofcom's cost modelling approach which include the following:

- **Volume forecasts:** We welcome the improvements and adjustments Ofcom has made to its volume forecast model following suggestions we made during 2016 regarding the inclusion of an adjustment to account for the impact of the PIA remedy and Virgin Media's Project Lightning. However we consider Ofcom continues to overstate the number of Openreach lines during the review period.

- **Ongoing Pension Services costs:** Ofcom does not make the necessary adjustments to the costs of servicing the pension fund. The 2017/18 operating charge (the ongoing pension service cost) provided to us by independent actuaries is expected to increase by over £✂m year on year, impacting EBITDA. This primarily reflects a decline in market conditions, our re-assessment of the demographic assumptions and the impact of membership experience adjustments[4]. This is an efficiently incurred cost and Ofcom should reflect this increase in its forecast.
- **Treatment of common costs:** The conceptual approach of reallocating common costs

[4] We refer to page 14 of BT Group plc's Q4 2016/17 press release: http://www.btplc.com/Sharesandperformance/Quarterlyresults/2016-2017/Q4/Downloads/Newsrelease/q417release.pdf)

should leave Openreach indifferent to the way costs are recovered through charge control within the market. We believe Ofcom's current proposals require assessment of the impact, as we believe its approach results in the potential omission of costs amounting to £69m across the charge control period.

- **Various excluded costs:** There are also a number of substantial cost exclusions which are unjustified or excessive. In the case of Service Level Guarantee (SLG) payments, Ofcom has modelled these off-line and reduced them in line with fault rate volumes. There is also no basis for excluding a significant proportion of actual incurred SLG payments from the base year. Our analysis shows a shortfall of £19m in the base year, 2015/16. Whilst Ofcom allows for some additional growth in SLG payments to reflect changes likely as a result of the introduction of auto-compensation, this is insufficient.

- **Other modelling issues:** We believe Ofcom's modelling approach and data has introduced errors in other areas, including: forecast capex and forecast tie cable costs (which are understated); adjusted component volumes (which result in inappropriately low component unit costs); and a deduction for the sale of extracted E-side copper (which is likely to be too large). We have carried out a detailed analysis of both Ofcom's top-down copper and bottom-up fibre models and have been engaging at a working level with Ofcom on this since the consultation was published and non-confidential copies of Ofcom's models became available. We have provided Ofcom with a detailed error log as well as a significant number of questions.

Conclusion

24. In light of the above, Openreach urges Ofcom to reconsider the remedies it intends to impose, in particular by setting a price for the GEA 40/10 product which is above the top end of the range on which Ofcom is consulting.

25. This would ensure that the proposed remedy was proportionate and more consistent with Ofcom's statutory obligations, including ensuring that the remedy properly balances the longerterm competition concerns, in particular promotion of investment, with short-term pricing objectives.[5] It would also be more consistent with the requirements on Ofcom not to impose unnecessary regulatory burdens and to act consistently with best regulatory practice.

26. We look forward to working with Ofcom to resolve the modelling and other charge control-related issues as highlighted in this response. Our aim is to demonstrate how a revised approach can help deliver increased investment in the network and higher service standards to the benefit of UK consumers and businesses.

[5] Unless these objectives are properly balanced, there is a risk that regulatory intervention will result in market failure, to the detriment on consumers and industry generally (including Openreach).

2. Economic principles for setting of cost-based charges for LLU and VULA

Introduction

27. In Volume 2, Section 2, Ofcom considers a number of economic issues relating to its approach to setting cost-based charges for LLU and VULA. Ofcom takes as its start point that the case for setting cost-based charge controls for MPF and VULA services has been made in Volume 1.

28. We do not challenge the proposal to set cost-based charge controls for MPF. However, an important part of the evidence relied upon in Volume 1 to assess the need for cost-based charge controls for VULA services related to an assessment of whether such regulation would be consistent with the 'fair bet' principle. As we maintain in Volume 1, Section 9, in order to carry out such an assessment, Ofcom should consider how any regulatory pricing proposals would affect competition in the long term including incentives to invest. As part of this, Ofcom should consider the impact on the long term returns that Openreach is expected to make on its fibre investment programme which started in 2008/9. The returns Ofcom relies upon in Volume 1 e.g. that Openreach would earn a 20 year IRR of 11.8% after the proposed regulatory pricing takes effect, are generated by Ofcom's modelling of fibre costs in Volume 2.

29. As noted in Volume 1, Section 9 and expanded upon in Volume 2, Section 4, there is a material gap between the long-term costs of supply in Ofcom's bottom-up fibre model and Openreach's latest business case. As such, we argue that Ofcom's bottom-up modelling approach should be significantly revised. Making these revisions would then require Ofcom to reassess any pricing regulation on VULA services. We also argue in Volume 1, Section 9, that Ofcom's analytical framework for assessing the 'fair bet' needs to be focussed on ensuring any price intervention imposed now does not truncate upside outcomes necessary to support, on an expected basis at the point of project inception, Openreach earning the project-specific cost of capital.

30. It follows that if Ofcom revises its bottom-up modelling approach to address the concerns we raise in this document, it should then reassess all regulatory pricing options using the outputs of the revised model against the analytical framework for assessing the 'fair bet' as defined by Oxera.
    Therefore our comments in this document about Ofcom's approach to fibre cost modelling and the form of charge control it may impose, are directly relevant to the assessment of whether to impose a cost-based charge control in Volume 1.

Question 2.1: Do you agree with our proposal to impose an inflation indexed price cap, with CPI as the relevant measure of inflation? Please provide reasons and evidence in support of your views.

31. Where cost-based pricing remedies are justified, Openreach supports the use of inflation indexed price caps designed to move prices towards forecast levels of unit costs over the charge control period. Well-designed CPI-X controls provide incentives for regulated firms to drive efficiency improvements and make ongoing investments. Consumers benefit from lower

prices and/or improved service as a result. In contrast, rate of return regulation provides no such incentives.

32. For completeness Openreach observes that Ofcom has set a number of price caps in nominal terms i.e. not linked to an index. We disagree with this approach. Please refer to our response to question 3.1.

33. Accordingly Openreach does not object to a CPI measure of inflation being used.

Question 2.2: Do you agree with our proposal to use CCA FAC to establish the cost base for WLA services and to use LRIC+ to estimate the costs of MPF services and 40/10 GEA services? Please provide reasons and evidence in support of your views.

34. Any charge control should provide an opportunity for the regulated supplier to recover the efficient costs of supply and earn a fair return on investment, reflecting risks. Given the broad scope of services supplied by Openreach, it is also necessary to ensure that charge controls applied to any particular service or groups of services take proper account of the need to recover costs that are common between services. Both Fully Allocated Costs (FAC) and 'LRIC+' include contributions towards common cost recovery.

35. In previous market reviews Ofcom has seen FAC as a reasonable proxy for LRIC+ because, if all prices were set equal to FAC, then all costs, including fixed and common costs should be recovered. Service-level FAC data, produced on a Current Cost Accounting (CCA) basis is produced each year in the Regulatory Financial Statements (RFS). The RFS is subject to a high level of transparency and scrutiny which further supports the use of reported CCA FAC figures as an appropriate start point for considering how to set regulated prices. Openreach therefore agrees CCA FAC is the right starting point in establishing the cost base for WLA services.

36. In this charge control, however, Ofcom proposes a hybrid approach that relies on both FAC and LRIC+ data in estimating the costs of MPF and GEA 40/10 services. The proposed approach would:

    - Use the RFS CCA FAC data at the 'market' level[6];
    - Use two separate models to identify service level LRICs; and therefore
    - Create a pool of costs based on the aggregate FAC to LRIC differential which is then treated as common to all services across the markets, i.e. to add to the service LRICs to estimate LRIC+.

37. Ofcom's proposed approach would therefore depart from using *service* level FAC data as the start point for setting prices for regulated services. However, it appears designed to allow full recovery of *aggregated* forecast FAC across the totality of services in the WLA and WFAEL markets.

38. The basis for the change in approach at the service level appears to be that it is more appropriate to forecast the costs of supplying fibre using a bottom-up model of incremental costs than by attempting a top-down approach using FAC data from the latest available financial year. We agree in principle with this: given the ongoing growth in demand for superfast

fibre connections and the technological complexities of enhancing and expanding existing network capabilities to meet this higher level of demand, a top-down forecasting approach would not be appropriate i.e. Ofcom should not seek to simply project forward recent accounting data on the basis of historic trends.

Instead, Ofcom should construct a plausible cost model built on identification of the specific assets Openreach has invested in and will need to invest in to ensure the fibre network is capable of meeting customer demand at the required level of service performance. This will provide a view of the cash outflows faced by Openreach in supporting provision of service over the long term. Such a

[6] To be precise, looking across the two distinct, but closely related, WLA and WFAEL markets

model can then inform assessments, under different pricing and volume take-up scenarios, of payback and returns. As noted, we have significant concerns with the bottom-up model relied upon by Ofcom to carry out this assessment in the consultation and therefore significant adjustments to that model are required. An updated model, consistent with the costs set out in our latest business case, should be produced to drive a refreshed set of assessments around the need for and, if appropriate, the form of fibre price regulation to be set.

39. We also agree, in principle, that a top-down modelling approach remains broadly appropriate for forecasting the costs of supplying the copper-based access services. These services are in more of a 'steady state' where, generally speaking, recent annual accounting data and cost trends can form a reasonable start point for forecasting. We again have concerns with the specific approach Ofcom has taken in selecting appropriate top down modelling parameters (e.g. efficiency assumptions) and for overlaying additional costs where there is clear evidence of a change between the forecast period and the past (e.g. quality of service costs and pensions costs), but believe these can be addressed within the framework Ofcom proposes[6].

40. If prices were set using a top-down approach for forecasting the service level FACs of copper access services and a bottom-up modelling approach for forecasting service level LRICs for fibre access services, this would raise issues about whether all relevant common costs were recovered in total and about the balance of recovery across copper and fibre services. Again, in principle, we agree that common costs can be identified by using FAC data across the totality of copper and fibre services and then comparing with: (a) the outputs of an appropriately constructed bottom-up LRIC model for fibre; and (b) the LRIC:FAC ratios for components within the RFS to derive service level LRICs for copper access services. Once service LRICs and total common costs are identified, we have no substantive concerns with using an equi-proportionate mark up (EPMU) approach to allocating common costs across services for the purposes of setting cost based charges over the period of the control.

41. However, we do again have concerns with the precise way Ofcom has applied this framework in deriving LRIC+EMPU costs and proposing future prices. In particular, Ofcom only actually relies on market level FAC data in the 2015/16 base year and the top down forecasting of

[6] We set out in response to questions 4.1 to 4.11 how Ofcom should amend its calculations and approach in forecasting both bottom-up fibre costs and top-down copper costs in order to allow Ofcom to achieve its stated objectives and for Openreach to recover its efficiently incurred costs.

market level FAC is not relied upon to derive the total pool of common costs used in forecast years. Instead Ofcom separately forecasts the common costs identified as being within the fibre FAC figures in 2015/16. We are concerned that this approach effectively removes costs from the aggregated total, leaving Openreach exposed to under recovery.

Question 2.3: Do you agree with our proposal to apply the anchor pricing principle by means of an ongoing copper network with an FTTC overlay? Please provide reasons and evidence in support of your views.

42. In principle, we do not object to the use of an anchor pricing approach to establish efficient base line prices for the delivery of access services.

43. Ofcom presents its anchor pricing approach as: (a) an alternative to a Modern Equivalent Asset (MEA) approach; and (b) as a means of ensuring that consumers of existing technology are not disadvantaged by the adoption of new technology. In both cases, Ofcom is acknowledging that shifts in technological capabilities and in the evolution of customer demand (i.e. for increased network access capabilities) create problems for modelling the efficient future costs of supply of access services. In this context, we believe it is vital that any anchor pricing approach is positioned as a means of delivering Ofcom's stated strategic objectives, including to incentivise investment in ultrafast networks, including full fibre.

44. We are concerned that Ofcom's position in the consultation with regard to the anchor pricing principle implies that any investments in technology with capabilities above those available today may be actively harmful to consumers if it results in costs failing to be recovered from customers with no or limited value for those increase capabilities. This would suggest that Ofcom sees an ongoing need for Openreach to supply equivalent access services to those available today at no greater price than that offered today. This would appear to present a significant barrier to any attempt to transform network capabilities by, for instance, replacing existing copper access connections with FTTP. Openreach is planning to consult with its customers and other stakeholders about issues arising from any potential increase in FTTP availability. We would urge Ofcom to not limit options for funding such investments at this point. Ofcom should take a long-term forward looking view of benefits to consumers from such investments.

45. Specifically, any anchor pricing approach adopted in this review based on Openreach's current network capabilities seems inconsistent with Ofcom's expectation that investment in more ultrafast broadband networks will drive competition in future. Ofcom should therefore not model the costs of ongoing supply of the chosen anchor products in a way that ignores the reality of long term market dynamics - e.g. by overstating the capability of the chosen anchor product to meet future demand for fixed line connections. With growth in demand for bandwidth, increased Virgin Media capabilities (in terms of headline speeds and geographic coverage) and potential market entry via DPA regulation, demand for fixed connections based on copper with VDSL FTTC overlay will come under increased pressure.

46. We address Ofcom's approach to volume forecasting in more detail in section 4, but it appears to us that Ofcom is, by design, attempting to model demand in a way that is broadly 'speed neutral'. While Ofcom allows for line loss to Virgin Media as a result of Virgin Media's expanded geographic footprint, it does not account for additional line loss that might arise as a

result of Openreach failing to invest in higher speed capabilities. Ofcom seems to imply that it is for Openreach to choose how to invest in increased capabilities to avoid those line losses.

47. Ofcom's anchor product approach is therefore based on an entirely unrealistic scenario. The costs in the model only consider VDSL2 investment, in which case the internally consistent assumption to make would be that Openreach only supplies the current product portfolio services and will suffer increased levels of line loss to Virgin as a result. However, Ofcom ignores this line loss or at least understates the scale of the impact arising from specific demand for faster speeds. If Ofcom allowed for increased line loss, this would reduce copper and fibre volumes in Ofcom's model and result in higher unit costs, all other things equal, implying higher prices.

48. Openreach proposes that Ofcom rectifies this by reducing forecast volumes for copper and GEA services in their model. This would be a realistic, internally consistent, view of the modelled scenario allowing Openreach to decide when, where and how to invest to create additional value. Such an approach would then be a better basis to send efficient price signals to purchasers and other

    potential investors.

Question 2.4: Do you agree with our proposal to set charge controls for MPF and 40/10 GEA services that expire on 31 March 2021? Please provide reasons and evidence in support of your views.

49. We agree that any charge controls imposed at the conclusion of this review, which would include those proposed for MPF and the 40/10 GEA product, should expire on 31 March 2021.

Question 2.5: Do you agree with our proposal to use a one-year glidepath to align charges with costs in 2019/20 for these charge controls? Please provide reasons and evidence in support of your views.

50. We agree with Ofcom that glidepaths are preferable to one-off adjustments, for which it considers the case is stronger where "*charges were not previously regulated and where charges are materially out of line with the costs of provision*."[7] We also agree glidepaths should involve a *gradual convergence of prices from the current level to the target level.*[8] Further we agree with Ofcom that it is critical that its approach is consistent with the fair bet principle and avoids intervention that is too early, thereby reducing prices and returns too quickly, when setting prices for the GEA 40/10 service.

51. Instead of gliding to forecast costs to 2020/21 or imposing a formal start charge adjustment at 2018/19 costs, Ofcom proposes a glide to cost in April 2019 accompanied by a one-off price

[7] Ofcom, WLA Market Review – Volume 2, March 2017, paragraph 2.89

[8] Ibid, paragraph 2.84

reduction in 2018/19 to the level the cap would have been if it had set the charge control to commence on 1 April 2017.[9]

52. We do not agree with Ofcom's proposal to use a one-year glidepath to align charges with costs in 2019/20 because it causes a significant discontinuity with prices over time leading to a less stable and predictable background against which investment and other decisions will be taken[10] and undermines the principle of regulatory consistency. The incentive properties of CPI-X regulation are best maintained if prices are required to glide to forecasts costs at the end of the control period – i.e. to 2020/21.

Prices and cost

53. Consistent with our view, Ofcom has previously stated a preference for: (1) avoiding "price shocks" by imposing immediately significant price changes, and; (2) instead gradually adjusting prices using the glide path mechanism. This is because the use of the glidepath "… *leads to a more stable and predictable background against which investments and other decisions may be taken by market players. This is particularly important for telecoms as there are now many suppliers besides BT*"[11].

54. Ofcom has previously (and repeatedly) noted that "*where BT is subject to repeated charge controls, if at the end of each control we automatically adjusted prices to costs then this could dampen BT's incentives to make cost savings through time*" [12] and "*there would be little incentive to efficiency towards the end of a control period*"[13].

55. Reflecting the above, previously Ofcom has set out a limited set of circumstances in which it would be appropriate to deviate from a smooth glidepath. Ofcom considered that where prices were above
Distributed Stand Alone Costs (DSAC), it would consider prices to be sufficiently high "*so as to run a high risk of causing distortions*"[14] (in particular inefficient entry to the market) and thus require a starting price adjustment.

56. Ofcom has consistently used DSAC as the benchmark for considering whether initial prices were too high. There is no evidence that any of the prices Ofcom proposes to control are above DSAC.
We also note that, even on the basis of Ofcom's bottom-up model, current GEA prices have been insufficient for Openreach to reach discounted payback on its investments. It is not appropriate to imply that existing prices are somehow 'excessive' in this context.

57. Against this background Openreach therefore considers that imposing a truncated one year glide path to 2019/20 is not appropriate. Set out below are Openreach's additional and more specific comments regarding MPF and GEA 40/10.

[9] Ibid, paragraphs 2.97 and 2.100

[10] Ibid, paragraph 2.86

[11] Ofcom, Leased Lines Charge Control Statement, March 2017, paragraph 3.227

[12] Ibid, paragraph 5.88

[13] Ibid, paragraph 3.231

[14] Ibid, paragraph 5.90

MPF prices

58. Ofcom states that '*there is …. not a major misalignment of prices that needs to be addressed'*[15] but none the less proposes a glide to cost in April 2019 accompanied by a one off price reduction in 2018/19 to the level the cap would have been if it had set the charge control to commence on 1
April 2017[16]. Ofcom justifies this so that *"…Openreach should not benefit (or be penalised) as a result of delays in setting an updated charge control for MPF services*"[17].

59. This change of approach introduces a significant shift from Ofcom's previous emphasis on productive and dynamic efficiency towards allocative efficiency and expands the opportunity for Ofcom to effect one off price shocks in the market contrary to the principle of regulatory consistency. Openreach considers there is no case to depart from a glide to 2020/21 costs for MPF services.
This is particularly so given there is no "major misalignment of prices".

GEA 40/10

60. Openreach disagrees with Ofcom's assertion that the incentive properties of a glidepath should be a significantly less important factor when considering the pricing approach of a service that is being price regulated for the first time. In fact, for VULA there are additional reasons not to impose severe price reductions, rather than respect glidepath principles.

61. In particular, it has been established practice since the 1980s that price controls utilise glidepaths to incentivise efficiency, and particularly to balance allocative efficiency (where prices generally reflect costs) with productive efficiency considerations (where prices may be allowed above costs for a period of time to provide incentives for lower costs, and prices, in the medium term). Glidepaths of four years were used in the past, but these have already been shortened to three years with more frequent market reviews. Whatever their exact duration, the central idea is that costs are brought into line with costs forecast from their levels as shown in BT's Current Cost Accounts – they are "glided down" from their level in the observable Base Year to their forecast level at the end of the control. The difference between prices and costs over the period of the glide provides the incentive to produce services at efficient cost levels. Such incentives to encourage and reward productive efficiency apply to VULA as to any other service.

62. For VULA, any price control for a new service should balance not only static and productive efficiency (which already points to the use of a glidepath) but also promote dynamic efficiency – to encourage investment and the development of new services. In this case, unit costs in the Base Year have only been achieved after a period of losses incurred as Openreach built up to scale over a number of years. In an economic sense, unit costs as shown in a single year of the Current Cost
Accounts are not representative of any underlying "efficient" level of costs, as they would be for an established service. For this reason, margins in line with the cost of capital for a new and

[15] Ofcom, WLA Market Review – Volume 2, March 2017, paragraph 2.99

[16] Ibid, paragraphs 2.97 and 2.100

[17] Ibid, paragraph 2.101

growing service do not provide a benchmark for the "competitive price", or efficient price, given that substantial past losses have been incurred.

63. A price control which reflects a dynamically efficient cost standard might, at the very least, reflect revenue recovery of past losses, implying the need for a robust lifetime view of margins. Accordingly given Ofcom's policy to encourage entry, Ofcom should consider whether further adjustments should be made for any scale disadvantage that a new entrant might experience post-entry. As explained above and in Section 9 of our response to Volume 1, it is vital that prices across this review period are set at levels which are demonstrably consistent with the fair bet principle i.e. by allowing long term returns on the fibre investment programme in line with the risks faced at the point of project inception and a project-specific cost of capital. Among other things, this means that no one-off adjustment or accelerated glidepath can be justified unless it is demonstrated that it would be consistent with the fair bet. All these considerations, in addition to the need for stability in the market, point, at most, towards a gradual alignment of prices with an appropriate level of forecast inyear costs.

3. Charge Control Design

Question 3.1: Do you agree with each of our proposals in relation to the design of charge controls for BT's LLU and GEA services? Please provide reasons and evidence in support of your views.

65. The proposed design of the various charge controls described in Volume 2 Section 3 raises a number of concerns outlined in order below. Please note, the comments below relate only to the design of the charge control, discussion on whether prices have been set at the correct level are addressed in the responses to questions on Section 4 of Volume 2.

66. As noted in Section 2, Openreach is disappointed Ofcom proposes to erode the incentive properties of the CPI-X charge controls by favouring earlier price reduction than those under a glide approach, especially given the ongoing investment required in superfast networks to meet Ofcom's objectives (see response to Q2.5).

67. We welcome Ofcom's proposal to maintain much of the basket structure for legacy MPF services.
The bulk of our comments are therefore about the Ofcom's proposed pricing treatment of GEA services.

68. Ofcom proposes 23 separate price controls on different services. In order to make our response to Q3.1 easier to read we summarise our general observations about cost standards first and move on to specific comments about LLU remedies, then GEA remedies and finally Optimisation and Repair services remedies.

Cost Standards

69. In broad terms, Openreach agrees that LRIC+ and FAC are generally appropriate cost standards to apply when setting the charge controls (see response to question 2.2 above). Ofcom propose that a LRIC+ or FAC standard applies to the following services:

- LLU: MPF SML1 rental, MPF new provide basket, MPF and SMPF (Hard ceases), LLU comingling new provides and rentals basket, LLU TIES Cables basket, Other MPF Ancillaries; and
- GEA: FTTC 40/10 rental, FTTP 40/10 transition rental, GEA bandwidth modify charge from any speed to 40/10, GEA cancel /amend /modify.

70. We also agree that it might be acceptable to use a LRIC only cost standard for certain products, albeit in limited circumstances only. Ofcom propose that a LRIC standard applies to the following services;

- LLU: MPF Single migration; MPF bulk migration;
- GEA: FTTC 40/10 PCP Only Install; FTTC 40/10 Start of a Stopped Line; CP-CP GEA Migrations - same product / premises.

71. In determining whether to apply a LRIC-only standard, Ofcom should take into account the potential impact of mandating a LRIC-only based price, including any unintended negative consequences, such as:

- distorting CPs incentives such that they operate inefficiently (e.g. inappropriately overconsuming products thereby driving up costs of Openeach); or
- creating perverse incentives for CPs at the downstream level (e.g. focus competition on customers willing to switch whilst being less dynamic in relation to existing subscribers by setting a migration price at LRIC and a new connection at FAC, as is the case for MPF).

72. We agree that in certain circumstances it would not be proportionate to attempt to accurately model costs - e.g. where they are uncertain or at a level of disaggregation that would make collection of cost data unduly burdensome. For this reason, in circumstances where Ofcom decides to impose more intrusive price regulation, a price cap might be a more suitable basis on which to price control. Ofcom proposes to apply price caps to the following services.

- LLU: MPF cease (Software), SMPF cease (Software);
- GEA: FVA rental, 10 Gbit/s cablelink connection, 1 Gbit/s GEA cablelink,connection, VLAN moves, FTTP 40/10 connection, FVA (with FTTP 40/10) connection, GEA service ceases (FTTC & FTTP)

73. However, Openreach is concerned that Ofcom's proposals would apply nominal price caps in most cases (the exception being the cap on FVA rental which would be set by reference to MPF and
GEA rental). Ofcom's assumption is that inflation will remain low and flat over the charge control period. This is seemingly based on a view that there has been "*low inflation in the recent past*."[18] We encourage Ofcom in light of current trends, and particularly in light of Brexit with the uncertainty this brings, to assess inflationary impacts at the latest possible date during

[18] Ofcom, WLA Market Review – Volume 2, March 2017, footnotes 121 and 123

this consultation, so that full known impacts are taken into account and that we are not left exposed during the charge control period.

Ofcom's LLU proposals

74. Figure 3 below summarises Openreach's position with respect to Ofcom's LLU proposals:

Figure 3: Openreach's position with regard to Ofcom's LLU proposals

Service / Basket	Openreach's summary position
a. MPF new provide basket	• TIE pair modification products should be moved from the Other MPF ancillaries basket to the MPF new provide basket. • Openreach agrees FAC is an appropriate cost standard for this basket.
b. MPF Single migration b. MPF Bulk migration b. MPF and SMPF (Hard ceases)	Single and Bulk migration prices should be set at FAC – i.e. consistent with Ofcom's proposals for Hard ceases.
c. Other MPF Ancillaries	The very high levels of X will cause alignment issues between services that are similar. Ofcom should review and reduce the Xs.
	The proposal to link the prices of MPF Amend and GEA modify should be removed.
d. MPF SML1 rental	A LRIC+ cost standard would, in principle, be appropriate
e. LLU comingling new provides and rentals basket e. LLU TIES Cables basket e. MPF Cease (Software) e. SMPF Cease (Software)	Openreach agrees with Ofcom's proposed approach to these baskets and services which is the same as in the 2014 FAMR.

a. MPF new provide

75. The design of the MPF New Provide Services basket allows prices of related items to be set to drive efficient behaviour (for example, to encourage re-use connections rather than new provides). However, MPF Tie Pair Modification (3 working day lead time Re-termination) and MPF Tie Pair Modification (Multiple Re-termination) are in the Ancillary Services basket. This has a level of X that will be significantly in excess of the X for the New Provides basket. This creates an unintended consequence that the price for similar exchange jumpering activities will diverge. As Figure 4 below shows, if the CPI-X is applied evenly across the baskets, the Tie Pair modification – currently price in line with a stopped line provide – will be just £10.90 compared to £22.40 for a Stopped Line Provide at the end of the control period.

Figure 4: Openreach's position with regard to Ofcom's LLU proposals

Basket 3 - MPF New Provide Services extract – Price (£)	CCY0	CCY1 -	CCY2 -	CCY3
Controls		24.3%	12.7%	-2.3%
MPF Working Line Takeover (WLTO)	34.71	26.27	22.93	22.40
MPF Connection Charge Stopped Line Provide	34.71	26.27	22.93	22.40
MPF Connection charge – New Provide Standard	44.42	33.62	29.35	28.67
Basket 4 - Other MPF Ancillary Services extract – Price (£)	**CCY0**	**CCY1 -**	**CCY2 -**	**CCY3**
Controls (assuming flat application)		52.7%	31.0%	-3.0%
MPF Tie Pair Modification (3 working day lead time Re-termination)	34.40	16.27	11.23	10.90
MPF Tie Pair Modification (Multiple Re-termination)	25.87	12.23	8.44	8.19
Control (assuming maximum use of sub-cap constraint)		-45.2%	-23.5%	4.5%
MPF Tie Pair Modification (3 working day lead time Re-termination)		18.85	14.42	15.07
MPF Tie Pair Modification (Multiple Re-termination)		14.18	10.85	11.33

Source: Openreach analysis of Ofcom's proposals

76. Figure 4 illustrates the tension that will arise by having the three MPF New Provide Services under a different control from the two MPF Tie Pair Modification services by virtue of them being in baskets with different levels of control. The products are broadly similar in terms of activities and are currently priced accordingly, as shown Figure 5 below.

Figure 5: Ofcom's proposals for MPF New Provide Services and MPF Tie Pair Modification services

New Provide Services Basket	Number Jumper Removed	Jumper Provided 1	Current price (£)	Price at end of CC (£)
MPF WLTO*	**1**		**34.71**	**22.40**
MPF SLP*	**1**	**1**	**34.71**	**22.40**
MPF New Connection	**0**	**2**	**44.42**	**28.67**
Ancillary Services Basket				
MPF Tie Pair Mod (3 days)	**1**	**1**	**34.40**	**10.90**
MPF Tie Pair Mod Bulk	**1**	**1**	**25.87**	**8.19**

Source: Openreach analysis of Ofcom's proposals

77. Furthermore, given the sub-cap constraint (+7.5%), it would not be possible to keep prices aligned over the control period.

78. A proposed solution would be to include the MPF Tie Pair Modification (3 days lead time) and the MPF Tie Pair Modification (bulk) services in the MPF New Provide Services basket, so that

appropriate relative prices can be managed by Openreach. Given the incredibly low revenues on tie pair modification we would not expect this to impact the calculation of X for either basket.

79. Openreach agrees that the cost standard of FAC is appropriate for this basket.

b. MPF migrations & LLU Ceases

80. MPF Migrations and Hard Ceases are not predominately driven by end customer activity, rather they are mainly used by CPs to manage their exchange-based estate, examples include:

- For MPF migrations, where one CP takes over the assets and customer base of another. For example, in 2014 when Sky took over the broadband asset base and customers of O2, previously managed by BE Unlimited. Sky used the MPF Migration product to move what was by then their own customers from their (ex-BE Unlimited) PoPs to their existing Sky PoPs.
- For Hard Ceases, to free-up line cards so they can be moved to other locations, when decommissioning PoPs or when freeing-up ports for subsequent use e.g. load balancing customers between line cards and new customer acquisition.

81. As can be seen, these services are not key to the competitive process as they are not ordered at the request of end customers and therefore not driven by switching. Rather they are ordered to allow the CP to manage its own estate. Therefore, consistent with Ofcom's proposed criteria[19] for determining whether a LRIC-only standard should apply, the prices for these services should be set by reference to a FAC standard.

82. Openreach agrees that FAC is the appropriate cost standard to apply to Hard Ceases as the activity is driven by CPs managing their exchange based estates and does not create any barrier to end customer switching.

c. Other MPF Ancillaries Basket

83. The design of the MPF Ancillaries basket does not appear to be cohesive as it combines services which contain Jumpering activities with those that do not, and thus, could have very different cost movements over the duration of the control.

84. Some products within this basket are also aligned to other products which are being charge controlled differently. This will result in illogical pricing over this charge control period.

85. As already discussed above, the different controls between (1) MPF Tie Pair Modification (3 working day lead time Re-termination) and MPF Tie Pair Modification (Multiple Re-termination) being in the ancillaries baskets and (2) the MPF New Provide basket gives rise to very different price movements for conceptually similar items.

86. The MPF Tie Pair Modification (3 working day lead time) and MPF Tie Pair Modification (Multiple Re-termination) services are matched by equivalent services for SMPF and are priced similarly, Ofcom should note that the proposed MPF price changes will necessarily flow through to these SMPF items.

[19] Ofcom, WLA Market Review – Volume 2, March 2017, paragraph 3.13 and 3.14

87. There is also the alignment between MPF amend and GEA Amend / Modifies. Ofcom should remove the proposed linkage between MPF amend and GEA amend. Otherwise there will be a basket control on MPF ancillaries that will influence revenues elsewhere. This will distort the incentives when implementing prices in the MPF ancillaries basket. It is also very unlikely that sensible pricing would be maintained across GEA and MPF.

88. By way of illustration of this point, Figure 6 below shows the required percentage movements to obtain price parity between GEA Bandwidth Modifies – to 40/10, and MPF Amends and MPF Cancellations and the linked GEA Modifies and Amends (excluding to 40/10 variants).

Figure 6: Required percentage movements to obtain price parity between GEA Bandwidth Modifies

	CCY0	CCY1	CCY2	CCY3
CPI		**3.2%**	**3.2%**	**3.0%**
Proposed MPF Ancillaries Basket Control		**-55.9%**	**-34.2%**	**-6.0%**
MPF Ancillaries Basket Control + CPI		**-52.7%**	**-31.0%**	**-3.0%**
MPF Ancillaries basket with maximum Sub-Cap allowance		**-45.2%**	**-23.5%**	**4.5%**
Proposed GEA BW Modify - to 40/10 control + CPI (CCY 2&3)		**£8.02**	**-14.8%**	**0.2%**
Proposed GEA BW Modify - to 40/10 price	**£11.25**	**£8.02**	**£6.83**	**£6.84**
MPF Cancellation and MPF Amend order price	**£10.28**			
Required reduction to match GEA BW Modify - to 40/10		**-22.0%**	**-14.8%**	**0.2%**

Source: Openreach analysis of Ofcom's proposals

89. As shown above, in order to have the same price for the GEA Bandwidth modify to 40/10 and other GEA Bandwidth modifies, the MPF Amend price would need to reduce by 22% in the first year of the control. However even with the maximum allowable Sub-Cap control, +7.5%, a reduction of
45.2% would be required at the very least, so it would not be possible to align the price of the GEA Bandwidth Modify to 40/10 and GEA Bandwidth Modify to other bandwidths. Further, MPF Cancellations and MPF Amends account for almost 90% of the MPF Ancillaries basket revenues, and so would need to be adjusted in line with the overall X of the basket in order for the basket to comply overall.

90. It is the very high level of X in the MPF Ancillary basket that is creating these alignment issues. Our recommendation to Ofcom would be to review the level of X. In addition, the linkage between MPF Amend and GEA Modify should be removed.

d. MPF Rental

91. Ofcom is proposing to charge control the SML1 product, with SML2 (and other MPF rental products) remaining subject to a fair and reasonable pricing obligation. Openreach does not disagree with this general approach. We would stress that a fair and reasonable obligation is not intended to be a rigid form of regulatory intervention and that it should give Openreach pricing flexibility. As we set out in paragraphs 170 to 172 of our response to Volume 1, this is

consistent with EU law, in particular Access Directive Recital 20, which recognises that an obligation to ensure prices are "reasonable" is a "relatively light" form of regulatory price control.

92. Using LRIC+ as the cost standard could be appropriate if the LRIC+ cost stack has been calculated correctly.

Ofcom's GEA proposals

93. Figure 7 below summarises Openreach's position with respect to Ofcom's GEA proposals:

Figure 7: Openreach's position with regard to Ofcom's GEA proposals

Service	Price proposal
f. GEA rental	• The GEA 40/10 price will constrain prices for FTTC and FTTP services at too low a level undermining new investment in FTTC and FTTP networks by BT and others. • Requiring separate price alignment between (1) FTTP 40/10 and FTTC 40/10+MPF, (2) FTTC+MPF and FTTC+WLR and (3) the WLR margin test (Narrowband review) are in conflict with each other and therefore creates risk of not being able to apply with all elements of regulation. • An expected consequence of Ofcom's proposal is that the 40/2 and 18/2 services in particular are likely to be commercially unattractive for CPs. • The charge control should only apply to the FTTP 40/10 product where a FTTC 40/10 product is not available.
g. GEA connections	• In general we believe, where Ofcom decides to impose a charge control on the GEA 40/10 product, connection prices should be charge controlled on a FAC basis. However we agree that for FTTC 40/10 connections a LRIC cost standard is helpful as it will encourage migration to Superfast Broadband. • Ofcom should create a GEA connections basket (similar to the MPF new provide basket) rather than separate baskets for different connection services. This will ensure appropriate price and cost alignment over time and allow Openreach to promote efficient consumption of different connection services. • FTTP connections should not have a price cap control, but a fair a reasonable obligation instead.
h. GEA migrations	GEA migration and FTTC start of a stopped line should be priced at a similar level - they both have similar costs but Ofcom proposes very different Xs/prices.
i. GEA ceases	Ofcom should adjust its proposals to allow for the recovery of the costs of GEA hard ceases (which it currently ignores).
j. GEA bandwidth modify	The charge control on 'Other bandwidth modifies' should be replaced with a fair and reasonable condition in order avoid costly and unnecessary systems development, and ensure appropriate alignment between similar services.
k. GEA Cablelink and VLAN Moves applied to Cablelink	The price cap should be real rather than nominal.

f. GEA rentals

94. Ofcom is proposing to charge control the 40/10 product and all other GEA variants will be subject to a fair and reasonable pricing obligation. Notwithstanding the comments we make in our response to Volume 1 section 9 and comments on the price levels in Volume 2 section 4, we have commented here on the structure of the charge control.

95. In this context we have identified further issues with Ofcom's GEA rentals proposals as follows:

- Strength of commercial constraints on GEA pricing beyond the 40/10 variant;
- Conflicting interpretations of fair and reasonable prices for WLR; and
- Implication on prices and payment included in BDUK contracts.

Strength of commercial constraints on GEA pricing beyond the 40/10 variant

96. We agree that the constraints on Openreach (from competitors and purchasers) and the fair and reasonable pricing obligation are a sufficient protection for customers purchasing other GEA (i.e. non-40/10) variants from the potential risk of excess pricing.

97. Openreach considers that the constraint will be considerable, limiting the extent of any flexibility Openreach will have in relation to other GEA bandwidths. We would expect that prices for all GEA rental revenues will fall alongside the charge controlled reduction on 40/10.

98. The proposed aggressive charge control of only the 40/10 variant, would lead to a number of unintended consequences which Ofcom appears to have failed to take in to account:

- First, Ofcom should recognise that the proposal to control GEA 40/10 variants will significantly constrain pricing at other speeds undermining the pricing flexibility that Ofcom is assuming.
- Second, the reduced prices for higher bandwidths (given the commercial constraint of the 40/10 price) will significantly impact the business cases for future fibre investments (See Openreach response to WLA Consultation, Vol. 1, section 9).
- Third, a severe charge control on 40/10 will distort CP demand for the range of different bandwidth products. For example, Openreach will need to reconsider carefully the 18/2 trial product and other products including 40/2 and 55/10.

99. The strength of the commercial constraint from the 40/10 charge control can be demonstrated as follows:

- Ofcom have charge controlled 40/10, however there is still a 40/2 product to consider and logically this should be priced, at the very most, the same as 40/10 (if not lower).
- There is also a significant proportion of demand on the 55/10 product. While this offers a higher downstream bandwidth than 40/10, the 55/10 product essentially competes in the same market as the 40/10 product and the value placed by the customer on this extra bandwidth is limited. As such the pricing premium for the 55/10 product above the 40/10 product is constrained to the current price difference.

- Similarly, while the 80/20 product does offer additional bandwidth, the price customers are willing to pay for this is set as a premium relative to the price for 40/10.

100. Therefore, in moving the 40/10 price point, movements will be necessary for other speed variants (a point acknowledged by Ofcom in its assumptions). In modelling on this basis, Ofcom implicitly acknowledge the lower revenues that will be achievable on ultrafast products. Further, these flow through impacts on prices for higher bandwidths will affect the business case to invest in full fibre and ultrafast networks.

101. The impact of this control upon the GEA business cases is being analysed but in summary the initial view is that for the FTTC and FTTP business cases (including the case to build FTTP at new site developments), the payback will extend beyond an acceptable commercial horizon (see below).

102. While we understand that the consumer should be protected and that a significant proportion does not have a choice of superfast broadband technology available to them, we require a return on investments within reasonable timescales to justify the associated investment risk. These proposals will significantly impact the investment in ultrafast technology by Openreach, and the wider industry.

103. Openreach does not disagree with Ofcom in the use of the anchor product per se, but Ofcom should recognise the strength of this anchor and the additional importance this gives to the correct price being set.

Implication on investment in full fibre (FTTP)

104. Ofcom is proposing to regulate the FTTP 40/10 rental price by requiring it to be the same as the FTTC 40/10 rental price (or the same as MPF plus FTTC 40/10 where FTTP is bought as a standalone product with no copper bearer).

105. We acknowledge that where FTTP is the only service available to customers (for example in a new build development, also referred to as "greenfield" deployment), Ofcom would effectively charge control FTTP 40/10 as the anchor product. However we believe this should only apply where the end customer has no choice on the fibre product provided. If Openreach deploy FTTP in an area where FTTC already exists, we believe FTTP should only be subject to a fair and reasonable charges obligation. We note that currently FTTP is deployed in locations where FTTC is not present, but this would change going forward if Openreach were to deploy FTTP more widely. While historically, FTTP represented a small fraction of the Superfast footprint, Openreach announced in 2016 its ambition to build 2 million premises with FTTP, and will be consulting with industry this year on even wider ambitions.

106. The FTTP rental price should not be the same as the FTTC price where both products are available as this does not recognise the cost differences between FTTP and FTTC. As a result, it jeopardises the case for Openreach (and other network providers) to invest in full fibre networks.

107. We think Ofcom would agree that FTTP services are inherently more expensive to provide than FTTC services. Given the vast differences in cost between FTTC and FTTP deployments, we believe it is clear than an FTTP price set in line with FTTC would not allow Openreach to recover all costs. Ofcom have not discussed this, either to demonstrate that the FTTP price

would allow cost recovery or to propose the costs not recovered in the FTTP price should be recovered elsewhere. FTTP offers an enhanced level of service which presents greater value to the customer, and any investor in an FTTP network would expect to be able to generate higher income as a result.

108. Openreach believe that the proposed FTTP prices would have a substantial negative impact on the attractiveness of investing in FTTP rollout, given that most customers would only need the FTTP 40/10 product. The incremental revenue as customers move from copper to FTTP will be insufficient to justify the fibre network investment. Where Openreach already has FTTC coverage the business case for Openreach to deploy FTTP would be even weaker as the incremental revenue in this case would be zero for customers who migrated from a 40/10 FTTC product to a 40/10 FTTP product. With FTTC coverage now around 90% this would be a major impediment to Openreach's ambitions to deploy FTTP.

109. We would ask instead that FTTP 40/10 is charge controlled only where FTTC 40/10 is not available. Where FTTC is available and charge controlled as the anchor product, FTTP 40/10 should be subject to fair and reasonable charges. Condition 7B of the draft legal instrument should

be amended to reflect this.

Conflicting interpretations of fair and reasonable prices for WLR

110. In Volume 1, paragraphs 8.57 to 8.58, Ofcom states that, in interpreting fair and reasonable pricing, they would expect FTTP 40/10+WLR to align with FTTP 40/10+MPF.

111. This creates further layer to the interpretation of fair and reasonable pricing obligation as it applies to WLR, i.e. in addition to the factors to consider asset out in the Narrowband Market Review. We do not believe it can be appropriate for Ofcom to use fair and reasonable as an instrument of regulatory policy in this manner. We refer to our supplementary response to the Narrowband Consultation in which we discuss this.

Implications for BDUK

112. Ofcom has not carried out a proper competition impact assessment and proportionality review of its proposed price cap in respect of the VULA service for the 40/10 product by reference to the risk of adverse effects or unintended economic consequences in Broadband Development UK ("BDUK") areas[20].

113. Ofcom's proposals to introduce such a price cap could have significant adverse consequences for the rollout of SFBB in uneconomic "white spot" areas, where investment is supported by state subsidy under the BDUK schemes. As part of those schemes, suppliers are required to make the new subsidised network available for wholesale access on a non-discriminatory basis. The areas covered by those BDUK schemes are necessarily areas in which the provision of SFBB is uneconomic, where, but for the support of state subsidy, there would be no commercial rationale for the development of superfast broadband networks at all and therefore no services on which the price cap could bite. These areas tend to be remote rural areas which

[20] The Act, sections 87(9) and 88

are technologically challenging and the most expensive to connect to the network yet with limited population density to provide sufficient profitable take-up to provide a return on the investments made.

114. As a public authority intervening in a market, Ofcom is obliged to carry out a qualitative and quantitative assessment of the unintended impacts of its proposals and to identify possible mitigations that will remove or limit any harmful effects[21]. A failure to do so by reference to BDUK areas will undermine Ofcom's obligations to ensure that any SMP remedies are targeted, necessary and proportionate[22] and compromise Ofcom's regulatory duties to ensure the promotion of competition[23], investment and innovation[24], and the availability and use of high speed data services throughout the UK[25]. We would welcome the opportunity to engage with Ofcom further on this issue to inform its impact assessment.

g. GEA connections – includes FTTC 40/10 and FTTP 40/10

115. For MPF New Provide Services, Ofcom recognises that a single basket allows Openreach to set prices to drive efficient behaviour. However the same approach has not been applied to GEA, where new connections (PCP Only), migrations and Start of Stopped Lines have been charge controlled separately. Applying a basket control to GEA connections would be most appropriate at this time as it would ensure prices could be set that drive efficient behaviours and ensure that there was appropriate alignment with underlying costs as the products mature.

116. In using two different cost modelling approaches for MPF and GEA, Ofcom have generated vastly different prices for logically similar products. For example, MPF Left in Jumper Restart is very similar in concept to an FTTC Start of Stopped line, but the prices will be dramatically different over the control period. There is no logic to support this and Ofcom need to consider if its modelling approach is creating sensible prices across the WLA portfolio - see Figure 8 below.

Figure 8: Impact of Ofcom's modelling approach across the WLA portfolio

	CCY0	CCY1	CCY2	CCY3
CPI		**3.2%**	**3.2%**	**3.0%**
Control (X)		**-27.5%**	**-15.9%**	**-5.3%**
CPI + X		**-24.3%**	**-12.7%**	**-2.3%**
MPF SoSL/WLTO (LIJ re-use)	12.73	9.63	8.41	8.21

[21] Better Policy Making: Ofcom's approach to Impact Assessment; see further CMA 50 Guidelines on Competition impact assessment at https://www.gov.uk/government/publications/competition-impactassessment-guidelines-for-policymakers

[22] The Act, sections 3 and 4, and Framework Directive Article 8

[23] The Act, section 3(4)(c)

[24] Ibid, section 3(4)(d)

[25] Ibid, section 3(4)(e)

	Control (X)		**-83.3%***	**-57.9%**	**1.1%**
	CPI + X		**-80.1%***	**-54.7%**	**4.1%**
	GEA SoSL	32.52	6.47*	2.93	3.05

*Note: GEA SoSL is price regulated in CCY1, the values for X and CPI+X shown are implied by movement to the specified price.

Source: Openreach analysis of Ofcom's proposals

117. To resolve this Ofcom could be consistent in using a top down modelling approach for all products, so that consistent prices are generated.

118. While Ofcom has only charge controlled the GEA 40/10 connection price. Ofcom implicitly recognise that all connection prices will be reduced, as they reflect this in their calculation of charge controls. Openreach will come under pressure to reduce all connection prices, as otherwise CPs could order a new connection at 40/10 (at the lower, charge controlled price) and then pay for a bandwidth modify to another bandwidth (as the prices Ofcom are proposing create a price arbitrage opportunity).

119. In general we believe that connections should be charge controlled on a FAC based standard. However we agree with Ofcom in this situation, a LRIC-only cost standard is helpful as it will encourage migration to Superfast Broadband. However the fixed and common costs should be recovered elsewhere.

120. The nominal cap on FTTP connections is inappropriate. The FTTP 40/10 connection price is not excessive and we believe the connection price should not be subject to any form of charge control

    as the existing fair and reasonable pricing obligation is sufficient.[26] Further, a cap on full fibre services will dampen incentives to invest in full fibre networks. The case for the deployment of FTTP is very sensitive to price and the incentive for Openreach to roll out to new areas will be severely restricted if the overall price is not allowed to flex to take account of the higher costs of increasingly unattractive commercial opportunities. Furthermore, as discussed above Openreach may need to rebalance between connection and rental prices to encourage demand. It cannot be the case that Openreach has already reached a 'fair bet' on FTTP investment and so to impose such a tight constraint on FTTP prices is not acceptable. A fair and reasonable pricing obligation would be sufficient to protect customers while giving the flexibility to reflect the changing costs of FTTP as deployment expands to less attractive areas.

121. If Ofcom nonetheless believes a price cap is appropriate then it should be real and not nominal. Footnote 87 cites low inflation in the recent past and uses this as the justification for a nominal cap, but this is not reflective of forecast CPI. An index linked cap would still provide sufficient price stability and certainty.

[26] Further, it is not clear from the Consultation that Ofcom has met the necessary statutory requirements to impose a new price control on Openreach. For example, Ofcom has not undertaken an impact assessments consistent with its own guidance (and by reference to the CMA's guidance). Also, Ofcom has not demonstrated compliance with the Act, sections 47 and 88, including: (i) that such a condition is objectively justified and proportionate; and (ii) establishing that there is a relevant risk arising from price distortion.

h. GEA migrations

122. We understand the rationale behind LRIC as the cost standard for this item. However the difference in price for this product compared to FTTC Start of Stopped Line connections does not appear logical given these are essentially the same activity. We would ask Ofcom to reconsider the levels of CPI-X calculated for these two products given they should have similar costs. **i. GEA ceases**

123. Openreach does not disagree with the adoption of MPF Cease principles for GEA, however, allowance should be made for GEA Hard Ceases which do occur, for example where an End Customer reverts from GEA to LLU, or ceases GEA for a product not on the Openreach network. To this end Ofcom should ensure the costs related to all hard ceases are reflected in the prices set for FTTC 40/10 rental charges. From our review of the Ofcom model it appears that GEA Hard Ceases are currently being recovered within FTTC Connections instead.

j. GEA bandwidth modify

124. Ofcom proposes two different charge controls for the same product – a charge control on GEA Bandwidth Modifies to 40/10, and aligning GEA Bandwidth Modifies to MPF modify for to any other bandwidth. This creates two significant issues. First, there will be different prices for the same product which creates discrimination (while not even providing the protection Ofcom intends), and second, this creates practical implementation issues as it will require system development to allow the same product to be billed at different charges.

125. On the first issue, Ofcom has implemented a specific charge control on GEA Bandwidth Modifies to 40/10 to protect consumers on the key FTTC variant. This is intended to give greater protection on the key variant, and yet the design of the charge controls has led to the GEA Bandwidth Modifies to another other bandwidth to be priced lower. This is an illogical outcome seemingly not in line with

Ofcom's intention.

Figure 9: GEA Bandwidth Modifies to 40/10 over the charge control period

Price (£)	CY0	CY1 **8.02**	CY2	CY3
GEA BW Modify (to 40/10)	**11.25**		**6.83**	**6.84**
Amend/Modify/Cancel and GEA BW (non-40/10)	**11.25**	**4.86**	**3.35**	**3.25**

Source: Openreach analysis of Ofcom's proposals

126. Figure 9 above shows the GEA Bandwidth Modifies to 40/10 prices over the control period and the other GEA Bandwidth Modify prices (aligned to MPF modify, assume the CPI-X of the MPF Ancillary basket is applied to every product). GEA Bandwidth Modifies to 40/10 – intended to be controlled more closely - has a higher price than the other GEA Bandwidth Modifies. If the charge control for GEA Bandwidth Modifies to 40/10 has been set correctly at FAC, then the alignment of Bandwidth Modifies to other bandwidths to MPF modify would result in a price below FAC. This is clearly wrong, as Openreach is entitled to recover all costs.

127. On the second issue, Bandwidth Modify has been set up as a single product with a single billable price. To allow different prices to be charged for this one product as Ofcom proposed,

system development will be required. A broad estimate of the implementation costs to move away from this charging assumption to allow the various Bandwidth Modify orders to be priced individually would be in the range £100k - £200k. This should be taken into account in the setting of charge controls so that Openreach has the opportunity to recover this cost. Further, it is unlikely that the change could be implemented for the start of the control period, the development itself could be complex and additionally it would be subject to the industry prioritisation process.

128. Our proposed solution would be to retain the charge control on GEA Bandwidth Modifies to 40/10. A fair and reasonable obligation would remain on other GEA Bandwidth Modifies offering protection to customers. In practical terms, all GEA Bandwidth modifies would have the same price to avoid unnecessary spend on system development.

129. For this to be reflected in the legal instrument, the link between MPF and GEA amend prices in Condition 7C.5 should be removed.

k. GEA Cablelink and VLAN Moves applied to Cablelink

130. Ofcom is proposing to replace the fair and reasonable charges obligation with flat nominal caps on:

- Cablelink 1Gb at £2,000;
- Cablelink 10Gb at £10,000; and
- VLAN moves applied to GEA Cablelink Modify transactions at £15.

131. The costs for Cablelink are currently very uncertain. First, we are moving to new equipment suppliers. Second, costs could increase with the shift towards providing higher capacity cablelinks and we may need to replace part of the existing estate. This will change the cost base. Third, the move to higher capacity links will lead to a different dynamic of port utilisation on the linecards. Cablelink costs are highly sensitive to the level of port utilisation, which is uncertain and largely out of Openreach's control as it is driven by CPs' policies on contention. Given this uncertainty we agree that a charge control is not appropriate. We consider that a fair and reasonable pricing

obligation would be most appropriate given this uncertainty.[27]

132. If Ofcom believe a price cap is the appropriate form of price control, as discussed above we believe a real cap rather than a nominal cap would be more appropriate given high inflation forecasts over the charge control period. We would also object to any calls to set the cap lower than the current price given the changing cost base.

[27] Further, it is not clear from the Consultation that Ofcom has met the necessary statutory requirements to impose a new price control on Openreach. For example, Ofcom has not undertaken an impact assessments consistent with its own guidance (and by reference to the CMA's guidance). Also, Ofcom has not demonstrated compliance with the Act, sections 47 and 88, including: (i) that such a condition is objectively justified and proportionate; and (ii) establishing that there is a relevant risk arising from price distortion.

Optimisation and Repair Services

133. Figure 10 below summarises Openreach's position with regard to Ofcom's price proposals for Optimisation and Repair Services.

Figure 10: Openreach's position with regard to Ofcom's price propsals for Optimisation and Repair Services

Service / basket	Openreach's summary position
l. Time Related Charges (TRCs)	• The hourly rate used by Ofcom is significantly understated and will result in Openreach being unable to recovery its efficiently incurred costs.
m. SFI	• In common with TRCs, Ofcom materially understates the hourly rate when setting prices.
	• Openreach proposes Ofcom set a control on average task times across SFIs rather than on individual prices.
n.GEA Time Related Charges (TRCs)	• There is no case to impose an additional control on these services, they are already priced in the way Ofcom propose.
o. Line test OK Products	• Superfast recharge & Remote Assure, and Fibre Broadband Boost & SFVA should not come under any kind of charge control as they are not reasonably required for the provision of the FTTC service.
	• If Superfast recharge & Remote Assure, and Fibre Broadband Boost & SFVA are to be controlled it should be by a price cap at current prices in real terms.

l. TRCs

134. We argued in the 2014 FAMR that a charge control for TRC services was disproportionate and unwarranted, and that is still Openreach's position. Rather than repeat the arguments we made again here we would refer Ofcom to our response regarding TRCs in the last FAMR which can be found at https://www.ofcom.org.uk/__data/assets/pdf_file/0021/46173/bt_group.pdf.

135. Notwithstanding this, if Ofcom is nevertheless minded to a charge control, we consider Ofcom has not proposed an appropriate charge control level. In particular we consider Ofcom's update of the hourly rate to apply to TRCs is understated and has resulted in the prices being set at the wrong level such that Openreach cannot recover its efficiently incurred costs.[28] Openreach agrees that FAC is the correct costs standard but believes that the proposed prices are below this.

136. All prices for TRCs and SFIs are based on an hourly labour rate of £46.46 for 2018/19, significantly below the current price of £52.80. We believe an hourly labour rate of £55.27 would be more appropriate, as calculated in the table below. This uses the actual payroll data for 2016/17 (taken from ✂) and then projects forward at the expected levels of pay inflation. The methodology used to calculate these figures, including the ✂% uplift on direct pay to reach FAC is consistent with the approach used by Ofcom in the 2016 determination in the TRC/SFI dispute[29]. If Ofcom now proposes to use a different methodology to set these prices or

[28] We are concerned that this would not be proportionate, consistent with the Act section 47.

[29] ✂% uplift on direct pay taken from 4.207 of the TRC-SFI Final Determination published 17 November 2016. This is the figure from 2015/16, as the 2016/17 are still to be finalised.

calculate the overhead recovery rate it should explain what approach is being used, and what justification there is to change the approach used to date.

137. We also query the levels of X that reduces the hourly labour rate in the second and third year of the control (CPI-8.7% for 2019/20 and CPI-1.4%). This is an hourly rate of labour, so efficiency in terms of reduced task time is not relevant here – the hourly rate is applied to the task time and the efficiency in task time should some through the hours of work performed. We believe these costs should broadly track CPI as they will be increasing in line with pay reviews and in trying to recreate
Ofcom's analysis we can't see where a suitable allowance has been made for pay inflation unless it is being offset by a flawed efficiency assumption.

138. We would have expected the level of X to be more consistent with other charge controls. For example TRC rates in the BCMR decrease by 0.15% a year and TRC rates in the previous FAMR increased by 0.2% per year.

Figure 11: TRC blended labour rates

	1617	*1718 Forecast*	*1819 Forecast*
TRC Blended Labour rate	✂		
Pay inflation forecast		*3.30%*	*3.30%*
Forecast TRC Blended Labour Rate		✂	✂
Uplift for cost recovery	✂	✂	✂
FAC (87% uplift)	**51.79**	***53.50***	***55.27***

Source: Openreach analysis

m. SFIs

139. We argued in the 2014 FAMR that a charge control for SFI services was disproportionate and unwarranted, and that is still Openreach's position. Rather than reiterate the arguments we made again here we would refer Ofcom to our response regarding SFIs in the last FAMR which can be found at https://www.ofcom.org.uk/__data/assets/pdf_file/0021/46173/bt_group.pdf

140. Openreach agrees it is sensible to align the hourly labour FAC for SFIs and TRCs, however this should be at the correct level. Please refer to our comments above on the hourly rate used for TRCs.

141. A control on the average task time across all SFI products would be most appropriate rather than individual module controls. The exact timings for each module are not available within our systems and therefore need to be derived. To charge control on this basis creates a set of individual prices that are not accurate at this level of detail, and also creates complexity in the setting of prices and reporting of costs. We would request instead that compliance should be demonstrated across SFI products in total and not on each module.

142. We also disagree with setting the price in 2018/19 on a fixed task time that cannot be amended for three years. Reviews will be undertaken on the SFI product in this time and we believe more flexibility would be beneficial to allow these products to evolve. Please see the response to question 5.1 (Condition 7) for further comments on changes we would propose to the legal instrument in this regard.

n. GEA TRCs

143. While Ofcom did not mandate TRC charges for GEA in the 2014 FAMR, Openreach now proposes to apply the copper rates for TRCs related to GEA services. As a matter of good regulatory practice Ofcom should only impose additional regulatory burdens if there is a good case to do so, i.e. *inter alia* it is objectively justified, reasonably necessary in light of the specific harm identified and
proportionate. Given Ofcom's proposed regulation would have no effect on Openreach's actual charges for TRCs for GEA, it is unnecessary and disproportionate.[30]

o. GEA - Line Test OK products

144. First, Openreach does not agree that Superfast Recharge, Remote Assure, Fibre Broadband Boost and SFVA should come under any kind of charge control, as we do not believe they fall within the scope of Condition 1, on the grounds that they are not reasonably required for network access.
When a "Line Test Ok" product is ordered by the CP and charged to them, it is because the line is testing ok and performing according to the required product definition. These products perform further investigations to enhance the operation of a line, which is not a service that is reasonably required for network access.

145. Second, it is not clear from the Consultation that Ofcom has met the necessary statutory requirements to impose a new price control on Openreach. For example, Ofcom has not undertaken an impact assessment consistent with its own guidance (and by reference to the CMA's guidance). Also, Ofcom has not demonstrated compliance with the Act, sections 47 and 88, including: (i) that such a condition is objectively justifiable and proportionate; and (ii) establishing that there is a relevant risk arising from price distortion.

146. Setting these points aside, Openreach does not agree that different approaches should be adopted for Superfast Recharge, Remote Assure, Fibre Broadband Boost and SFVA, and proposes all have a cap-based control. Any such control should be real and not nominal given the forecast increases in inflation and this being a largely pay-related item.

147. The price of Broadband Boost is contracted at £180, the figure of £159 quoted by Ofcom is net of rebates which are applied in circumstances where a Broadband Boost has been ordered and it is subsequently discovered that the problem was on the Openreach network (a hard fault) and not chargeable. Given this, any control applied should be on the published price and not a figure of £159 which is derived from the net amount billed (after rebates for non-chargeable

[30] Further, it is not clear from the Consultation that Ofcom has met the necessary statutory requirements to impose a new price control on Openreach. For example, Ofcom has not undertaken an impact assessments consistent with its own guidance (and by reference to the CMA's guidance). Also, Ofcom has not demonstrated compliance with the Act, sections 47 and 88, including: (i) that such a condition is objectively justified and proportionate; and (ii) establishing that there is a relevant risk arising from price distortion.

visits have been net off) divided by the total volume of visits. We therefore believe Ofcom should adjust the statement and the legal instrument to reflect a cap of £180.

4. Charge control cost modelling

Overview of this section

148. We answer the questions in this section in the order posed by Ofcom. In addition to these answers we also attach with this response one annex, the following annexes:

- Annex 1 – Historic and Future Savings;
- Annex 2 – A report by EY on BT's efficiency;
- Annex 3 – A report by Oxera on BT's WACC; and
- Annex 4 – Volumes

Question 4.1 Do you agree with our proposed conceptual modelling approach? Please provide reasons and evidence to support your answer.

149. As set out in our response to Question 2.3, we agree that the hybrid approach adopted by Ofcom to modelling Openreach's costs across copper access and fibre access services is, in principle, reasonable. Our concerns, as set out in response to the remainder of the section 4 questions, are in the way Ofcom has implemented its modelling approach and forecast costs. The overarching objective should be that prices: (a) provide an opportunity for Openreach to recover its efficiently incurred costs of supply and earn a fair return on investments; and (b) are set in a way that is consistent the fair bet principle as applied to Openreach's fibre investment programme which started in 2008/9. On this basis, Ofcom should adjust its modelling such that:

- The key parameters driving its top-down forecast of copper access costs reflect the evidence set out in this submission about the forward-looking drivers of efficient costs; and
- The bottom-up forecasts of the costs of supplying superfast fibre connections in the period to 2028/29 are consistent with Openreach's updated business case and capture all assets necessary to ensure the network is capable of delivering the forecast level of services at the required speed and service quality.

150. As well as these concerns with the underlying forecasting models, we are concerned about how Ofcom's conceptual approach ensures that total costs of supply across copper and fibre access services – including common costs – will be recovered. This is clearly important given the large value (over £1bn per annum) of fixed and common costs Ofcom seeks to reattribute between fixed access copper services and GEA services. Ofcom's top-down model forecasts FAC across all copper and fibre services, but these forecasts are not actually used by Ofcom when seeking to identify the future value of common costs. Instead Ofcom separately forecasts common costs for copper services and common costs for GEA services. It then pools these common costs before reallocating them across the copper and fibre services. This approach leaves a gap of £69m across the three years of the charge control period compared to the aggregate top-down forecast, and it is not clear why Ofcom considers its disaggregated forecast approach results in a more appropriate outcome than the top-down total forecast. Given the scale of the gap, it is vital that Ofcom clarifies its position at the earliest opportunity to allow Openreach to make more detailed submissions on this point.

Lack of relevant cross checks

151. Ofcom describes the methodology it has adopted to convert the RFS data used for forecasting purposes, and then to apply the cost equations to produce the cost forecasts. However, although this approach is consistent with Ofcom's previous practice, it is marred by a complex set of adjustments. In its Consultation and in its models, Ofcom does not show the total costs, for either the WLA and WFAEL markets, in their entirety or for the charge controlled services. This makes it difficult to assess the impact of its adjustments and carry out high level sense checks.

152. On the basis of what we have been able to review, we believe there may be cases of double counting, e.g. FVR and Opex efficiency, as well as adjustments that do not flow through to the final costs, e.g. diluted QoS uplift. We consider the service quality and efficiency adjustments together in our response to Question 4.8.

153. Ofcom's bottom-up LRIC model appears to capture all the direct costs. However we have some concerns about the bottom-up LRIC model which we explain further in our response to Question 4.4 below.

The approach to forecasting common costs should be assessed further

154. As discussed above, we do not have an issue with the approach that Ofcom has taken in modelling copper and fibre separately, however, we think it important to ensure that common costs are forecast appropriately.

155. Based on Ofcom's modelled outputs we calculate the impact, and discuss the merits of the different steps Ofcom has taken when re-attributing common costs[31]. As Figure 12 below shows, the total costs before reattribution (calculated from the product volumes and the top-down product unit costs) are higher than the total costs after reattribution (calculated from the same product volumes and the product unit costs adjusted to reflect reattribution of common costs).

Figure 12: Impact of Ofcom's calculations while reattributing common costs

	2018/19	2019/20	2020/21	3yr total
FAC before common cost reattribution	**3,070**	**3,149**	**3,152**	
Add PIA costs	11	13	15	38
Deduct income from copper scrap recovery	(7)	(7)	(8)	(22)
Sub total	***3,074***	***3,155***	***3,159***	
Deduct common cost attributed to BDUK areas	(78)	(85)	(92)	(255)
Sub total	***2,996***	***3,070***	***3,067***	
Diff between bottom-up LRIC and top-down FAC	(25)	(24)	(20)	(69)
FAC after common cost reattribution	**2,971**	**3,046**	**3,047**	

Source: Openreach analysis of Ofcom's proposals

[31] As set out in Workbook 'CPI-X Model', worksheet 'Common cost allocation'

156. Ofcom makes the following adjustments:

- Ofcom has made an allowance for additional costs arising from implementation of PIA, which Ofcom proposes to treat as common costs and recover across all users of the network[32]. Over the three year period of the charge control, these adjustments effectively add £38m of cost.
- Ofcom has made an estimate of the benefit to us of net proceeds from recovering copper cables from the network and selling them for scrap[33]. Over the three year period of the charge control, these adjustments effectively remove £22m of cost. We have commented on the appropriateness of this approach and Ofcom's estimated net benefits to Openreach in our response to Question 4.10.
- Ofcom has deducted a proportion of the common costs by attributing them to noncommercial (BDUK) areas. Over the three year period of the charge control, these adjustments effectively remove £255m of cost.

157. When Ofcom makes the allowance for GEA common costs, an uplift is included for FTTP costs, and the common costs for bandwidth changes are excluded. We are unable to comment meaningfully on this adjustment without further explanation from Ofcom of why it has excluded common costs for bandwidth changes.

158. As per the table above, given the difference that results between the bottom-LRIC and top-down FAC forecasts of common costs (£69m) and the complexity of the adjustments, it would be beneficial if Ofcom specified in more detail why the apparent difference in cost forecasts does not result in understatement of efficiently incurred costs in aggregate. A particular area of concern is that Ofcom has not been consistent in the use of top-down and bottom-up LRICs used in calculating the total costs for GEA products before reattribution and after reattribution. The total costs before reattribution (calculated from the product volumes and the top-down product unit costs) are higher than the total costs after reattribution (calculated from the same product volumes and the product unit costs adjusted to reflect reattribution of common costs). The difference of £69m between these two approaches is outlined above[34]. We request that Ofcom explains the rationale behind these calculations.

159. In summary, our key concern is not the principle of re-allocating common costs but rather that, when implemented in Ofcom's modelling, the resulting pricing proposals fail to recover all efficiently incurred common costs, i.e. some costs are lost. We believe Ofcom's current proposals require further assessment of the impacts. There should be consideration of the commercial realities of setting relative charges for different, but interlinked, products and any impact on the competitive conditions in the market.

160. We would appreciate being able to work through these points in more detail with Ofcom.

[32] Workbook 'CPI-X Model', worksheet 'Common cost allocation' from row 147

[33] Workbook 'CPI-X Model', worksheet 'Common cost allocation' from row 169

[34] Workbook 'CPI-X Model', worksheet 'Common cost allocation': top-down product unit costs from row 3, commercial product volumes from row 74 and adjusted product unit costs from row 248

Question 4.2: Do you agree with our proposed approach to forecasting service volumes? Please provide reasons and evidence to support your answer.

161. Openreach welcomes the changes made to Ofcom's WLA Volumes Model following the May 2016 Consultation on WLA Fibre Cost Modelling (Fibre Cost Modelling Consultation)[35] and the acknowledgement of the points raised in our input to the consultation. We note that a significant development to the model is the explicit inclusion of an adjustment which accounts for the impact of the PIA remedy and Project Lightning[36]. This was a key recommendation in our response to
Ofcom's Fibre Cost Modelling Consultation, and we welcome the inclusion of both items in the model to reflect the impact of competition on the Openreach WLA base.

162. However, a number of issues remain. These are summarised below and set out in more detail in Annex 4 to this response:

- First, the use of UK household growth rather than dwelling growth to represent new organic demand for fixed lines, which in our view results in the number of Openreach lines by 2020/21 being overstated by ✂k;
- Second, the inappropriate application of a dampening factor (1.4) to the forecast of Openreach lines per business site, which leads to an overstatement of Openreach lines by 2020/21 by ✂k;
- Third, the omission of a specific adjustment to account for the increasing competitor impact from Virgin Media outside its Project Lightning build, i.e. within its existing footprint. We estimate this will reduce the number of Openreach lines by 2020/21 by ✂k;
- Fourth, Ofcom should include an additional impact from "Alt Net build not using PIA" reflecting the increasing rate of network build and take-up as distinct to that directly dependent on PIA; and
- Fifth, within the total number of Openreach lines, our assessment is that Ofcom's forecast of GEA volumes by 2020/21 is overstated by ✂k.

163. Notwithstanding Openreach's forecast of ✂m GEA lines in 2020/21, should Ofcom accept our points regarding the WLA Volumes Model, the forecast GEA base, on Ofcom's own terms, would be ✂m in 2020/21 compared to 14.06m currently within the model. Similarly the forecast total Openreach line base would be at most ✂m in 2020/21 compared to the 24.36m currently in the model.

[35] https://www.ofcom.org.uk/consultations-and-statements/category-3/wholesale-local-access-market-reviewfibre-cost-modelling

[36] Ofcom, WLA Market Review, March 2017, Annex 10, paragraph A10.20

164. Using Ofcom's cost modelling and pricing assumptions the impact of correcting the volume forecasts would result in an extra £47m of revenue over the charge control period.

Question 4.3: Do you agree with our proposed top-down cost modelling for MPF services? Please provide reasons and evidence to support your answer

165. Ofcom uses 2015/16 WLA and WFAEL RFS costs as a starting point for forecasting costs. It then makes a series of adjustments to these costs. Its forecast volumes, target efficiency and estimated cost elasticities are then applied to the base year costs to forecast Openreach's service costs in the charge control period. We agree in principle with the top-down approach based on BT's audited regulatory financial statements (RFS) (WLA and WFAEL market). It is an approach that Ofcom has adopted for a number of reviews.

166. We have a number of concerns with the output of Ofcom's top-down modelling exercise as a means of forecasting Openreach's efficiently incurred costs out to 2020/21. We are broadly content with the overall approach adopted but take issue with a number of adjustments made to the base year data from the RFS, the estimation of key forecasting parameters or drivers and the treatment of a number of 'overlay' costs items, such as income from disposal of E-side copper.

167. In considering if Ofcom should amend its top-down cost forecast, in order that the resulting prices allow Openreach to recover its efficiently incurred costs, we need to review the areas listed below. We indicate in brackets where our response to each item can be found.

    I. Base year adjustments (Q4.3)
        i. Target Weighted Average Cost of Capital (WACC) (Q4.3)
        ii. SLG Adjustment (Q4.3)
        iii. Adjustment to tie cables (Q4.3)
    II. Calculation of component volumes using adjusted usage factors (Q4.3)
    III. Forecast of capital costs (Q4.3)
    IV. Pensions servicing costs (Q4.3)
    V. Fault Volume Reduction (FVR) adjustment (Q4.8)
    VI. Forecast Volumes (Q4.2)
    VII. Target efficiency (Q4.8)
    VIII. Inflation assumptions (Q4.6)
    IX. Cost elasticity parameters (Q4.7)
    X. Cumulo costs (Q4.9)
    XI. Sales of Copper (Q4.10)
    XII. Sales of property (Q4.11)

XIII. Loss of costs through using the BU LRIC model for GEA services for forecasting purposes (Q4.1)

168. In the answer below, we outline that Ofcom should change its approach to: (1) base year cost adjustments; (2) usage factors assumptions; (3) WACC estimate; and (4) pensions servicing cost assumptions. If Ofcom appropriately addresses these issues, the resulting forecast costs and subsequent prices set by Ofcom will allow Openreach to recover its efficiently incurred costs (if not amended there would be a shortfall of £129m over the charge control period).

Base year costs

169. We agree that the RFS is a good starting point and that the unadjusted Ofcom inputs tie back to the RFS for the WLA and WFAEL markets.

170. The adjustments that Ofcom has made to the base year are outlined in Figure 13 below:
Figure 13: Adjustments to Base Year costs

Base year adjustment	2015/16
1 2015/16 RFS	3,166
2 Change in WACC to 8.1%	(74)
3 Remove Cumulo	(65)
4 Remove BDUK	(91)
5 Remove SLGs	(47)
6 Smooth property and restructuring provisions	35
7 Adjust software capitalisation credit	(5)
8 Adjust QoS mix	1
9 Change in OCM depreciation due to asset lives	195
10 Change in OCM depreciation for Tie Cables	(5)
11 Change in Cost of Capital due to Steady State	103
12 Change in Cost of Capital for Tie Cables	(3)
13 Change in Holding (Gain)/Loss due to price change	47
14 Removal of Other CCA Adjustments	(3)
15 Change in Pay and Non-Pay for Tie Cables	(1)
16 Removal of components	(140)
17 Reduction of Tie Cables	(11)
18 Add SLG forecast	30
19 Adjusted FAC before common cost reattribution	3,132

Source: Ofcom

171. Openreach's analysis to date suggests Ofcom has overstated the removal of costs in relation to the following adjustments:

- WACC (2,11,12);
- SLG (5, 18);
- TIE Cables (10, 15, 17).

172. In relation to the other base year adjustments we have no specific comments at this time.

Target Weighted Average Cost of Capital (WACC)

173. Unusually, Ofcom has not asked a specific question about its WACC proposals. As some of the base year adjustments result from Ofcom's estimate of WACC, we have taken the opportunity to provide our views on Ofcom's WACC estimate in this section.

Ofcom has under-estimated the cost of capital for regulated activities

174. Ofcom proposes that the pre-tax nominal WACC for Openreach copper access assets is reduced from 8.8% (as estimated by Ofcom in 2016) to 8.0%, whilst the Other UK telecoms WACC is reduced from 9.8% (estimated in 2016) to 9.4%. These reductions are shown in Figure 14 below.

Figure 14: Reductions in WACC estimates since 2016

	Estimate April 2016	Estimate May 2017	Reduction
Openreach copper assets	8.8%	8.0%	-0.8%
Other UK Telecoms	9.8%	9.4%	-0.4%

Note: All estimates are pre-tax nominal

Source: Openreach presentation of Ofcom's proposals

175. What appear to be relatively small differences in the WACC have very large implications for BT, and in this case in Openreach's ability to recover its efficiently-incurred costs. The reductions in the WACC for Openreach copper assets and for Other UK Telecoms result in a reduction of revenues of nearly £80m a year.

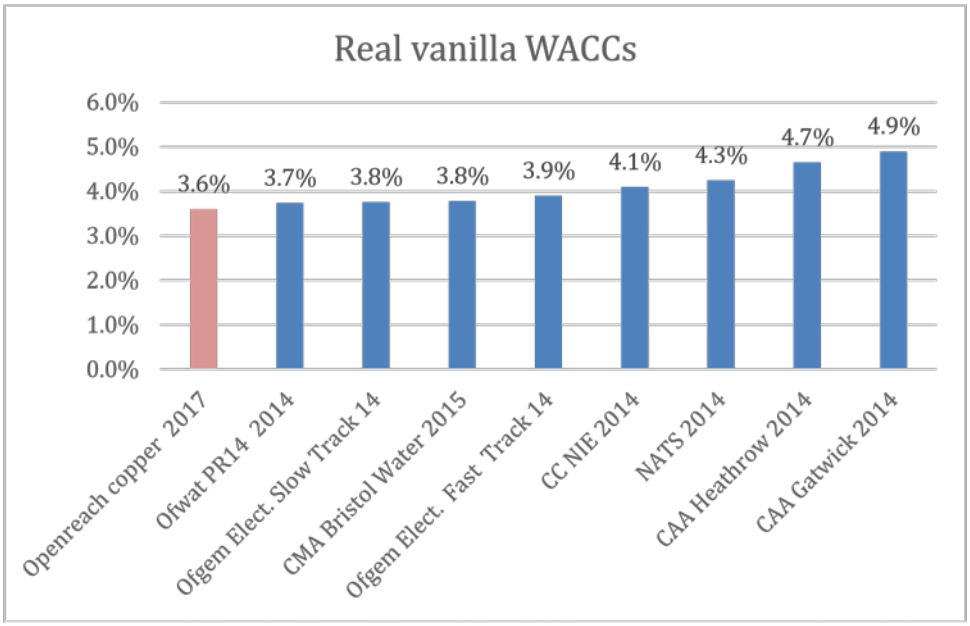
176. We do not agree that these significant proposed reductions in WACC estimates are justified. They have arisen due: (i) to particular interpretations of financial data which we consider are unjustified; (ii) because Ofcom has used an inappropriate estimate of the level of BT's debt; and
(iii) because Ofcom has made an adjustment for the effects of BT's pension deficit which is not justified nor supported by any data which Ofcom presents.

177. The asset beta estimated by Ofcom for BT Group (which measures the underlying risk of investing in BT) increased between the BCMR determination in 2016 and the WLA proposals in 2017, from 0.72 to 0.81 on a like for like basis. All else being equal, this implies that there should be an increase in the WACC of around 0.6% points. However, for BT Group on average, Ofcom has reduced its estimate of the WACC by 0.3% from 9.9% to 9.6% between 2016 and 2017. The fact that the WACC estimates have decreased implies that Ofcom has made very significant downwards revisions to some of the inputs to the CAPM used to estimate the cost of capital. For the reasons given below, we do not consider that Ofcom has adequately demonstrated the validity of these changes.

Allowed returns on Openreach copper assets

178. The resulting WACC for Openreach copper access is now materially below that permitted by other sectoral regulators, who have all set higher financing cost allowances for forward-looking periods which largely coincide with that under consideration by Ofcom. Currently prevailing WACC estimates showing the relative differences are shown in Figure 15 below.

Figure 15: Comparison of WACCs estimated by different UK Regulators[37]



Source: UK Regulators Network (UKRN)

179. That telecoms should have a lower WACC than regulated monopolies (water, electricity distribution) is not credible because the risk borne by investors in BT Group, including in relation to regulated copper assets, is higher than in these other sectors. There are a number of reasons for this, some of which Ofcom has recognised in the past:

- suppliers in these other sectors do not face the same degree of threat of being overtaken or rendered obsolete by alternative technologies as Openreach does;[38]

[37] From Cost of Capital Annual Update Report 2015-16 24 March 2016, UKRN. The real "vanilla" WACC which is calculated using the formula below, where gearing is the ratio of debt to equity:

WACC= (Cost of Debt x Gearing) + (Cost of Equity x (1-Gearing))

For Openreach, WACC = (0.35*1.4%) + 0.65*(0.5+(0.79*5.5%))= 3.64%

[38] In 2011, Ofcom wrote that,

"We do not necessarily agree [with TalkTalk] that all assets within Openreach are protected from asset stranding [to a 'very similar' degree to those in water/electricity]. For example, we do not think it is necessarily the case that, if there was a material shift in the number of users accessing broadband through mobile services, all of Openreach's investment in the regulated copper access base would be protected from stranding risk."

- the degree of volume risk is not the same as for Openreach because utilities such as energy and water are closer to natural monopolies of essential services, as Ofcom has also recognised;[39]
- Ofwat and Ofgem make use of allowed revenue controls rather than price controls, which means these suppliers do not face the financial impact of volume risk on revenues (whereas Openreach is fully exposed to volume risk);
- the telecoms regulatory framework has no "duty to finance", unlike for example that in the water industry: Ofcom has stated that this implies that telecoms is likely to be riskier than water utilities.[41]

180. As a result, the systematic risk for Openreach will be higher than that in other sectors and, *ceteris paribus*, under the CAPM framework, this fact should result in a higher WACC. As Ofcom stated in 2016 (emphasis added):

> *"A priori, we would expect the WACC for a telecoms business to be somewhat above that of a water utility, not least since the systematic risk appears higher".*[42]

181. The relative position of the outturn WACC for Openreach shown in Figure 15 above is therefore inconsistent with the underlying activities of the different businesses (and their risk profile) and even Ofcom's *a priori* expectations.

Oxera Assessment of Ofcom's Approach and Revised Estimates

182. Openreach commissioned Oxera to investigate Ofcom's preliminary finding and to comment on the reasonableness of Ofcom's estimate of the Openreach WACC, and the WACC for Other UK telecoms. Oxera's report is attached as Annex 3. In Oxera's view, explained in their report:

- Ofcom appears to have placed excessive weight on short-term movements in government and corporate bond yields since the EU membership referendum, and appears to ignore the simultaneous increase in capital market volatility and evidence from regulatory precedents; and
- Ofcom has used estimates of BT's gearing that are overstated, and there is no justification for the inclusion of BT's pension deficit in estimating BT's WACC.

183. Oxera proposes that:

- The parameter estimates for the market returns, cost of debt and forward-looking gearing be retained from the BCMR 2016 decision. This would constitute a reasonable approach to estimating the allowed WACC for BT Group and its constituent business divisions;

Ofcom, WBA Charge Control Charge control framework for WBA Market 1 services, Statement 20 July 2011 paragraph 6.222: https://www.ofcom.org.uk/__data/assets/pdf_file/0024/36942/statement.pdf

[39] *"levels of demand for pure utility services (i.e. water, electricity etc.) which are considered 'essentials' by consumers tend to be very robust, and relatively impervious to changes in GDP levels. We consider that demand for telecommunications network services is also fairly robust. However, we do not think it is obvious that this demand is as certain as the [sic] products provided by the pure utility operators."*

- Any impact of pension deficits should be excluded when estimating BT's gearing, consistent with Ofcom's decision in 2010 (i.e. the last time Ofcom consulted and subsequently decided to exclude any theoretical impact of BT's pension deficit); and

Ibid

[41] Ofcom, Fixed Access Market Reviews Statement, June 2014, Annex 14, paragraph A14.183: https://www.ofcom.org.uk/__data/assets/pdf_file/0026/78812/annexes.pdf

[42] Ofcom, Business Connectivity Market Review Statement, April 2016, Annex 30, A30.24: https://www.ofcom.org.uk/__data/assets/pdf_file/0032/54977/final-annexes-29-30.pdf

- BT's historical gearing for estimating the group asset beta needs to be estimated based on net debt, not total debt.

184. Such changes to the proposed methodology would make Ofcom's approach more consistent with that of other regulators. Based on the observed risk for BT Group as measured by the equity beta, Oxera calculate that BT's Group pre-tax nominal WACC would be 10.5% with an asset beta of 0.86.[40]

185. Given that the "Rest of BT" beta is already at the top end of its plausible range,[41] and if the copper access beta is kept at 0.55 consistent with Ofcom's view in 2016, then the effect of the revised group asset beta will fall on the Other UK telecoms WACC. A summary of the resulting betas is set out in Figure 16 below, together with the resulting pre-tax nominal WACCs following Ofcom's revisions[42]

Figure 16: Asset betas and WACCs following Oxera recommended revisions (and holding Openreach copper assets beta and Rest of BT beta at their 2016 levels)

	Openreach copper assets	Other UK telecoms	Rest of BT	Group
Ofcom weight	20%	65%	15%	100%
Ofcom WLA proposal	0.55	0.75	1.08	0.76
Asset betas consistent with Oxera analysis	0.55	0.90	1.08	0.86
WACC	8.5%	10.8%	12.0%	10.5%

Source: Oxera

[40] Oxera, Response to Ofcom's WACC proposals for the WLA charge controls, June 2017, Table 4.2

[41] On Ofcom's data, when viewed on a like-for-like basis, the RoBT asset beta is much higher than any of the "Tier 1" comparators shown in Table A16.26. These average 0.845 against the 1.15 for RoBT.

[42] Summary table derived from Oxera Tables 4.2 to 4.5

Proposals to include a pensions adjustment effect in the WACC

186. Ofcom's proposal to make an adjustment to the WACC[43] due to BT's pension deficit warrants particular attention. Ofcom reasons that,

> *"if an investor placed weight on the accounting valuation and/or the actuarial valuation approaches, this would increase BT's [implicit] gearing. A higher gearing would imply a lower asset beta for a given equity beta, unless offset by a higher debt beta...*[44]

187. However, Ofcom does not offer any evidence that investors think (and act) in this way or provide any theoretical justification that rational investors should think this way. Ofcom's assumption is made without having any supporting evidential base.

188. The issue of the impact of pensions schemes on the cost of capital was considered by Ofcom at length in 2009 and 2010, when Ofcom also commissioned two papers by Professor Cooper of the London Business School on the subject. The debate centred on a paper by Jin, Merton and Brody (JMB) which suggested the use of an "extended balance sheet" by which the asset beta was derived not just from the levels of debt and equity (and their betas), but also pension liabilities and pension assets (and their betas).[45] Ofcom's "pension adjustment" in effect assumes that the JMB "extended balance sheet" applies but with the pension liability beta and the pension asset beta both being 0.1.[46] There is no basis for such a set of assumptions, and Ofcom provides none.

189. When a pension adjustment was reviewed at length in 2009 and 2010, Ofcom concluded that:

> *"we do not believe an adjustment to the BT Group asset beta, to reflect the BT Pension Scheme, is appropriate."*[47]

190. Ofcom had a number of grounds for this conclusion, which centered on the need for consistency in regulatory approach and to avoid making a subjective adjustment, especially when the appropriate adjustment (i.e. one which would be consistent with the "extended balance sheet" theory) might well be zero. A review of these reasons shows that they apply just as much today as they did in 2010.

191. In 2010, Ofcom referred to the need for consistency in two contexts. First, Ofcom stated that adjusting the pensions deficit in the WACC would be inconsistent with Ofcom's exclusion of deficit repair payments (PDRs) from charge controls:

[43] Oxera calculate the impact to be a reduction of 0.3% in the BT Group WACC

[44] Ofcom, WLA Market Review, March 2017, Annex 16, paragraph A16.86

[45] The effect of defined benefit pension plans on measurement of the cost of capital for UK regulated companies, A report for Ofcom, Professor Ian Cooper, London Business School, 2 September 2009, Figure 1. Professor Cooper refers to this as "an augmented market value balance sheet".

[46] Cooper Equation (3) - when βPA and βPL are 0.1, the deficit is akin to debt as assumed by Ofcom.

[47] Ofcom Pensions Review Statement, 10 December 2010: https://www.ofcom.org.uk/__data/assets/pdf_file/0019/47701/statement.pdf

> *"In Section 5 [of this Statement], we explained our belief that the risks and rewards of the BT pension scheme sit with BT and its shareholders, which supports the exclusion of deficit repair payments from charge controls. We believe that it would be inconsistent for us to determine that the risks and rewards of the pension scheme sit with shareholders but not to allow the regulatory cost of capital to reflect these risks and rewards also."*[48]

192. Ofcom also noted that this position was aligned with the views of the Competition Commission in (August 2010).

> *"The CC suggests that if we disallow deficit repair payments in charge controls, we implicitly accept that shareholders bear the risks and rewards of the pension scheme. In this context it would be inconsistent to exclude the attendant risks of the scheme from the asset beta and the cost of capital."*[49]

193. Further, it is notable that after publication of the Pensions Statement, at the Competition Appeals Tribunal in 2012, Ofcom also argued that it was internally consistent both to exclude pension PDRs for wholesale charges and to set a cost of capital without an adjustment which would have the effect of excluding pension risk to which a company (and its shareholders) may be exposed. In Ofcom's words, this approach was internally consistent,

> *"because the risks and rewards of the pension scheme sat with BT while service costs were allowed, PDR payments were disallowed and no 'pension adjustment' was made to the cost of capital."*[5051]

194. Ofcom still excludes PDRs from price controls, therefore this consideration still applies in the same way.[52]

195. The second issue of consistency relates to consistency over time. Reinforcing the above point, Ofcom stated that (emphasis added):

> *"We believe that a consistent regulatory approach is important for stakeholders in order to encourage, amongst other things, innovation and investment. A consistent approach means consistency over time but above all internal consistency between different elements of decisions made at any given time."*[53]

196. Ofcom recognised that no robust adjustment could be made (emphasis added):

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[48] Ofcom, Pensions Review Statement, December 2010, paragraph 7.29. In other words, it would be inconsistent to make any "pensions adjustment".

[49] Ibid, paragraph 7.61. Ofcom referred to The Carphone Warehouse Group plc v Office of Communications, Competition Commission, *Case 1111/3/3/09, 31 August 2010 p*aragraph 2.350 at http://www.catribunal.org.uk/files/1.1111_Carphone_Warehouse_CC_Determination_310810.pdf

[50] Reference under section 193 of the Communications Act 2003, British Telecommunications plc v Office of Communications supported by British Sky Broadcasting Limited and TalkTalk Telecom Group plc *Case* [51] */3/3/11* Determination, Competition Commission 11 June 2012, paragraph 1.155

http://www.catribunal.org.uk/files/1187_BT_CC_Determination_110612.pdf

[52] In the Pensions Review Statement, Ofcom did state that, *"We noted [in the previous Consultation] that we did not believe that the evidence was clear enough or robust enough to make an adjustment. If compelling evidence emerged to change the above position, we may review our proposed recommendation and treatment in the future"* (7.15). However no compelling evidence has been produced by Ofcom to suggest any change of approach is justified.

[53] Ofcom, Pensions Review Statement, December 2010, paragraphs 7.21 and 7.22

> *"We are one of the few regulators that disaggregates the regulatory cost of capital. Our approach has been scrutinised and accepted as reasonable by the CC [Competition Commission]. Making a further adjustment because of a defined benefit pension scheme, particularly when we do not believe the appropriate size of the adjustment can be estimated accurately, would be speculative at best."*[54]

197. Ofcom has provided no new evidence which suggests that it has better data now than in 2010, and that it can now make a robust adjustment. On this point, Professor Cooper had particular concerns about the subjectivity of any adjustment and, regarding the impact on the Group beta, concluded his Second Report with the statement that whilst his "best guess" based on the data at the time was

    that the pension adjustment might be -0.05 on the asset beta, that this best guess was "*highly* uncertain and definitely not robust".**[55]**

198. Professor Cooper further commented that, "A procedure involving two such significant judgmental adjustments [WACC disaggregation and a pensions adjustment] is unusual in my experience."[56]

199. Ofcom stated that the adjustment might be small or negligible anyway:

> *"it may be that the appropriate adjustment could actually be zero."*[57]

200. The appropriate adjustment could be small or negligible if pension assets and liabilities are similar i.e. there is not a large deficit.[58] Under the JMB theory, the measure of asset and liability value is the market value (thus Professor Cooper's description of "an augmented market value balance sheet"), whereas Ofcom has used BT's published IAS accounting value for the deficit. As Ofcom reports, when BT published its view on the 'best' estimate valuation (as opposed to an actuarial or accounting valuation) this showed that its pension scheme could be in surplus.[59]

201. Further, Ofcom uses the IAS deficit of £11.1bn for the upper end of its adjustment. BT's most recent reported IAS deficit was £7.6bn net of tax at 31 March 2017.[60] The IAS deficit has historically been volatile, which is another reason not to make the adjustment as it would add volatility to a forward-looking measure which is not intended to be subject to short-term fluctuations in underlying parameters.

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[54] Ofcom, Pensions Review Statement, December 2010, paragraph 7.46

[55] Comment on responses to the report: The effect of defined benefit pension plans on measurement of the cost of capital for UK regulated companies: A report for Ofcom, Professor Ian Cooper 13 May 2010, page 30

[56] Cooper, page 31

[57] Ofcom, Pensions Review Statement, December 2010 paragraph 7.55

[58] Ofcom, WLA Market Review, March 2017, Annex 16, paragraph A16.83

[59] Ibid, paragraph A16.85

[60] BT Group plc Q4 and full year 2016/17 - investor meeting slide pack, May and June 2017: http://www.btplc.com/Sharesandperformance/Quarterlyresults/Investormeetingpack.pdf

Regulatory consistency

202. A further consideration which is not discussed by Ofcom is the importance of regulatory consistency over time in order that *regulatory risk* is minimised.[61] Brattle Group[62] quote Giacchino and Lesser's description of this term:[63]

> *"Regulatory risk is another risk factor facing regulated firms that can increase both business and financial risk. Regulatory risk can encompass failing to adhere to Good Regulatory Practice that we defined in Chapter 2, for example by implementing ex-post changes in regulations. But it can also encompass ex-ante changes in how firms are regulated on a going-forward basis. For regulated firms that must make significant capital investments in long-lived assets to meet their obligation to serve, frequent changes in how those firms are regulated leads to greater uncertainty and greater risk. Regulated firms rely on consistency from regulators and assurance that existing regulation will be applied in a fair and reasonable way. Regulatory risk occurs whenever changes in existing regulations or applications of those regulations are perceived by investors to be arbitrary and capricious and, as a consequence, viewed as jeopardizing the opportunity to earn risk-compensatory returns on their investments."*

203. Brattle also add that[64]

> *"NRAs tend to compensate regulated firms* [from regulatory risk and from risk implicit in price-cap regulation] *through the allowed rate of return, and specifically by using the NRA's 'domestic' MS [Member State] bond yield to calculate the 'risk-free' rate, which is in fact higher than a true risk-free rate."* (BT understands the true risk-free rate means the bond yields spot rate.)

204. Ofcom is doing exactly the opposite – Ofcom is proposing to use a risk free rate which is ever closer to the "true risk free rate" at the very time when market volatility is high and therefore caution should be exercised. Further, Ofcom's proposal to change its approach and to make a "pensions adjustment" is insufficiently justified which will add to regulatory risk and thereby have the overall effect of increasing the cost of funding for BT.

SLG adjustment

205. Ofcom allows for SLGs on the basis of Openreach meeting the required service levels and then makes an assumption on the average length of delay relevant to the proportion of provisions and repairs that require SLG payments to be made. We do not believe that Ofcom includes all SLG payments nor has Ofcom reflected the historic trend of actual payments.

206. Ofcom calculates SLGs separately and has not shared its calculations, so it is not completely clear what assumptions it makes. However Ofcom states that it proposes "…to allow BT to recover SLG payments that we might expect given our proposed service standards…"[65]. It also

[61] See also the Act, section 3 and Ofcom's duty to follow best regulatory practice

[62] "Review of approaches to estimate a reasonable rate of return for investments in telecoms networks in regulatory proceedings and options for EU harmonization; A study prepared for the European Commission DG Communications Networks, Content & Technology by the Brattle Group", page 22

[63] Giacchino and Lesser, Principles of Utility Corporate Finance, First Edition, page 190 as quoted by Brattle Group

[64] Brattle Group Report as above, page 23

[65] Ofcom, WLA Market Review, March 2017, Annex 11, paragraph 11.114

states that it expects the number of faults to fall and subsequently the amount of SLGs to fall, offset by automatic compensation and an increase in the cost per payment.

207. Ofcom has incorporated SLG costs for WLR and MPF products in its cost forecast. The amounts included within the model are set out in Figure 17 below.

Figure 17: SLGs paid by Openreach compared to SLGs forecast by Ofcom

SLG Payments (£m)	2015/16	2018/19	2019/20	2020/21
Total modelled by Ofcom	30.1	32.3	36.8	33.3
Total paid by Openreach	49.0			

Source: Openreach analysis

208. For 2015 /16 Ofcom has included £30.1m of SLGs within its model, but we paid £49m of relevant SLGs during that year whilst continuing to meet MSL requirements. Ofcom then states that, according to BT, we spent c £28m[66] in SLG costs in 2015/16, which is incorrect – we actually spent £49m in 2015/16 and met the MSLs in that year. Therefore the full £49m should be included as allowable costs.

209. The £30.1m value is close to the value of repair SLGs paid by Openreach in 2015/16. So it appears that Ofcom have only allowed for repair SLGs in its cost forecast, resulting in a shortfall of £19m within the base year. We believe this to be an error, and that Ofcom's SLG modelling should be adjusted to allow for all SLG payments in 2015/16 (on that basis that the MSLs were achieved in that year).

210. Ofcom assumes that as a result of fewer faults there will be a reduction in SLG payments. In principle, we agree that if there are fewer faults there might be some reduction in SLG payments, but without further clarity on the precise assumptions Ofcom makes it is hard for us and other stakeholders to provide meaningful comments.

211. Ofcom also assumes that as performance improves there will be a reduction in SLG payments. The evidence demonstrates this has not been the case in the recent past. The historic trend shows the opposite to Ofcom's assumption: as MSLs increased and performance improved between 2014/15 and 2015/16, SLG payments increased. Since the previous FAMR, SLGs for WLR and MPF have increased from £23m in 2011/12 to £42m in 2014/15 and £49m in 2015/16 whilst at the same time performance improved. Therefore we request that Ofcom reconsider its modelling of SLG reductions in this respect.

212. In summary, we ask that Ofcom reviews its forecast SLG cost using base year costs that more closely reflect the actual incurred efficient costs, reconsiders the evidential basis for assuming

[66] Ofcom, WLA Market Review, March 2017, Annex 11, paragraph A11.115

that higher performance results in lower SLGs, and changes its proposals accordingly. We reiterate our request for a more detailed explanation of how SLG costs have been forecast so that we and other stakeholders can meaningfully comment on Ofcom's proposals.

Adjustment to tie cables

213. Ofcom states that component volumes for WLA tie cables have decreased from 2014/15 to 2015/16 whilst total service costs have risen significantly.[67] The change in 'Tie Cables' service volumes between 2014/15 and 2015/16, as calculated in the CPI-X model, is 5%. Ofcom considers that the reduction in component volumes should be matched by a limited change in unit costs as "suggested

by the CVE".[68]

214. To achieve this, Ofcom performs three adjustments; the first two are to the 2015/16 base year and the third is to the AVE which affects forecast cost. As follows:

- it adjusts the component volumes by multiplying by 1.46;
- it adjusts the usage factors from 1 to 0.76; and
- it adjusts the AVE by increasing it from 0.30 to 0.87.

215. It is not clear to Openreach why these adjustments were made and on what basis Ofcom has determined the size of the adjustments. Figure 18 below outlines the impact of these adjustments on Ofcom's forecast unit costs.

Figure 18: Impact of adjustments to tie cables

CL 133 - WLA Tie Cables - Total unit costs by component (FAC), excluding cumulo

		2014/15 RFS (RS)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Ofcom Model			28.76	27.48	26.57	26.52	26.73	26.56
+ UF change			24.73	23.32	22.24	22.01	22.04	21.69
+ Component volumes		36.10		34.05		32.48		32.14
32.17	31.66 +AVE change		36.10		36.14		36.55	38.59
41.70	43.85 less Cumulo		35.16		38.92			
RFS Unit costs		**35.83**	**39.70**					

Source: Openreach analysis of Ofcom's proposals

216. Ofcom's initial concern was that the unit costs of £39.70 in 2015/16 were greater than the £35.83 unit cost in 2014/15 and that it expected "the cost volume relationship for these services to suggest a limited change in unit costs"[69]. It is self-evident from the table that, rather than remove a small amount of costs in 2015/16 to make it consistent with 2014/15, these adjustments actually result in a 24% reduction in unit costs. Further, the first and third adjustments continue to impact forecast costs so that, by the end of the charge control period, the adjusted forecast unit cost is 40% less than the unadjusted unit cost. During the charge

[67] Ibid, paragraph A11.143
[68] Ibid, paragraph A11.145
[69] Ibid, paragraph A11.144

control period the impact of this adjustment is to reduce forecast costs by £49m over the charge control period.

217. Openreach considers that the adjustment does not result in the small reduction in unit costs that Ofcom intended and that therefore it should change this adjustment so that the intended outcome is achieved, i.e. unit costs are aligned between 2014/15 and 2015/16.

Calculation of component volumes using adjusted usage factors

218. Service usage factors are used to calculate the component costs for a service in the RFS. They express the average number of units of a component used by a unit of service. For example, in the 2015/16 RFS the reported total cost for the D-side copper capital component was £955.2m and the volume of copper lines was 25,624,609. The component unit cost was therefore £37.28. Each MPF line uses one copper line, so the usage factor was 1. There were 8,785,983 external MPF lines.
Therefore the D side copper capital cost allocated to each MPF services was £37.28 x 1 (the usage

factor) resulting in a total D side copper capital costs allocated to the MPF rental – external of £37.28 x 1 x 8,785,983 = £327.51m.

219. In Ofcom's modelling approach, usage factors are used: (i) to forecast component costs; and (ii) to allocate those forecast component costs to services. To add costs in its forecast to reflect increased Quality of Service (QoS) costs, Ofcom adjusts the usage factors for a number of components, i.e. to reflect the extra costs per line.

220. For the three charge control years, Ofcom's CPI-X model uses the adjusted usage factors in order to calculate total component volumes and total component costs. When converting those forecast component costs into service costs, Ofcom uses the unadjusted usage factors. It is not clear to
Openreach why Ofcom has adopted this approach. Indeed, Openreach considers Ofcom's application of the adjusted usage factors is the wrong way round – it should instead forecast the component volumes and costs using the unadjusted usage factors and then uplift that baseline cost in each year using the adjusted usage factors. Using usage factors in this order would result in £97m additional costs over the charge control period.

221. This is because a forecast of component volumes using the unadjusted usage factor and the resulting forecast costs would express the cost one would expect without the full increase in QoS. The uplift factor is derived from cost data rather than volume data and should be applied to a cost rather than a volume. Then the application of the adjusted usage factors to that baseline would reflect the cost impact of the higher QoS target. For this reason Ofcom should adopt Openreach's proposed approach when uplifting QoS costs.

222. Openreach has calculated that by using the QoS adjusted usage factors (instead of the unadjusted usage factors), £23.8m of costs have been removed in the charge control period. This is set out in Figure 19 below.

Figure 19: Total Impact of using QoS adjusted usage factor

Product		2020/21

Analogue Core WLR Rentals	2018/19	2019/20	-2,367,631
	-3,054,484	-2,870,697	
Analogue Premium Rentals	-1,170,516	-1,100,093	-907,310
Metallic Path Facility (MPF) Rentals	-3,899,572	-3,982,592	-3,741,170
Shared Metallic Path Facility (SMPF) Rentals	-294,495	-242,075	-173,620
	-8,419,068	-8,195,456	-7,189,730

Source: Openreach analysis of Ofcom's proposals

Forecasting of capital costs

223. We disagree with the capital forecasting method that Ofcom uses in the top down modelling, because it treats capex as totally variable, implemented through AVEs. This is inappropriate because assets cannot be disposed of (particularly as a sale of asset) either in part or in whole directly in line with volumes.

224. Ofcom has adopted a capex disposal calculation that assumes that with service/component volume reductions there should be a reduction in the underlying assets used to deliver those services. This reduction is calculated with reference to the AVEs and CVEs. However, because costs are forecast on basis of the components, which in turn are a mix of underlying assets, Ofcom effectively

    assumes that it is possible to scale all parts of the network down in the same way that a network can be scaled up. This is unrealistic, as demonstrated by looking at specific underlying assets such as duct, copper and land and buildings. More specifically:

    - This is at odds with how duct is allocated between copper and other products;
    - Disposal of copper is the other side of the coin to copper recovery, for which Ofcom makes a base year adjustment to spread the benefits arising from this to copper volumes. This is another example of double counting in Ofcom's modelling approach; and
    - Similarly, disposal of land and buildings is the other side of the coin to proceeds from the sale of land and buildings. Although Ofcom states that it does not make such an adjustment in this review, we disagree with it in principle.

225. Ofcom applies AVEs to calculate additional capex, which in turn assumes that assets are all variable according to volumes and can be scaled directly in proportion to those volumes. The effect of this is that, where volumes reduce, it results in a negative capex. Specifically, this results in negative additional capex in Ofcom's model of D-side copper capital (£25m/annum), Dropwire capital (c. £17m/annum), Analogue line cards (c. £42m in 2018/19 rising to c. £71m in 2020/21) and WLA tie cables (c. £20m.annum). This then assumes that any assets or part assets can be disposed of and the network scaled down in direct proportion, This is unrealistic.

226. The other side of the accounting treatment of removing an asset from the balance sheet would be an increase in depreciation, i.e. from completely writing down the asset or from a cash receipt from selling the asset. Neither appears to be factored in the modelling, and at any rate,

it is impossible to sell part assets and improbable that any economies of scale would make it commercially viable to sell other assets.

227. We therefore disagree with this modelling approach. A similar approach was originally adopted in the BCMR and then dropped when applied to Traditional Interface volumes. Indeed, in the interests of regulatory certainty and consistency, and in accordance with best regulatory practice[70] we also think this approach should be dropped here.

Pension Servicing Costs

228. Pension current service costs are treated as costs of employment in the RFS and are therefore captured within the base year RFS data in cost components. Ofcom therefore implicitly assumes pension costs will rise or fall in line with movements in salary costs, since pension costs are not broken out of pay costs in Ofcom's modelling for different treatment.

229. The current service costs refer specifically to the costs accrued for current service by active scheme members, and not to movements on the pension deficit in respect of past service arising from changes in actuarial assumptions or the return on plan assets, nor the cash contribution made in respect of the deficit.

230. As of 28 February 2017, ✂% of Openreach employees (comprised of ✂% Reward Framework and ✂% Team members) were members of the BT Pension Scheme (BTPS), where the final pension benefits will be based on years of service. Therefore, in each year employees are accruing additional benefits at additional cost to Openreach.

231. Ongoing pension service costs comprise those costs that are necessary for the BTPS pension fund to provide a pension for qualifying employees for the rest of their lives from the point at which they start drawing their pension. The proportion of these costs as a percentage of employees' salary will vary for many reasons, for example their life expectancy or the age at which they start drawing their pension. The amount for ongoing pension service costs is also affected by external factors such as inflation and subsequently the real discount rate, so the rate of ongoing pension current service costs can rise or fall each year to meet the funding requirement.

232. External actuaries recalculate our ongoing pension service costs each year based on the many influencing factors, including the real discount rate, demographics, trustee amendments, Pension Protection Fund (PPF) levies and other administrative expenses. As a result of the most recent recalculations, Openreach will experience a significant rise in the costs of providing ongoing pensions benefits for active scheme members from 2017/18 onwards.

233. The 2017/18 operating charge figure for the BT Group is provided to us by independent actuaries and is expected to increase by over £✂ year on year, impacting EBITDA. This primarily reflects a decline in market conditions, our re-assessment of the demographic assumptions and the impact of membership experience adjustments.[71] As a result, Openreach will experience a significant rise in the costs of providing ongoing pensions benefits for active

[70] The Act, section 3.

[71] We refer to page 14 of the BT Group plc Q4 2016/17 press release: http://www.btplc.com/Sharesandperformance/Quarterlyresults/20162017/Q4/Downloads/Newsrelease/q417-release.pdf

scheme members from 2017/18 onwards. £✂ of the increase in costs arises from the decline in the real discount rate. The methodology for deriving the rate is described within IFRS, and we benchmark against other large pension scheme reporters with UK defined benefit pension schemes ✂.

234. Specifically, £✂ of the difference arises from the decline in the real discount rate. The methodology for deriving the rate is described within IFRS and we benchmark against other large pension scheme reporters with UK defined benefit pension schemes ✂.

235. Figure 20 below shows other reporters' discount rates compared against the duration of scheme which reflects the time weighted average of when benefits are going to be paid out allowing for discounting).

Figure 20 – Discount rates
✂

236. In addition, £✂of the increase in cost relates to the update for membership experience, i.e. the new make-up of the active population (still working for Openreach and other parts of BT) which includes, for example, the number anticipated to leave the business and life expectancy

237. £✂ of the increase relates to changes that trustees have put through because of factors within the pension scheme, for instance the terms that would apply if members were to convert to a lump sum when they retire.

238. The remainder of the operational cost increase relates to additional administrative expenses, e.g. higher PPF levies.

239. In previous years, Ofcom has assumed that the proportion of ongoing pension service costs has remained constant and therefore these costs have been subject to the same treatment as overall pay costs.

240. This is inappropriate for the forecast period because it will materially understate the costs that will be incurred. Figure 21 shows the forecast increase of current service costs each year:

Figure 21: Forecast increases in pension service costs

	Total increase in ongoing service costs for BT group £m	Element relating to Openreach £m
2016/17	✂	✂
2017/18	✂	✂
2018/19	✂	✂
2019/20	✂	✂

Source: Openreach and BT Group analysis

241. The costs above need to be added to the total pay costs for the relevant years in order for BT to recover them.

Question 4.4: Do you agree with our proposed bottom-up cost modelling for GEA services? Please provide reasons and evidence to support your answer.

242. We have identified a number of significant concerns with Ofcom's proposed bottom-up modelling for
GEA services. Ofcom's model attempts to dimension a network capable of meeting growing demand for superfast broadband connections (i.e. a network supplying over 14 million connections by the end of the 20 year period) and then identify the capital and operating costs that would be needed by such a network. But while Ofcom attempts to calibrate this network against the fibre access network Openreach has deployed in the commercial footprint to date, the costs Ofcom identifies are significantly lower, particularly when allowing for a significant difference in forecast volumes after 2020/21, than those included within our own 20 year business case[72]. For instance, our business case forecasts that total operating and capital expenditure in the period from 2016/17 to 2020/21 will be £✂ than assumed in Ofcom's model. This has direct implications for:

- The in-year LRIC costs, based on CCA depreciation of relevant assets, derived from Ofcom's model;
- The allocation of identified common costs based on relative LRICs across copper and fibre rental services; and, therefore
- The LRIC+EPMU cost level against which Ofcom seeks to align future prices.

243. It also follows that Ofcom's assessment of the returns we will make on our fibre investments under different future pricing scenarios based on those in-year LRIC+EMPU cost measures are

[72] In 2027/28 Ofcom forecast 14.5m fibre lines in the commercial footprint compared to Openreach's forecast of 9.6m fibre lines.

overstated against our business case view. This impacts on Ofcom's fair bet assessment and consideration of the pace at which prices should be required to align with costs.

244. It is vital that Ofcom calibrates any forecasting model against the costs included within our business plan and uses this amended model to consider the appropriate form of regulation taking full account of the issues we have raised in our submissions in response to Ofcom's analysis in Volume 1 (in particular, in response to Ofcom's analysis within Section 8).

245. In the text below, we consider the basis on which Ofcom has sought to construct its bottom-up model and then contrast this with the outputs of our latest business case.

The design of and logic used in constructing the bottom-up model

246. The bottom-up model has been designed to attempt to capture the costs of building and operating an efficient superfast network in the UK consistent with Ofcom's proposed 'anchor product' approach.

247. The following explicit features of model design are particularly relevant:

- **Commercial area only** – i.e. excluding publicly funded areas: Ofcom's logic is that public funding arrangements allow for the higher costs faced outside commercial areas and so the benchmark for efficient costs should exclude the publicly funded areas;
- **VDSL FTTC only:** Ofcom considers that FTTP will only be deployed where it provides a more economic means of serving customers and so FTTC provides an appropriate efficient benchmark for supply in keeping with a technology neutral approach;
- **Scorched node**: based on Openreach's existing access network design with FTTC as an overlay service utilising, where possible, existing infrastructure;
- **Coverage/rollout plan:** Ofcom's model is based on the rollout plan followed by Openreach to provide superfast capabilities to around two thirds of UK homes by 2014; and
- **Take-up:** The model is based on actual volumes supplied by Openreach up to 2015/16 and then Ofcom's forecast of demand under its anchor pricing approach out to 2027/28.

248. Ofcom ultimately uses the outputs of the model to derive prices for the 40/10 GEA product that, it argues, would allow full cost recovery, given the revenues Ofcom assumes will be derived from all other GEA services (i.e. including 18/2, 40/2, 55/10 and 80/20 services) and assuming maintenance of current pricing ratios. Specifically, Ofcom adjusts the 40/10 GEA price downwards relative to the derived average LRIC+EMPU cost on the basis that higher bandwidth GEA services on the VDSL platform (i.e. 55/10 and 80/20) will continue to be priced at the same relative price premium over the 40/10 price and, therefore, contribute higher amounts, on a unit basis, to overall cost recovery. In this exercise, Ofcom assumes that, as overall demand for superfast connections increases out to 2027/28, the GEA product mix remains at current levels. As such, we can imply that the model also assumes that the assets deployed in supporting the VDSL network are capable of delivering the full portfolio of bandwidths across growing total volumes at the current mix.

249. As addressed in response to Question 4.5 below, Ofcom has attempted to calibrate its model

against the VDSL network Openreach had in place at the end of 2015/16. This reflects Ofcom's intent that the cost outputs from its model should broadly mirror the costs actually incurred by Openreach, assuming ongoing efficiency in service delivery. In conducting our own calibration exercise, we have broadly confirmed that Ofcom has identified relevant network elements. However, in calibrating the costs within Ofcom's model by reference to relevant asset values within our fixed asset register, we have identified differences in the level of capital expenditure assumed in the model up until 2015/16. We have, however, also identified that the level of opex within our business case is lower than that included in Ofcom's bottom-up model. The net effect is that the overall level of cash outflows assumed within the two models is broadly similar as at 2015/16.

250. Although it is important that these gaps are understood and reconciled, the real test of the model is whether it provides an appropriate basis on which to project ongoing costs of supply against a backdrop of growing demand.

251. It is logical that, for the model to provide an appropriate basis on which to project the future efficient cost of supply, the network configuration and elements deployed in 2015/16 must be capable of being expanded and enhanced in a way and at a cost that allows delivery of the total volume of connections assumed by Ofcom at the assumed mix of bandwidths as set out above. In the subsection below, we set out why we do not believe Ofcom's model captures the future network requirements and costs in an accurate way. Ofcom's model assumes a level of scalability of assets deployed in 2015/16 that we do not consider realistic based on our assessment of future network needs.

Openreach's business case projections of the cost of supply

252. In paragraphs 278 et seq. of our response to Volume 1 of the Consultation, we provide details of our updated business case for the supply of superfast broadband access connections. We will be supplying details of this case to Ofcom separately. There are similarities and differences between our business case and Ofcom's bottom up model as summarised in Figure 22 overleaf:

Figure 22: Comparison of Openreach's business case and Ofcom's bottom-up model

	Openreach business case	**Ofcom bottom-up model**
Cost standard	Incremental costs of supplying fibre as an overlay to ongoing	Same
	copper network	
Scope	Commercial and publicly funded areas	Commercial area only
Services	'Mixed economy' of FTTC and FTTP connections reflecting plan of record (majority FTTC)	FTTC only

Network design	Built around Openreach's existing network assets (ducts, cabinets, cables, exchange buildings)	Same – i.e. scorched node
Volumes (commercial footprint)	By 2020/21: ✂million By 2028/29: ✂million	By 2020/21: 9.7 million By 2028/29 14.7 million

Source: Openreach analysis

253. While we consider our business case in the round, taking account of costs and revenues across commercial and BDUK areas, we are able to break out the case to separately show the position in the two areas and allow a direct comparison of our business case in the commercial area and Ofcom's model. While our model includes FTTP connections, in particular to service new build sites, this is linked to our future volume assumptions – i.e. without establishing these connections overall volumes would be lower. We therefore have a clear means to compare: (i) Ofcom's bottom up model of the assumed efficient costs of supplying superfast broadband connections as an overlay to
Openreach's existing copper network within the commercial area; with (ii) Openreach's view of the efficient cost of supplying demand to the same group of customers.

254. As we detail in response to Question 4.5 (calibration), this comparison exposes a significant shortfall in costs on a like for like basis over the 20 years – i.e. the gap in total forecast costs over the period only closes as a result of the significant differences in assumed volumes after 2020/21 driving much higher cumulo costs in the Ofcom bottom up model. There is a material gap in the level of capital expenditure assumed by Ofcom compared to the level included in the Openreach business case as shown in Figure 23 below:

Figure 23: Annual capital expenditure (£m)

✂

Source: Ofcom's bottom-up model and Openreach's fibre business case

255. On a cumulative basis, there is a forecast gap of £✂in the assumed capex required to support demand over the 20 year period. This is despite Ofcom assuming considerably higher volumes by the end of the 20 year period.

256. As summarised in our business case and in Volume 1, Section 9 of our submission, we believe this gap in assumed capex spend is due to the following factors: ✂

257. None of the above factors are captured within the Ofcom bottom up model. The implication is that – notwithstanding the identified shortfall in capex spend to date – Ofcom's model assumes that the network elements in place today are capable of delivering future demand with relatively limited additional capex, mainly based on replacement of assets at retirement. For Ofcom to set efficient forward-looking prices it should be based on realistic and achievable view of the costs of delivering the level and standard of services forecast.

258. As noted above and set out in response to Question 4.5, Ofcom's model assumes a higher level of operating expenditure than Openreach's business case. This appears largely driven by the different volume assumptions after the end of this market review period (i.e. 2021/22 onwards) and the impact this has on volume-sensitive opex costs such as cumulo charges. The key concern is that
Ofcom's model assumes a much lower level of total costs in the period of this market review which is driving a much lower LRIC and a much lower LRIC+EPMU price than would otherwise be derived (notwithstanding the additional need to revisit the fair bet assessment and consideration of IRRs driving Ofcom's position on glidepaths). Comparison of the two views, set out in Figure 24 below, shows a gap of over £✂ in the period from the current financial year to the end of the market review period.

Figure 24: Total cash spend in period (£m)

✂

Note (a): Ofcom assumes volumes of ✂m by 2020/21 compared to Openreach forecast of ✂m

Note (b): Ofcom assumes volumes of ✂m by 2027/8 compared to Openreach forecast of ✂m

Source: Ofcom's bottom-up model and Openreach's fibre business case

259. We also recognise that while we believe the Ofcom model and the Openreach business case are trying to forecast the costs of meeting demand from the same group of customers, the underlying design of the Ofcom model and of the Openreach business case are different. To ensure Ofcom does not base regulatory decisions on a model that fails to capture Openreach's efficient costs of supply, there needs to be a full calibration exercise between Ofcom's model and Openreach's business case. We therefore suggest that we engage with Ofcom at the earliest opportunity to agree how that exercise can be carried out.

Impact of Ofcom's proposals on returns

260. As set out in Volume 1, Section 9, of our submission, for Openreach to earn a fair return on its fibre investment programme consistent with the requirements of the fair bet principle, prices should be set at levels which allow the opportunity to earn a return in excess of the project specific cost of capital faced ahead of the initial decision to invest. In Oxera's report "*Does Ofcom's approach to the WLA market review honour the fair bet principle*?" attached to Openreach's response to Volume 1 of Ofcom's consultation, Oxera estimate the relevant project specific cost of capital should be at least 12.1%. Oxera also suggest that constraining prices to levels that could earn 20 year returns on the programme of less than 15% would run the risk of being inconsistent with the fair bet principle.

261. In contrast, Ofcom suggests that regulating prices to levels that could result in a 20 year return of
11.8% would be consistent with the fair bet principle. This informs both Ofcom's judgement on whether to regulate prices within this market review and the path prices should follow to align with the forecast view of LRIC+EPMU costs set out in Ofcom's bottom-up model.

262. Clearly, Ofcom's views on returns reflect its view of: i) costs within its 20 year bottom up model; ii) revenue growth based on lower prices; and iii) volumes that increase to over 14 million lines by 2027/28.

263. Applying the prices we believe Ofcom used in deriving these 20 year returns against the assumed volumes and costs in our business case assumptions on volumes and costs produces a radically different view of returns, exposing the concerns we have with Ofcom's proposed approach. We estimate that overall returns on our NGA programme across commercial and BDUK areas would be below ✂% over 20 years or just over ✂% if the focus was on the commercial area only. It is clear that intervention that drove such returns would not be consistent with the fair bet principle.

The treatment of common costs across copper access and GEA services

264. In principle, we support Ofcom using a top-down approach to forecast the costs of supplying copper access services and a bottom up approach to forecasting the costs of fibre access. As we have set out in response to Questions 4.3 and 4.4 (and elsewhere), we have a number of concerns with the way Ofcom has populated these models with key forecasting parameters.

265. Notwithstanding this, Ofcom's approach to using its models to derive LRIC figures for copper and GEA services then requires appropriate means for identifying costs that are common across all relevant services and then allocating these costs across services to ensure prices are set in a way that support full cost recovery.

266. We identify a number of concerns with the way Ofcom forecast these costs in the consultation to derive the relevant LRIC+EPMU figures in our response to Question 4.1. We are concerned that
Ofcom's approach has resulted in a shortfall of £69m in cost recovery given the way common costs are forecast.

Question 4.5: Do you agree with our proposed approach to calibrating the bottom-up model? Please provide reasons and evidence to support your answer.

267. As set out in response to Question 4.4, in attempting to calibrate the outputs of the bottom-up model against various Openreach measures, Ofcom's intent is to ensure it relies on a cost model that mirrors the network Openreach has constructed for the purposes of providing superfast connections within the commercial footprint. We support this intention.

268. Ofcom explains that it calibrates its bottom-up model by:

- calibrating the number of network elements dimensioned by the bottom-up model against BT's asset count information;
- calibrating the model against a range of BT cost metrics (GRC, NRC, opex, total CCA costs); and
- comparing the unit costs after common cost allocation against the fibre charges set by other European national regulatory authorities (NRAs).[73]

269. Our position is that the focus of any calibration exercise should be against the latest Openreach business case as the concerns we have identified with Ofcom's modelling approach relate to the forward looking assumptions about the costs of supply.

270. Ofcom's bottom up model includes less capital expenditure in the period to 2015/16 than included within Openreach's business case, but, as shown in Figure 24 above, the total cash outflows in the two views are broadly similar at the end of 2016/17. The divergence in the views arises over the four years from the current year until the end of this market review period, and this only closes on an annual expenditure basis as a result of increasing operating costs in the Ofcom bottom up model arising from higher assumed volumes driving, among other things, growth in total cumulo costs – see Figure 25 below.

Figure 25: Total annual expenditure (£m)

✂

Source: Openreach analysis of Ofcom's proposals

271. As stated in our response to Question 4.4, it is vital that any model relied upon by Ofcom to forecast the costs of supply calibrates with Openreach's business case. The fact that Ofcom's model does not calibrate with Openreach's business case supports our view that Ofcom's modelling does not include all of Openreach's efficiently incurred costs.

Question 4.6: Do you agree with our proposed approach to estimating input price inflation? If not, what alternatives would you propose and why? Please provide reasons and evidence to support your answer.

[73] Ofcom, WLA Market Review – Volume 2, March 2017, paragraph 4.29

Inflation assumption

272. Ofcom assumes an average CPI inflation of around 2.4%, declining to 2% in 2020/21, and is consistent with the forecasts provided by the Office of Budget Responsibility (OBR). We note that the OBR forecast has not incorporated the potential impact of Brexit which we expect to have the effect of increasing inflation.[74]

273. We encourage Ofcom in light of current trends, and particularly in light of Brexit with the uncertainty this brings, to assess inflationary impacts at the latest possible date during this consultation, so that full known impacts are taken into account and that we **are** not left exposed during the charge control period.

274. Whilst Ofcom's top-down model is expressed in nominal terms, and that the inflation assumption, in effect, gets cancelled out when determining the X factor, the relative price trends between pay, non-pay and asset prices do matter, and therefore has an impact on the final prices proposed by Ofcom. This is particularly the case when looking at the real versus nominal holding gains, as discussed below.

Pay opex

275. Ofcom assumes a 3.1% increase in nominal pay over the period from 2016/17 to 2020/21, based on a range of sources including Openreach's own plans and economy-wide trends on average earnings. Ofcom states that the forecasts are based only on external forecasts. We note that the OBR forecast, shown in Figure 26 below, suggest higher average earnings growth rates than those reported by Ofcom.

Figure 26: Forecast growth rates in average earnings[75]

	2016/17	*2017/18*	*2018/19*	*2019/20*	*2020/21*	*Average 2018/19 to 2020/21*
Average earnings	2.5%	2.4%	3.0%	3.4%	3.7%	3.4%
Average hourly earnings	2.9%	2.4%	2.9%	3.6%	4.0%	3.5%

Source: OBR

276. We do not share the same concern as Ofcom regarding the OBR forecasts not including pension costs or share based payment expenses. Although they are excluded from the indices, we expect

that the inclusion will unlikely affect the growth rate significantly. Since pension costs have not been included in the cost forecasts the exclusion ensures consistency between the cost base and the forecast assumption. The ONS provides data comparing regular and total (i.e. including bonuses), and the two have been growing at similar rates for the last few years.

277. We believe there is weak evidence for the lower end of the pay opex inflation assumption set out by Ofcom, particularly when this is considered alongside pay efficiency of 5.5%. Even with a 3.1% pay inflation assumption, this is offset by around 2.2% due to CPI inflation, meaning

[74] OBR, Economic and fiscal outlook, November 2016

[75] Ibid

that there is still a net real cost reduction of 4.6% before the volume effects are considered. Therefore any further reductions on this assumption would imply higher real cost reductions, which as discussed earlier, need to be considered together with the service delivery assumptions.

Non pay opex

278. Ofcom has assumed a non-pay inflation of 2.4% based on its analysis of the different types of costs, such as energy and accommodation. Again, comparing this against the 5.5% efficiency assumption applied to all non-pay costs, it raises a question about how Ofcom expects Openreach to drive efficiency savings in areas such as energy and accommodation beyond the benefits driven by economies of scale. At the minimum we would expect such costs to be excluded from the application of efficiency, considering that unit costs are already expected to fall due to CVEs being less than 1.

Asset price changes

279. Ofcom's assumption on duct and copper asset price changes is based on its approach to RAV, i.e.
valued at RPI inflation. We agree with this approach. For the other assets, Ofcom assumes that there is zero nominal price change, consistent with its previous approach.

280. We note that, alongside Ofcom's assumptions on efficiency savings, the real reduction in price associated with capital assets results in additional downward pressure on the cost forecasts. We consider this to double-count the scale of efficiency improvements expected. With a small nominal asset price increase a CPI assumption of around 2-3%, this means that there is a real asset price reduction in the valuation of assets. We consider the combination of this and the 3% capex efficiency assumption to be unrealistic and will understate forecast costs.

281. In BT's response to the 2016 Business Connectivity Market Review, we noted that Ofcom's approach to modelling real versus nominal terms may have caused some costs not being taken into account when there are zero nominal holding gains but real holding losses. In the BCMR Statement[76], although Ofcom state that "the effect of inflation is correctly taken into account… in the
WACC, instead of in holding gains/losses", its own examples shows the need to amend the formula for the return on capital employed to the following:

Return on capital(t) = [NRC(t) + NCA(t) + HGL(t)] * nominal WACC

282. By amending Ofcom's model to reflect the above, Ofcom's base case should include an additional £65m of costs over the charge control period, as shown in Figure 27 below.

Figure 27: Impact of amending Ofcom's return on capital employed formula

	2015/16	*2018/19*	*2019/20*	*2020/21*
Total	**3,108**	**2,941**	**2,970**	**2,957**
Impact	6.1	23.2	20.9	21.1

[76] Ofcom, Business Connectivity Market Review Statement, April 2018, Annex 26

Source: Openreach analysis of Ofcom's proposals

Question 4.7: Do you agree with our proposed approach to estimating AVEs and CVEs? If not, what alternatives would you propose and why? Please provide reasons and evidence to support your answer.

283. We broadly accept the approach adopted by Ofcom to the estimation of AVEs and CVEs, which largely follows the approach adopted in previous charge controls.

284. We note that Ofcom has provided its own view of the AVE for the component CL133 WLA Tie Cables, replacing 0.30, derived from the 2015/16 RFS, with 0.87 as Ofcom considers 0.30 to be 'too low'[77]. We comment in our response to 4.3 on this.

Question 4.8: Do you agree with our proposed approach to setting efficiency target? If not, what alternatives would you propose and why? Please provide reasons and evidence to support your answer.

285. The response to this question should be read in conjunction with Annex 1 and Annex 2 of this response and Openreach's response to the Quality of Service (QoS) consultation.

286. Ofcom states that when setting efficiency target, its main approach is to "analyse data sources that primarily relate to BT's historical and forecast performance" as it "provides a reliable way of establishing reasonable levels of cost savings". We consider "the predictive power of historic rates of efficiency savings diminishes over time as circumstances, including cost structures and technology trends, change"[78] and that more reliance should be based on such trends and resulting forecasts. Further, service delivery is considered separately in Ofcom's model and efficiency is the residual improvement after all those other effects are captured, i.e. efficiency should be net of the impact of FVR, QoS, economies of scale and input price changes. In these circumstances, making explicit allowance to a number of recent major changes, and in particular, Ofcom's approach to QoS and FVR, would be appropriate.

287. We agree with Ofcom that potential cost savings[79] will derive from labour productivity, increased capital intensity (from capital inputs), and long term improvements driven by technological progress. We believe that Ofcom's efficiency assessment would be improved by a deeper consideration of how Openreach might deliver such savings (productivity and savings from technological progress) given the allowances already made in Ofcom's modeling for input price changes and savings due to FVR.

288. We agree with Ofcom that the targets it sets for efficiency and service should be challenging but there should be a reasonable expectation that they are "capable of being met and exceeded"[80]. Our view is that when its assumptions on fault reduction, economies of scale

[77] Ofcom, WLA Market Review, March 2017, Annex 11, A11.145

[78] Competition Commission, Case 1111/3/3/09, August 2010

[79] Ofcom, WLA Market Review, March 2017, Annex 15, paragraph A15.100

[80] Ibid, paragraph A15.217

(greater volumes), input price, efficiency and service proposals are considered in combination, the resulting targets for efficiency and service appear unachievable.

289. Ofcom's combination of assumptions on cost savings and service costs means that it is proposing to take an average of 10.5% of costs out of the business in each year of the charge control. This reduction is in addition to a further 6% assumed reduction in costs (in real terms) from the 2015/16 base year to 2018/19. In Figure 28 below we summarise the impact of each of the assumptions on how much costs have been removed or added from the total cost[81] forecasts to arrive at Ofcom's base case.

Figure 28: Summary of Ofcom's service and efficiency adjustments

Costs £m excluding Cumulo & SLG	2015/16	2018/19	2019/20	2020/21	Average over charge control period
Ofcom base case	**3,102**	**2,918**	**2,949**	**2,936**	**8,803**
Application of usage factors	-	-34	-33	-28	
5.5% Opex efficiency	-	-216	-291	-368	-9.9%
3% Capex efficiency	-	-24	-41	-61	
Cost savings from FVR programme	-	-43	-54	-65	
Hypothetical ongoing network adjustment	-	283	278	264	
Uplift for QoS improvement	-	40	43	43	
Economies of scale impact	-	-148	-206	-260	
Total impact		**-142**	**-305**	**-475**	**-923**
% of total costs		-4.9%	-10.3%	-16.2%	-10.5%

Note: Hypothetical ongoing network adjustment is defined as cost adjustments that Ofcom makes to reflect a steady state network, the majority of which is an increase to WLR line cards because they are almost fully depreciated.

Source: Openreach analysis

290. The percentage of costs deducted from WLA services is even more stark since most of the costs added due to the hypothetical ongoing network (HON) adjustment (£696m of the £825m) is exclusively a WLR costs uplift related to line cards. Further, a significant proportion of the cost base is fixed in the medium term, e.g. rent or where costs savings are not possible, (such as power), meaning the percentage change in compressible costs is even higher still.

291. Cost savings will be made through fault reduction, economies of scale (greater volumes), negotiation of input prices and productivity. When the task of assessing cost savings is compartmentalised as Ofcom has done, there is a danger that the same efficiencies have appeared more than once in the different cuts of the data. When they are added together in Ofcom's model, the benefits from cost reductions are, in effect, double-counted. Openreach considers it is likely that a key reason why Ofcom's cost forecast predicts such huge cost savings, as shown in the table above, is that there is double counting implicit in its approach.

292. Whilst Openreach would accept that care needs to be taken when interpreting the sources of information referenced below, we urge Ofcom to recognise the common theme demonstrated

[81] Total costs include operating costs and capital costs, including a return on capital but excluding Cumulo and SLG

by this evidence i.e. that Ofcom's efficiency target is too high and should be reduced when compared to recent charge controls.

293. Given Ofcom's approach to including other service delivery factors, e.g. fault reductions due to FVR, service uplifts and input price changes, in its cost forecasting, we believe that at the maximum, the forward looking gross efficiency Opex assumption should be no more than 2.5% and the forward looking gross efficiency capex assumption should be no more than 1%. There are strong indications that the forecasted level of potential cost reduction is unsupported by both internal (Openreach) and external the evidence.

Efficiency targets (5.5% Opex and 3% Capex)

294. Ofcom's assessment of the potential for cost reductions is far greater than has been achieved in the past.

- To support its analysis, Ofcom quotes an EY report[82], submitted as part of BT's DCR submissions. Based on this report Ofcom conclude "BT has made operating expense ("OPEX") savings of around 5% per annum"[83]. We note that this has been quoted out of context. The 5% value was an assumption rather than a quantification of historic achievements. It was used in a counter-factual analysis to examine what the level of operating costs might have been under a rate of return regime. We attach a report from EY in this respect at Annex 2 to this response.
- When we attempted to replicate Ofcom's RFS "pair wise" analysis we show that between 2013/14 and 2015/16, the estimated average unit cost reduction is more properly 4.9% rather than 6.4% average using Ofcom's method, i.e. 24% less. Apply this reduction to Ofcom's proposed target on a pro rata basis would result in an adjusted target of 4.1% (rather than 5.5%).[84]
- A review of Openreach's management information (PVEOs) between 2014/15 and 2016/17 shows the scope for savings by Openreach's Service Delivery (SD) business unit has diminished over time - from ✂% in 2014/15 to ✂% in 2016/17.[85]
- Further, historic movements in task times in the Service Delivery (SD) business unit suggest that the yearly rate of productivity improvements has reduced between 2013/14 and 2016/17 and in some areas the task times are increasing.[86]

295. Ofcom's assessment of the potential for future cost reductions is inconsistent with Openreach management's Medium Term Plan and economy wide trends.

[82] EY, BT's Regulatory Profitability, October 2016: https://www.ofcom.org.uk/__data/assets/pdf_file/0024/93642/BT-Annex-EY.pdf

[83] Ofcom, WLA Market Review – Volume 2, March 2017, paragraph 4.12

[84] Annex 1 – Observations on historic RFS trends

[85] Annex 1 – Observations on historic Openreach management information

[86] Annex 1 – Task time analysis

- The levels of savings in Openreach's aspirational future plans take into account the recent historical trends, in particular the reducing trend in productivity and the impact of activities required to transform the business to meet increased QoS targets and expectations.[87]
- Our Medium Term Plan supports a view that cost savings will ✂and that a ✂ cost profile is much more likely than large cost savings.[88]
- Economy-wide estimates of UK labour productivity are less than 1% and flat in the relevant period. Further, the 5.5% and 3% targets seem very out of line with the typical 1%-2% assumption by other UK sector regulators;[89]
- Some items, such as rent, cannot be reduced within the period under review because they are priced on longer term contract basis or Openreach is a price taker, e.g. electricity. These noncompressible costs represent a large proportion of Openreach's cost base.[90]

296. Lastly, it would appear that Ofcom's approach risks double counting pricing effects in its assessment of the scope for capital expenditure (Capex) efficiencies.[91] Ofcom's assessment of Capex efficiency is based on total spend, which includes the impacts of input price changes and technology progress. However, Ofcom already makes assumptions regarding input trends elsewhere (it assumes most of the assets are valued at historic cost, apart from copper and duct, valued at RPI).[92]. The 3% capex efficiency assumption is applied in addition to this, resulting in an effective reduction target rate around 5% per annum.

Fault Volume Reduction (FVR)

297. Openreach has set out in detail in its QoS response why Ofcom's FVR assumptions need to be amended. Openreach refers to that submission here. Ofcom has made more aggressive assumptions than Openreach regarding the extent to which fault rates can be reduced and costs avoided, and as a result Ofcom has not allowed sufficient cost for investment and assumes much lower costs to serve than those in Openreach's plan.
    - Ofcom assumes, under a different steady state fault volume scenario that future fault rates would be much reduced and that historically observed efficiencies would still be achievable. This adjustment ignores the cost of delivering that level of FVR during the control period in order to achieve the assumed steady state fault rates.
    - Ofcom has used FVR percentages to show a decline in fault volumes. These fault reductions are then applied to a proportion of component costs that are relevant to repair work. Ofcom have based their percentage reductions on a misunderstanding of

[87] Annex 1 – Observations on historic Openreach management information

[88] Annex 1 – Observations on future Openreach management information

[89] See BT's response to Ofcom's BCMR consultation, including Annex H on efficiency, for a greater discussion on the efficiency assumptions used by other UK sector regulators.

[90] In its 2009 review Ofcom recognised that consideration should be given to compressible costs, i.e. "costs that can be controlled by Openreach or BT Group" when setting the appropriate efficiency rate. In 2009 Openreach considered only 70% of Opex costs were compressible.

[91] Annex 1 – Efficiencies in capital expenditure

[92] Annex 1 – Efficiencies in capital expenditure

the Openreach Network Health Plan. This results in a lower fault rate proposed by Ofcom compared to Openreach's view, resulting in a £101m shortfall in allowable costs during the charge control period[93].

298. In light of the above, Ofcom should either revise its assessment of the impact of FVR downwards or ensure that the additional costs that would need to be incurred in order to meet Ofcom's assumptions are included in its modelling.

QoS uplift

299. Ofcom should not consider efficiency in isolation, and we would refer Ofcom to our QoS response, where we outline that there is a considerable shortfall between Ofcom's cost allowance and our estimate of the cost of Openreach's service improvement plan. The main discrepancies appear to arise due to the following;

- Ofcom has not made a large enough cost allowance for the increased costs to meet the MSLs; their 5.3% cost uplift should be 24.9% assuming a 90% MSL in Year 3;
- Ofcom has not made adequate allowance for the one off implementation costs associated with multiskilling, and recruiting and training the extra people required to meet the MSL. For example, there is no uplift by Ofcom for training expenditure and Ofcom assumes new engineers can achieve the same level of productivity as more experienced engineers; and
- The usage factors used by Ofcom in the calculation of the uplift to meet the MSLs is erroneous, as per our response to Q4.3.

In combination these factors result in a £300m[94] shortfall in allowable costs during the charge control period assuming a 93% MSL in Year 3, or a shortfall of £152m assuming a 90% MSL in Year 3.

Economies of scale

300. In Ofcom's top-down model, the effects of scale economies are applied in addition to the general efficiency trend. In effect, Ofcom's model forecasts costs assuming that in the short term (i.e. over the 5 year forecast period) it is possible to do more of the same thing at a rate determined by a long run costs (i.e. cost elasticities are based on LRICs), plus a bit more. On operating costs, the 5.5% efficiency assumption alone amounts to a 27% reduction in costs from the base year 2015/16 levels before any economies of scale effects are taken into account.

301. We do not disagree with the use of a cost elasticity assumption in forecasting costs, and we have set this out in our response to Question 4.7 above. However, we do believe that the overall impact should be considered alongside Ofcom's efficiency proposals to avoid double counting of savings. This could best be achieved by reducing the efficiency target, as we propose.

[93] Openreach response to Ofcom, Ofcom, Quality of service for WLR, MPF and GEA, March 2017, paragraph 108

[94] Ibid, paragraph 388

Conclusions

302. Ofcom's combination of assumptions on efficiency and service means that it is proposing to take 10.5% of total costs out of the business in each year of the charge control. This is after assuming that costs fall in real terms from 2015/16 levels to the start of the charge control in 2018. This trend
has not been observed so far. Furthermore, Ofcom's assessment of the potential for cost

reductions is far greater than has been achieved so far, and is significantly higher than what Openreach has in its aspirational plans going forward.

303. Our assessment of the opex efficiency is in the range of 1% to 4%, based on historical data and forecast Openreach data. However, this cannot be applied in isolation of the other service-related proposals. If those were to be taken into account, then the efficiency assumption, at most, should reflect the longer term productivity improvements and technological progress. Ofcom assumed high reductions of fault rates, low level of uplift for the additional quality of service improvements, real rate of reduction on input prices, and very high efficiency on opex and capex mean that its cost forecasts risk prohibiting Openreach earning its target cost of capital. Further, the resulting price signals are likely to discourage investment, competitive entry and innovation.

304. For that reason, we would propose an opex efficiency target no greater than 2.5%.

Question 4.9: Do you agree with our proposed approach to forecasting and attributing BT's cumulo costs? Please provide reasons and evidence to support your answer.

305. Non-Domestic Rates ("cumulo rates") are paid by BT based upon a valuation of our network set by the Valuation Office Agency multiplied by a "poundage rate" set by parliament.. We have no influence on the level of the tax once set and therefore we expect the allowance for this cost in setting our prices to equal the tax levied for those services. It appears that Ofcom has designed its proposals to achieve this aim at an aggregate level.

306. Given we have no influence on the level of the tax once set, we agree that cumulo costs should be excluded from efficiency considerations. We also acknowledge that Ofcom makes an allowance for the increase in Non-Domestic Rates (cumulo costs) that BT will have to pay over the charge control period.

307. Our primary concern is that Ofcom's pricing proposals make an allowance for cumulo costs which matches the expected bill so that we recover the expected cumulo bill in full through our prices to customers. We are also concerned the relative allowance made per service is fair to avoid distortions, e.g. the cost allowance should be the same for each MPF and WLR line as they are treated in the same way for cumulo valuation purposes.

308. It is not entirely clear from Annex 17 precisely how Ofcom has modelled cumulo. Without further explanation of its calculations and assumptions it is difficult for us to make further meaningful
comments about Ofcom's detailed proposals and we ask that Ofcom provides stakeholders with greater transparency over the modelling of these costs.

Question 4.10: Do you agree with our proposed approach to the treatment of future profit and losses from the sales of copper? Please provide reasons and evidence to support your answer.

309. Openreach agrees it is not expected that we will be able to profitably extract a significant proportion of D-side copper[95]. We acknowledge there may be an opportunity to viably extract some E-side

copper once the PSTN network is closed.[96]

Opportunity

310. Contrary to Ofcom's assumptions[97], we do not expect that there is any opportunity to extract a significant proportion of E-side copper prior to the completion of PSTN switch off due to the practical difficulty of isolating whole redundant cables for extraction whilst at the same time avoiding customer disruption. For example:

- E-side cables can only be split at pressurised joints. These joints cannot be opened without damaging all of the connected cables (which may contain working cables) due to the pressurisation of the joint with resin;
- To ensure minimal loss of service Openreach would need to check that that all endcustomers had been transferred from all of the connected cables in that pressurised joint. This would require very costly physical engineering activity at both the cabinet and the exchange; and
- Grooming customers onto different cables to make a cable redundant and allow extraction would also risk changes in broadband speeds to customers transferred onto different copper cables with differing physical properties.

We have no solution to manage these issues without considerable extra cost; therefore it is improbable that a significant proportion of E-side copper would be extracted prior to the completion of PSTN switch off. This is not planned during the period of this market review.

Cost of extraction

311. For much of its analysis Ofcom uses historic extraction costs[98] and sales proceeds from the Openreach programme which recently extracted redundant Main Underground Central Junction (MUCJ) copper cables[99]. The MUCJ network, connects exchanges to other exchanges. The copper access network connects customer premises to the local exchange via cabinets and distribution points. Core cables differ significantly not only in their size, but in their location to Eside cables. For example:

- Upon leaving the exchange, the E-side cable is broken down into smaller cables, ranging from 4800 pairs to c. 100 pairs. E-side cables can leave the exchange in a

[95] Ofcom, WLA Market Review, March 2017, Annex 18, paragraph A18.10
[96] Ibid, paragraph A18.14

[97] Ibid, paragraph A18.14

[98] Ibid, Table A18.2 and paragraphs A18.43 to A18.49

[99] Ibid, paragraphs A18.36 to A18.42

range of different directions, all of which are then further split off at different distribution points (i.e. the D-side). MUCJ cables, which run between 5,600 exchanges, are much less dispersed than E-sided cables, which run between c. 5,600 exchanges and c. 100,000 cabinets. We would therefore expect the unit sizes of cables to be much less per job on average than for the core network, so more expensive to extract per tonne.

- Whereas MUCJ cables typically spread across regions to connect common routes, e.g. between cities, and are usually located alongside A-roads, the E-side network infrastructure is in a much wider variety of locations and generally in the carriageway of the road. Further, due to the locations of exchanges across the UK, it is likely that a very significant proportion of E-side cables are located in more densely populated areas. It is expected that extracting E-side cables will require more work in and around larger towns and cities as opposed to rural areas. As a result of these two factors we would expect significant extra costs to do with to traffic management.
- Further, the location of the cables means it is likely a much higher proportion of E-side recovery would have to take place at night, which is more expensive than daytime work.
- Metal clamps are required to pull the cable out of the ground, and this can damage the cable, other cables in the duct and the duct itself. Given the higher number of potential cables to be extracted and the locations of those cables, it is more likely that Openreach will incur extra cost to make good damage to infrastructure.

312. For these reasons we consider Ofcom should increase its assumed costs of extraction to reflect differences between it reference costs and likely actual E-side costs. We would be happy to work with Ofcom to address this issue.

Proceeds

313. We agree with Ofcom that the proceeds from the copper extracted will be a function of the Discount to Market (DTM) factor, the London Metal Exchange (LME) price and the $ exchange rate.[100] We
welcome Ofcom's recognition that these are volatile parameters, e.g. Ofcom attempts to control for fluctuations in copper price and exchange rate.[101]

314. Openreach appreciates that there is no reliable way to predict these factors, especially as Ofcom is considering potential proceeds that may be realised a very long time in the future. We are currently considering if there is a better approach to take, but the scope for a significant forecast error would suggest Ofcom should apply a large degree of caution in whatever it assumes.

Approach to adjusting costs

315. We understand that Ofcom uses a simple approach of adjusting depreciation when performing its calculation.[102] Openreach considers that it would not be very complicated to reflect the

[100] Ibid, paragraphs A18.36 and A18.37

[101] Ibid, paragraph A18.38

[102] Ibid, paragraph A18.56

subsequent adjustment in Net Replacement Cost (NRC) in its calculations but would improve the consistency of the adjustment with how it models other costs.

Question 4.11: Do you agree with our proposed approach to the treatment of future profit and losses from the sales of property? Please provide reasons and evidence to support your answer.

316. Ofcom concluded in the CAR that profit or losses from sales of property is "*an issue of cost recovery that may be investigated in future charge controls*"[103] and therefore we understand why Ofcom is considering this issue in this consultation.

317. We agree that it would be inappropriate to attempt to estimate future property sales as this exercise would "*at best be highly speculative*"[104] due to the difficulty predicting future gains and losses from sales of property.[105] Further, we agree with Ofcom that it is most likely that profits and losses from sales of property will be low or zero in the near future.[106]

318. In response to the CAR, BT was clear that it did not agree in principle with Ofcom's proposal in relation profits and losses arising for sales of property.[107]

319. As we understand it, the resulting adjustment within the 2015/16 base year model is zero and therefore we have no issue with the impact of Ofcom's proposal in this consultation. Should Ofcom amend its proposals, we would expect it to re-consult.

[103] Ibid, paragraph A18.68
[104] Ibid, paragraph A18.64
[105] Ibid, paragraph A18.63
[106] Ibid, paragraph A18.58
[107] BT's response to Ofcom, Review of BT's cost attribution methodologies, June 2015

5. Charge control implementation

Question 5.1: Do you agree with each of our proposals in relation to the implementation of charge controls for BT's LLU and GEA services? Please provide reasons and evidence in support of your views.

Introduction

320. In this section we set out:

- observations on the changes required in order to ensure that regulation of the 40/10 product will meet Ofcom's relevant legal obligations; and
- more specific comments on the proposed Conditions.

321. In addition, set out in Annex 4 to our response to the WLA Consultation Vol. 1 is a list of typographical amendments to the proposed Conditions.

Relevant legal obligations

322. Ofcom has the power to set SMP conditions under section 45(2) (iv) of the Act, which implements the Common Regulatory Framework (CRF). The Framework Directive and Access Directive from the CRF are the most pertinent in terms of Ofcom's regulatory duties and objectives, which are implemented by sections 3 and 4 of the Act. These regulatory duties and objectives require Ofcom to have regard to a range of factors, including promoting competition, encouraging investment and innovation, best regulatory practice[108], and ensuring regulatory activities are transparent, accountable, non-discriminatory and proportionate.

323. In this regard, Openreach specifically draws Ofcom's attention to:

- Ofcom's duties to promote efficient investment and innovation,[109] including, as required by the Framework Direction *"by ensuring that any access obligation takes appropriate account of the risk incurred by the investing undertaking*".[110]
- Ofcom's requirement to ensure that it does not impose burdens which are unnecessary or maintain burdens which have become unnecessary.[111] This requires a careful consideration on an ongoing basis, and in particular when SMP conditions are being reimposed or introduced, of the necessity of each particular condition.
- The specific obligations when imposing SMP conditions as per sections 47, 87 and 88 of the Act.

[108] i.e. including consistent predictable and transparent regulation.

[109] The Act, sections 3(4)(d) and 4(8)(aa).

[110] Framework Directive, Article 8(4)(d).

[111] The Act, section 6(1).

Ibid

- Ofcom's requirement to carry out an impact assessment.[112]

324. For completeness Openreach also refers to its response to the WLA Consultation Volume 1, section 3 in which we set out our concerns about Ofcom's consultation process. We reiterate those concerns here.

325. In relation to the special obligation when imposing SMP conditions, the categories of SMP conditions which Ofcom is entitled to make are set out in section 87 of the Act. Insofar as is relevant, section 87 of the Act provides that:

    - under section 87(3), Ofcom may impose conditions requiring the dominant provider to give such entitlements as Ofcom may direct in relation to the provision of network access;

    - under section 87(4), Ofcom should take into account, *inter alia*, the feasibility of the provision of the proposed network access and the investment made by the person initially providing or making available the network access; and

    - under section 87(9) of the Act, the SMP conditions authorised by section 87 "*also include (subject to section 88) conditions imposing on the dominant provider – (a) such price*
      controls as OFCOM may direct … and (d) obligations to adjust prices in accordance with such directions given by OFCOM as they may consider appropriate".

326. Section 47(2) of the Act provides that Ofcom may only set or modify an SMP condition if it is objectively justifiable, not unduly discriminatory and proportionate to what the condition or modification is intended to achieve and, in relation to what it is intended to achieve, transparent.[113] Further, according to section 88, if the SMP condition involves imposing a price control or an obligation to adjust prices, Ofcom may only make this condition if:

    - It appears to Ofcom from the market analysis carried out for the purpose of setting that condition that *"there is a relevant risk of adverse effects arising from price distortion*".[114] There will be a relevant risk of adverse effects if the provider with SMP might fix and maintain prices at an excessively high level, or impose a price squeeze so as to have adverse consequences of end users.

    - It also appears to Ofcom that the setting of the condition is appropriate for the purposes of efficiency, promoting sustainable competition, and conferring the greatest possible benefits on the end-users of public electronic communication services.[115]

[112] , section 7
[113] Ibid, section 47(2).
[114] Ibid, section 88(1).
[115] Ibid, section 88.

Ibid

327. Section 88 also requires Ofcom to take into account the extent of the investment in the subject matter of the condition.[116]

328. Openreach considers that, in order to comply with the above statutory obligations, at the least, significant changes to the proposed 40/10 charge control are required. In this regard, we set out our observations on:

- relevant considerations when deciding to impose a SMP condition;
- compliance with Ofcom's duties to promote investment;
- the application of the Act, section 47(2), in particular the requirements that remedies must be objectively justifiable and proportionate;
- whether, in the round, Ofcom is imposing the least intrusive remedy.

329. First, in light of the observations on the extent of the competition concern and the constraints on Openreach as set out in section 3 and 4 of our response to WLA Consultation, Vol. 1, the relevant risks of adverse effects arising from price distortions[117] are less than those assumed by Ofcom. Indeed, there is no evidence in the Consultation that the current prices are excessive, in particular from a competition perspective.

330. Notwithstanding, even where Ofcom maintains that there is a relevant risk of adverse effects arising from price distortions, it will be necessary to consider the appropriateness of the proposed remedy by reference to the actual competition concerns. The fact that the relevant markets are more competitive than is assumed by Ofcom, and therefore the competition issues are less, will clearly impact any assessment of whether the remedy is objectively justifiable and proportionate. Indeed, we fully agree with Ofcom that the appropriateness of remedies must be based on the nature of the competition problems identified.[118] A logical corollary of this is that the most severe forms of regulation, including charge control and more particularly requiring very large price cuts, should only be imposed in response to significant, enduring competition issues.

331. Secondly, we consider that the proposed charge control of the 40/10 product will need to be revised in order to ensure it is consistent with Ofcom's duty to promote efficient investment and innovation consistent with Ofcom's duties. In this regard, it naturally follows from the evidence set out in this submission and Openreach's response to the WLA Consultation Vol. 1 that the proposed charge control of the 40/10 product does not strike a good balance between potential risk and reward. This is because:

- Ofcom has not allowed Openreach a "fair bet". The lack of a fair bet will impact how Openreach assesses future investment decisions. By removing a significant potential

[116] , section 88(2).
[117] Ibid, section 88(3).

[118] Ofcom, WLA Market Review – Volume 2, March 2017, paragraph 2.30.

Ibid

upside to investment and only allowing a lower return, Ofcom's proposal means Openreach therefore will be less likely to pursue such investments;[119]

- Ofcom's retrospective consideration of the "fair bet" and in particular removing the potential upside to investment creates regulatory and legal uncertainty. Investors will now have to take into account that the way in which Ofcom will assess the fair bet could change over time and relevant factors/considerations/analysis undertaken at the time the bet was placed might not be given sufficient weight in the future;
- The low price will also act as a disincentive to investment in alternative networks by other CPs. The significantly reduced wholesale price for the 40/10 product could make business cases unviable – indeed, it might be more commercially rational for other CPs to take advantage of the 40/10 product at a significantly reduced price rather than investing in alternative networks. [122]

[119] Openreach response to Ofcom, WLA Market Review – Volume 1, March 2017, section 9 and Annex 3 [122] , section 9.

Ibid

332. Accordingly, rather than promoting investment and innovation consistent with Ofcom's duties, there is a real risk that the proposal will dampen investment thereby detrimentally affecting competition at the least in the medium to long-term. In contrast, as explained in section 4 of this response, if the charge control for the 40/10 product was set above the top end of the range on which Ofcom is consulting (i.e. £69.90 in 20/21 with a smoother glide to that price), this would be more likely to allow Openreach to earn a fair bet and less likely to discourage investment, whether by Openreach or other infrastructure investors.

333. Thirdly, a proper assessment of the fair bet is also necessary in order to ensure that the remedy complies with the Act, section 88(2), which requires Ofcom to take into account the extent of the investment in the subject matter of the condition. Given the updates required to Ofcom's modelling and assessment,[120] Ofcom will need to revise the proposal in order to ensure that Openreach's original investment is properly taken into account.

334. Fourthly, for the same reasons as set out in paragraph 331 above, Openreach considers it is also necessary to set the 40/10 charge control higher than the top end of the range on which Ofcom is consulting (i.e. above £69.90 in 20/21), and to use a more even glide to that price, in order to ensure that it is proportionate and thereby consistent with the Act, section 47(2). Ofcom considers that its charge control proposals are proportionate because BT Group will be allowed to recover a reasonable return on investments and will continue to have incentives to invest.[121] However, as noted above, the evidence set out in this response and Openreach's response to the WLA consultation Vol 1[122] demonstrates that the proposed prices do not allow Openreach to recover efficiently incurred costs and do not allow an appropriate return on investments. As a result, more generally, incentives to invest will be negatively impacted. This demonstrates that the proposed price should be increased and glidepath should be revised in order to ensure the proposals are proportionate.

335. Fifthly, Ofcom considers that its charge controls are objectively justified because otherwise BT is unlikely to be incentivised to reduce costs or set prices at the competitive level.[126] However, as we set out in section 4 of Openreach's response to the WLA Consultation Vol. 1, Ofcom has underestimated the constraints imposed on Ofcom from, for example, Virgin Media and alternative technologies, thereby overstating the magnitude of the competition issue to be addressed. On that basis, Openreach would urge Ofcom to reconsider whether, in light of the competition issue being less than that set out by Ofcom, the very intrusive and severe form of price control is still objectively justified.

336. Openreach is also concerned about the compatibility of the proposals with Ofcom's objectives in the context of the Strategic Communications Review. Indeed, in the context of any monitoring of the new Openreach model delivered under the Strategic Communications Review, it would be unfair to hold Openreach accountable for any market failure (in particular

[120] As set out in this response (see sections 3 and 4 in particular) and Openreach response to Ofcom, WLA Market Review – Volume 1, March 2017, section 9

[121] Ofcom, WLA Market Review – Volume 1, March 2017, paragraphs 5.54 to 5.56.

[122] Openreach response to Ofcom, WLA Market Review – Volume 1, March 2017, section 9 and Annex 3 [126]

Ofcom, WLA Market Review – Volume 2, March 2017, paragraph 5.49.

as regards lack of investment) which results of Ofcom's WLA proposals. In particular it would be unfair for Openreach to be subject

to renewed uncertainty regarding the possibility of structural separation for perceived failures to achieve Ofcom's wider strategic objectives which are really attributable to the right policy balance between consumers' and CP's short term and long term best interests not being struck.

337. In light of the above, Openreach urges Ofcom to reconsider the remedies it intends to impose, including by reference to other options, such as charge controlling the 40/10 product at a higher price.[123] In particular, increasing the proposed charge control price for the 40/10 product to above the top end of the range that Ofcom is consulting would ensure that the proposed remedy was:

- more consistent with Ofcom's statutory duties, including ensuring the remedy better balances the longer-term competition concerns, including promoting investment with shortterm pricing objectives;[124]
- more proportionate; and
- more objectively justifiable.

338. On balance this would also be more consistent with Ofcom's requirement to not impose unnecessary regulatory burdens and the general best regulatory practice.

Specific comments on Conditions

339. We have conducted a review of the legal instrument and would like to bring the following points to
Ofcom's attention. This section has been presented in the order that the conditions are presented in the legal instrument.

340. In addition, set out in Annex 4 to our response to Volume 1 is a list of typographical amendments to the proposed Conditions.

Condition 1

341. The subparagraph at the end of condition 1.3 (starting "for the avoidance of doubt…") should more logically be placed at the end of condition 1.2.

[123] Openreach considers this would be necessary in order to comply with Ofcom's duty to undertake an impact assessment (the Act, section 7). As a public authority intervening in a market, Ofcom is obliged to carry out a qualitative and quantitative assessment of the unintended impacts of its proposals and to identify possible mitigations that will remove or limit any harmful effects: see CMA 50 Guidelines on Competition Impact Assessment and Better Policy Making: Ofcom's approach to Impact Assessment. These guidelines discuss the approach Ofcom should take to identifying different options, assessing the impacts and choosing the best option.

[124] Unless these objectives are properly balanced, there is a risk that regulatory intervention will result in market failure, to the detriment on consumers and industry generally (including Openreach).

Condition 2

342. In Condition 2.2, for clarity we would propose that the definition of an MPF External Tie Circuit is changed from:

"*MPF External Tie Circuit" means a link that connects Metallic Path Facilities to the electronic communications network of a Third Party at a location outside the MDF Site*"

to

"*MPF External Tie Circuit" means a link originating within the MDF Site that connects Metallic Path Facilities to the electronic communications network of a Third Party at a location outside the MDF Site*"

Condition 6

343. We object to the linking of SLU rental pricing to MPF SML1, as written in condition 6.3(a). SLU is specifically designed and priced to be at SML2, and this is what has been agreed with CPs. To align the price of SLU with MPF SML1 implicitly reduces the care level for SLU to SML1 and we do not believe this is appropriate without: (i) discussion with CPs that this is the appropriate service level; and (2) a review internally that this service level can be delivered on what is a very manual product.

Condition 7

344. Condition 7A.3 requires the calculation of compliance to be dependent on Prior Year revenue. As a practical example, prices for 1 April 2019 will have been notified by 1 January 2019, and therefore assessed and signed off through governance in December 2018. However compliance will not be certain until eight months later when the 2018/19 RFS is published in July 2019. This requires price adjustments to ensure compliance that may only be able to apply from December 2019 (where price increases require 90 days' notice, price decreases would apply sooner). Theoretically this could lead to large price adjustments as the rebalancing may only apply for the last four months of the year (December 2019 to March 2020).

345. While we accept the current drafting of the legal instrument as this is the current situation and no practical issues have been experienced to date, we ask Ofcom to note the issues that this could create and provide comfort that such price adjustments would be acceptable.

346. Condition 7A.6 and Condition 7B.4 allow the controlling percentage to be adjusted to reflect any Excess or Deficient compliance from the previous year to be carried forward. We support this proposal and note it is consistent with previous charge controls. However we note that this applies to any excess compliance in the first year of the control. For example, where there is a price ceiling in the first year of the control (as is the case for some MPF items and all GEA items covered by Condition 7B) the formula cannot simply be applied as set out in these sub-Conditions as there would not be a value for "100%+CPt-1". To allow any over compliance against the price caps, we propose Ofcom converts the difference between the Initial Charge (the price in effect at 1 April 2017) and the price ceiling into a percentage change. This percentage change will act as a proxy for the controlling percentage in the first year.

347. Condition 7C.6 requires SFI modules to be priced by applying the task time for 1 April 2018 to the charge controlled hourly rate. We would request amendments to the use of Engineer Time

as set out in the legal instrument to allow the required flexibility for the SFI product moving forward.

348. First, we would request that item (ii) is amended to add the text underlined below:

"*ii) such other amount of time as OFCOM may from time to time direct or consent to in writing*"

349. A review is planned for all Line Test Ok products, including SFI and as part of this the existing modules could be amended. This could influence the task time, and the ability for Ofcom to review this and agree to the revised task times by providing written consent gives greater flexibility.

350. Second, if a new product is introduced (such as a new module or a replacement to SFI) this would need to be priced with an appropriate task time. Reference in the legal instrument to the task time in effect at 1 April 2018 would not be suitable, and so we suggest adding "*or the amount of time determined by the Dominant Provider at launch, if appropriate*" to the existing text in section i).

Condition 9

351. We refer to Section 6 of our response to Volume 1, in which we set out our general observations on notice periods.

352. In previous consultations the final statement has been released very close to the start of the control period (which in this case is expected to be 1 April 2018). If that situation occurs here, we would ask Ofcom to include a provision to waive the notice periods for the start of the control, i.e. for both price increases and decreases.

353. The alternative would be that, although price reductions could be implemented immediately pursuant to Condition 9.3, price increases would need to be delayed to allow the required 90 days' notice. For such products, it can be expected that, to have the correct weighted average price for the year, Openreach would need to keep the existing price until 90 days' notice expire and could then price the product at an even higher absolute level for the remaining portion of the year (i.e. above the weighted average price required by the charge control). It would be simpler for all parties if Openreach could charge at the new charge control price from the date at which the new charge control comes into effect.

354. Openreach considers that this would be an appropriate solution because:

- The status quo creates less price stability in the market and could distort CPs buying behaviour. Waiving notice periods for the start of the control will avoid this, and allow a 'clean' implementation of the charge control and more pricing certainty for CPs.
- The status quo is unbalanced as it requires Openreach to reduce prices immediately but, where it is potentially under-recovering costs and thereby permitted to increase prices, it must give 90 days' notice, i.e. for Openreach the downside of the new charge controls is immediate whereas the upside is delayed.
- This approach would not disadvantage CPs as there would have been public consultation on those price levels.

Annex 1: Historic and future savings

Introduction

355. In this annex we provide analysis referenced in responding to Question 4.8. The key sections in the annex discuss in detail key sources of data and how they might be interpreted when assessing the appropriate level of efficiency to target in the charge control.

356. Whilst Ofcom previously acknowledged "limitations to the relevance of historical cost trends as a basis for future projections" because "Openreach may have already delivered many of the easier cost savings"[125] it nonetheless uses historic cost trend analysis as its main justification for the proposed forecast efficiency levels. In addition, whilst Ofcom considers planned savings, it in fact relies more heavily on the historic savings in assessing their proposal. The key sources of cost data are the RFS, an EY report and Openreach Management Information. **Efficiency is a critical aspect of service delivery**

357. Ofcom states[126] that efficiency includes:

- "Doing things less often (e.g. through reduced fault visits)"; and
- "Doing things more quickly (e.g. through reduced task times)"

358. Ofcom then states that these are applied after taking into account "changes in volumes and changes in input prices"; they "capture the effects of all means of delivering cost savings"; and they "reflect overall reduction in cash costs which will include costs incurred to delivery future cost savings".

359. Given these definitions, in this section and underpinning our response to Question 4.8, we set out in turn below our observations on:

- General efficiency
- Economies of scale
- Service Quality / fault volume reduction
- Observations on historic RFS trends
- Observations on historic Openreach management information Observations on future Openreach management information Efficiencies in capital expenditure.

General efficiency

360. General efficiency is a combination of productivity (i.e. how well Openreach can turn inputs into outputs better over time) and how well Openreach can use its resources more effectively. These could be achieved in a number of ways, and we discuss them in turn.

[125] Ofcom, A new pricing framework for Openreach, Ma 2009, Annex 9 'Efficiency Gains': https://www.ofcom.org.uk/__data/assets/pdf_file/0031/49918/annexes.pdf

[126] Ofcom, WLA Market Review, March 2017, Annex 15, paragraph A15.96

361. Efficiencies can be obtained through technological progress. This is essentially what Ofcom views
as "doing things more quickly", for example, an engineer using new diagnostic technology which enables the source of a fault to be identified more quickly thereby reducing the task times and complete more jobs per day. As a result, less engineers will be required, and therefore costs are reduced for a given volume of work. Similarly, more modern equipment may be more energy efficient and consume less power. Modern equipment may also be smaller, and therefore take-up less physical space, and attract less of the common overheads (if overheads are allocated in that way). There are, however, areas where there is limited scope for technological progress, for example, the physical duct used by copper and fibre to deliver the connectivity to premises, or average travel times between two locations.

362. Cost savings can also be delivered through reduced task times. This is akin to labour productivity or economies of scale, whereby engineers are able to do a specific task quicker through experience and training (i.e. becoming more productive), or they are able to complete more of the same tasks in a given time period because of economies of scale (for example, due to being able to do multiple jobs in the same location at the same time). An attempt to attribute the benefits to either "efficiency" or "economies of scale" would be a matter of judgement.

363. Regardless of what category the savings from reduced task times fall under, we consider it very unlikely that an engineer would be able to carry out repairs and provisions 5.5% faster every year.
Openreach's historic data on task times show that, with significant improvements in task times that have already occurred, Openreach's expectation is that task times would remain flat for provisions and will likely increase for repairs.

364. It should also be remembered that much of the efficiency savings delivered in the past, such as reducing task times through tools, work locations etc., is now complete and unlikely to be repeated. A repeat of the resulting improvement in, for example, Openreach repair performance or reduced missed appointments, over current levels cannot therefore be assumed to reoccur in future. Openreach does not expect significant net incremental productivity improvements from those or new initiatives during the charge control period.

365. Similarly, specific service delivery programmes, such as the Fault Volume Reduction (FVR) programme, can deliver increased labour productivity or technological progress by investing and improving network health. As a result, in the longer term less engineering resource would be required (thereby reducing associated costs as well). Technological progress, e.g. through learning, could also enable engineers to identify and remedy faults faster in the future. Another aspect of this is work quality, ensuring that work can be completed first time round, and avoid faults being repeated. These latter two are examples of what Ofcom views as "doing things less often".

366. Openreach considers all these elements as being part of the whole efficiency story. At the moment we believe Ofcom has modelled these initiatives in isolation, and should amalgamate them to identify the combined impacts.

Economies of scale

367. Network industries such as telecoms, gas, electricity and water, are characterised by significant economies of scale due to the nature of their fixed costs: so, as volume increases, unit costs fall. We agree with Ofcom that as more services are delivered over the same amount of fixed costs, then the reduction of unit costs should be passed on through to prices. However, it is not always a simple linear relationship to doing "more of the same thing". The business of deploying connectivity services requires engineers and infrastructure build, and as volumes increase we cannot expect the same rate of unit cost reduction. For example, although we see engineering productivity resulting in cost savings, there are underlying programmes (with associated costs) to enable these to happen, such as greater use of technology (e.g. providing engineers with laptops and mobile devices), training and upskilling (e.g. a multi-skilled engineer will have a lower propensity to further a job due to not having the skills needed to complete it). These types of expenditure should be taken into account when evaluating the cost benefits that they would deliver.

368. In Ofcom's top-down model, the effects of scale economies are applied in addition to the general efficiency trend. In effect, Ofcom's model forecasts costs assuming that in the short term (i.e. over the 5 year forecast period) it is possible to do more of the same thing at a rate determined by a long run costs (i.e. cost elasticities are based on LRICs), plus a bit more. On operating costs, the 5.5% efficiency assumption alone amounts to a 27% reduction in costs from the base year 2015/16 levels before any economies of scale effects are taken into account.

369. We do not disagree with the use of a cost elasticity assumption in forecasting costs, and we have set this out in our response to Question 4.7 above. However, we do believe that the overall impact should be considered alongside Ofcom's efficiency proposals.

Service quality / fault volume reduction

370. In the top-down model, Ofcom makes two adjustments to account for the cost reduction derived from the reduction in fault volumes that it has assumed:

- Costs are reduced to reflect the benefits it believes would arise from reduced fault volumes; and
- Costs are increased to reflect higher service quality standards it believes Openreach should deliver.

371. Openreach's Quality of Service consultation response[127] addresses the specifics of these assumptions in the context of its expectations of what is required to deliver the reduction in faults. In
this response, we focus on the impact of Ofcom's assumption on its modelled outputs. As such, if reductions in fault visits are part of the overall plan for efficiency improvements, then the cost savings associated with this activity are captured in Ofcom's FVR adjustment. Therefore, we believe careful consideration is needed to net off expected FVR savings from Ofcom's target efficiency.

[127] Openreach response to Ofcom, Quality of service for WLR, MPF and GEA, March 2017

372. In Openreach's QoS response we emphasise our commitment to improving the service that we deliver to the industry, and welcome the opportunity to work together with Ofcom and industry to take forward the debate to enable an achievable and affordable service regime. A key part of this would involve a more measured approach to understanding the interaction between the modelling assumptions and approach and specific service outcomes (e.g. impacts on costs from service quality). Ofcom's current building block approach is likely to overlook some of these kinks and interactions, and lead to more costs being removed than is intended.

Observations on historic RFS trends

373. We attempted to replicate Ofcom's "pair wise"[128] analysis based on the description in Annex 15 of the Consultation document, see the first row of figures in Figure 29 below.

Figure 29: Pair-wise unit operating cost reductions

	13/14	*14/15*	*15/16*	*Average*
Ofcom approach	-7.6%	-0.9%	-10.8%	-6.4%
All components	-4.2%	-7.6%	-3.1%	-5.0%
All – Adjusted	-4.2%	-7.8%	-2.6%	-4.9%

Source: Openreach analysis of Ofcom's proposals

374. Openreach consider it may be more consistent to include all the modelled components in the analysis rather than exclude "Administrative and GEA components" as per Ofcom's approach:

- Ofcom say it is right to exclude these components from the analysis because "'it is not possible to derive meaningful component unit costs as the component is comprised of a number of services, each with different units of measure".[129] However Ofcom does exactly that, i.e. when they are forecasting these components costs in their charge control modelling, Ofcom derives component unit costs;
- Excluding certain components may result in aggregate annual cost bases which are not likefor-like. This arises as a result of the fact that small movements year-on-year in our allocation model can cause costs to move between components within the market, and may ultimately exclude costs that would have sat in a specific component in a previous year. This is an issue which Ofcom themselves recognise in A15.115 of the consultation document. For example, as GEA services increase more of our historic cost base has been allocated to GEA services from Copper suggesting that analysis of the Copper components alone would lead to an inflated view of efficiency.

375. We agree with Ofcom that it is sometimes not possible to derive meaningful component unit costs for comparison between years, particularly if the volumes used across the pairwise comparison years for these are not consistent. This is the case for two components 'Openreach time related charges' and 'OR Service centre – Assurance WLA'.

[128] Unit cost trend analysis where volume effects are backed out using component LRIC/FAC ratios

[129] Ofcom, WLA Market Review, March 2017, Annex 15, paragraph A15.118

We have therefore created an 'Adjusted' view which excludes these components. This is the third row of values in Figure 29.

376. Openreach considers this is a better basis for considering historic RFS cost trends. This produces a smaller range than Ofcom's approach and the trend between 2014/15 and 2015/16 is more consistent with the Openreach management information which shows reduced productivity improvements. The estimated average unit cost reduction of 4.9% is 24% less than the 6.4% average using Ofcom's method. Only considering data source and on a pro rata basis that would suggest that Ofcom should change its proposed 5.5% Opex efficiency target to 4.2% before considering any forward looking impacts on efficiency.

377. It is also worth noting that in 2015/16 a new component 'Ofcom licence fee' was introduced,

and as the costs associated with this new component previously sat elsewhere in the market, there is a slight efficiency upside when using this approach to calculating efficiency. However, this is largely negligible when averaged across the three years, with a calculated impact on the average of c.0.1%. This would have the impact of reducing the 'Adjusted' scenario average to 4.8% efficiency.

378. Similarly, there is an additional £35m of costs included in 2014/15 relating to CCN adjustments[130] which inflate the implied efficiency level in 2015/16 in Ofcom's pairwise analysis. These costs represent 2.2% of the total relevant costs in 2014/15.

Observations on historic Openreach management information

379. Based on the information provided to Ofcom, we carried out a similar analysis to Ofcom in examining the expected trend in operating costs (excluding other operating income, Cumulo and
SLGs) based on Openreach's management accounts. We did this by categorising saving for Openreach's Service Delivery (SD) business unit as Price, Volume, Efficiency and Other (PVEO) effects as per Figure 30 below.

Figure 30: Openreach PVEOs

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[130] Ofcom, WLA Market Review, March 2017, Annex 15, paragraph A15.116

Source: Openreach analysis

380. Service Delivery has historically shown visiting savings (a volume effect) as an "efficiency" in its PVEO analysis. The analysis on the right hand side of the table breaks down the internally reported values so that visits can be excluded for our purposes. This shows a declining trend, from ✂% to ✂%.

381. This is no surprise as we can see from analysis of task times over the same period in Figure 31 overleaf, where the grand total reflects the time efficiency split out from the above SD PVEO.

Figure 31: Task time analysis

✂

Source: Openreach analysis

382. The bottom three rows of the table above shows changes in repair and provision task times. There is a downward trend which we believe is mainly due to the following factors:

- Low hanging fruit: As in any business, Openreach has focused on cost saving activities on those that would deliver most benefits in the shortest time, and therefore increasingly, it will become more difficult to deliver the same level of efficiency (let alone higher levels of efficiency).
- Non repeatable programmes: Historic levels of improvement were underpinned by programmes such as the provision of laptops/devices, development of apps to reduce time required to complete tasks, planning and better allocation of work around skills and engineering competencies, and providing engineering end of day flexibility to improve attendance patterns. All of these programmes were successful, but once implemented, it left less opportunities to drive even further efficiencies.

- Service level drag: These minimum service levels are there to ensure that cost reductions are not carried out at risk of service delivery. In 2016/17 we estimate that in order to implement further changes to improve customer service and to deliver beyond the MSL targets there was an increase of £✂m in costs, driven largely by increased in repair task times. All things being equal, increasing MSLs constrain the scope for efficiency improvements.

Observations on future Openreach management information

383. Openreach management account information supports a view that average cost savings will decline. Figure 32 below represents the underlying change in expected Openreach Management Accounts Opex costs[131], after taking out inflation (year on year change in costs due to volume and efficiency combined). Costs in our most recent forecast are due to increase rather than decrease over the next 3 financial years.

Figure 32: Year on year change in Openreach management accounts underlying opex

S135 submission	*Date*	*16/17*	*17/18*	*18/19*	*19/20*	*Average*
7th	Feb-16	✂	✂	✂		✂
23rd	Sep-16	✂	✂	✂	✂	✂
26th	Apr-17	✂	✂	✂	✂	✂

Source: Openreach analysis

384. Further, we have plans to hire a substantial number if new engineers which will have a detrimental impact on our ability to deliver productivity improvements. Figure 33 below shows the overall impact on field engineering productivity over the last 4 years (y-axis shows new hires, x-axis shows the impact on the field productivity). This impact is calculated by replacing the actual task times and success rates for all work handled by an engineer hired in that year with the actual task times and success rates of engineers working in the same geographies but that were not hired that year.[132]

Figure 33: Openreach field engineer recruitment - productivity impact

✂

[131] This excludes Other Operating Income, Cumulo & SLGs, and therefore on a comparable basis as Ofcom's historical RFS analysis.

[132] Openreach response to Ofcom, Quality of service for WLR, MPF and GEA, March 2017, Question 8.2

Source: Openreach analysis

385. In 2015/16 new field engineers were deployed to the service delivery work queues with a -0.4% productivity impact, this increased, in 2016/17 to a ✂% productivity impact. With 1500 new engineers planned to be recruited in 2017/18 and 2018/19, we can reasonably expect a ✂% impact on our field productivity. Additional coaching / buddying time will also be required over that seen in 2015/16 further reducing the scope for efficiency improvements.

Efficiencies in capital expenditure

386. Efficiency associated with new capital expenditure could arise from a number of sources, such as:

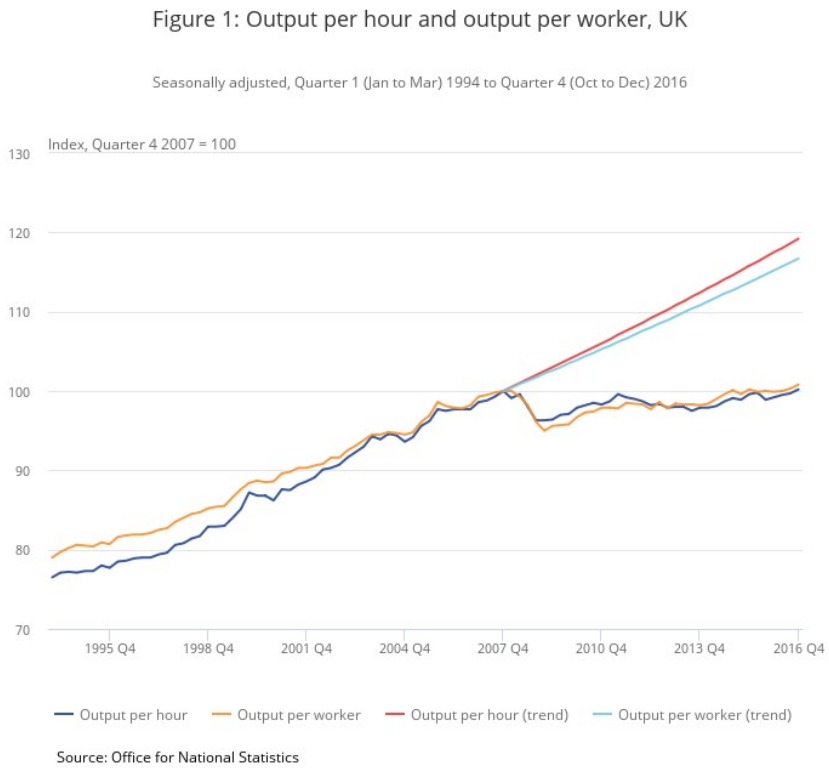
- Lower input prices for the same equipment, or same price for the equipment but it has more functionality. These would be captured in either the input price assumption or the CCA valuation that already exists in financial reporting.
- Higher capacity and/or functionality of the new equipment, which means that less is required for a given volume. The higher capacity could be captured through technological progress, e.g. manufacturers were able to produce a higher specification equipment for the same/cheaper price.
- Lower installation and/or running costs. Again, these could be captured through technological progress (sometimes referred to as capital deepening).

387. Ofcom's assessment of efficiency on capital expenditure is based on total spend, which is a combination of all the factors above. Given that Ofcom already assumes that most of the assets are valued at historic cost (apart from copper and duct, valued at RPI), the effect of inflation results in a 2% real price reduction per annum during the period of the charge control. The 3% capex efficiency assumption is applied in addition to this, resulting in around a 5% reduction per annum, before scale economies are taken into account.

388. As with the pay opex efficiency, it is difficult to see where the additional productivity improvement might come from, seeing as Ofcom applies the same efficiency assumption to capitalised pay.

389. The ONS estimates labour productivity for the UK as a whole, and in the last decade to December 2016, it has remained relative flat, with construction growing at around 0.2% on average, and falling behind most of the G7 countries. In contrast, Ofcom consistently assumed a significantly higher productivity rate for Openreach services in the last few reviews. As we have stated previously, this is markedly out of line with evidence on TFP productivity and the rates of efficiency improvement assumed by other UK regulators – See Figure 34 below.

Figure 34: ONS productivity statistics



390. We believe Ofcom's capex assumption of 3%, coupled with the 2% real price reduction, is too high and is not supported by available evidence. Given the asset price change assumption, we believe a 1% capex target (gross of the input price changes), would be more appropriate.

Annex 2: EY report "BT's Efficiency – Clarifications in respect of the "simple counter-factual" analysis regarding BT's Regulatory Profitability"

This report, prepared for Openreach by EY, has been provided as a separate document.

Annex 3: Oxera report "Response to Ofcom's WACC proposals for the WLA charge controls"

This report, prepared for Openreach by Oxera, has been provided as a separate document.

Annex 4: Volumes

391. Our answer to Question 4.2 summarises the five remaining concerns we have over Ofcom's WLA Volumes Model. These issues are set out in more detail in this annex.

Forecasting the number of fixed line UK households

392. We note Ofcom's response to our input to the Fibre Cost Modelling consultation regarding the use of household growth to forecast the number of fixed line households[133]. Ofcom rejected our recommendation for use of dwelling growth as opposed to household growth on the basis that:

    (1) a short-term constraint on dwelling growth will even out over the longer term;

    (2) there is a minimal difference in the per annum growth rate between household and dwelling growth; and

    (3) there is no publicly available forecast of dwelling growth.

    We maintain that these perceived shortcomings of using forecast dwelling growth do not outweigh its use as a more appropriate measure than household growth of new organic demand for fixed lines.

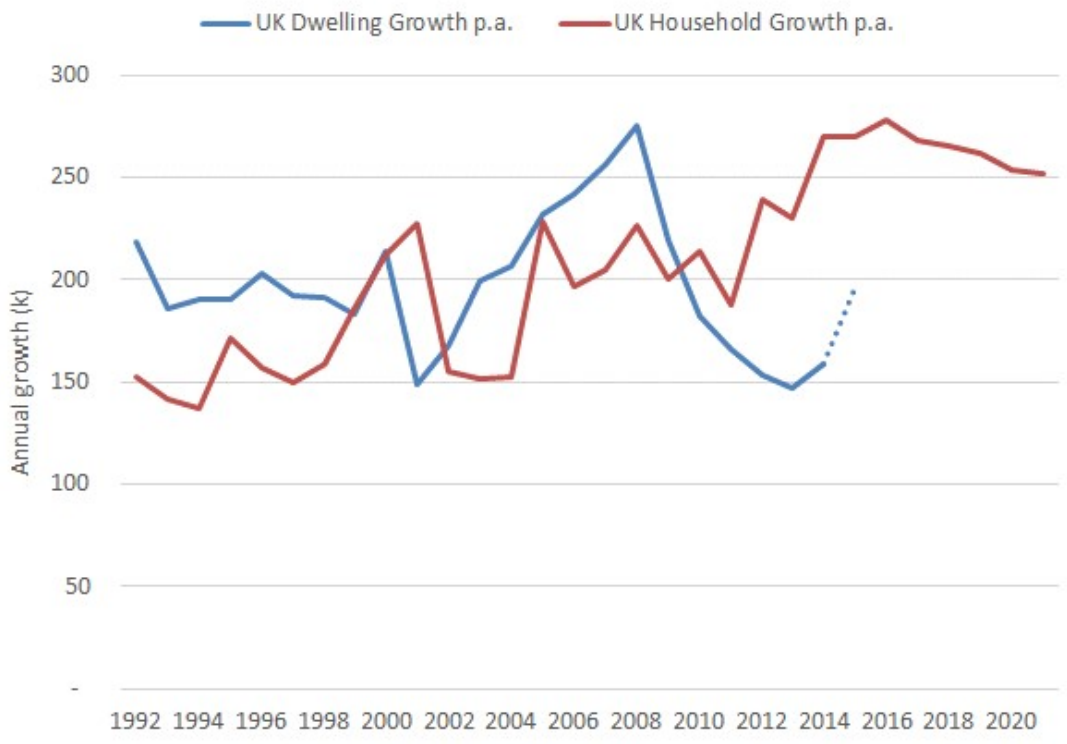
393. On the point of a short-term constraint on dwelling growth evening out over the longer term, Ofcom states that the *"[DCLG] told us that adjusting the long term forecast to account for short term restrictions or effects has historically proven not to be as accurate as simply using the long-term forecast"*[134]. In our view this does not address the point made in our previous response, namely that UK household growth has consistently exceeded growth in dwellings over the past seven years. Furthermore the annual growth in UK households forecast by the DCLG between 2014 and 2021 exceeds 250k p.a. in all years, a level which far exceeds the average annual growth rate of 186k seen in records dating from 1991 to 2013[135].

Figure 35: Comparison of historic and forecasted UK dwelling and household growth p.a.

[133] Ofcom, WLA Market Review, March 2017, Annex 10, paragraphs A10.34 to A10.38

[134] Ibid, paragraph A10.37

[135] Department for Communities and Local Government, Live tables on household projections, 12 July 2016 http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/householdestimates/livetables-households



Source: Department for Communities and Local Government (including Openreach to estimate yearly profile of household growth for Northern Ireland between 1992-2000 and 2002-2011 and due to absent data)

394. Figure 35 shows estimated and forecasted UK household and dwelling growth between 1991 and 2021. Openreach notes that whilst prior to 2010 dwelling growth on average exceeded growth in households, between 2010 and 2014 household growth has exceeded dwelling growth to an increasing extent. We believe it is highly likely that this will continue between 2015[136] and 2021 given, as noted above, the exceptionally high levels of UK household growth forecast and the recent trend of dwelling growth, which has only exceeded 250k p.a. in two separate years between 1991 and 2014. We therefore conclude that the differences between household and dwelling growth will be material over the charge control period and even more so over a longer period.

395. The UK also faces a period of deep political and economic uncertainty with the Brexit process looming over the economy over the next two years in the longer term following the UK's departure from the EU in March 2019. While all three major UK-wide political parties are committed to achieve a minimum of 250k homes built per annum, the housebuilding industry is sensitive to the strength of the economy and availability of skilled labour. The current uncertain outlook for the economy is likely to hamper investment in housebuilding.

396. Ofcom has not specifically dismissed dwelling growth as a more appropriate measure than household growth. However, Ofcom implies that household as a measureable unit is a more appropriate fit for measuring fixed line growth, referencing the definitions of 'household' and

[136] Note UK Dwelling Stock reported up to March 2014 only due to lack of reported data from Northern Ireland post-2014. 2014/15 UK dwelling net growth uses estimation for growth in Northern Ireland, GB actuals available from DCLG

'dwelling' from the 2001 and 2011 censuses respectively[137]. We argue that the definitions as laid out are not clear enough to conclude that household is a more appropriate measureable unit.

Specifically it is not clear what constitutes a household space that is 'not self-contained', and how this could lead to a defensible conclusion that household is a more appropriate measure.

397. Analysis of historic growth in UK dwellings demonstrates a closer relationship, versus growth in UK households, with Openreach lines connected to new build homes (i.e. able to order service from an Openreach CP). Figure 36 displays new site plots registered as being connected to the Openreach network and net growth in UK dwellings between 2011/12 and 2014/15[138]. Allowing for those competitors that address a small proportion of the new build market via exclusivity agreements (e.g. GTC)[139] which Openreach cannot address, Figure 36 demonstrates that UK dwelling net additions is a more appropriate measure of new organic demand for fixed lines.

Figure 36: Comparison of historic UK dwelling and household growth and Openreach new site plots addressed p.a.

✂

Source: Department for Communities and Local Government and Openreach internally reported data

398. In summary, Openreach continues to consider that dwelling growth is a more appropriate measure than household growth of new organic demand for fixed lines. We acknowledge Ofcom's preference for

[137] Ofcom, WLA Market Review, March 2017, Annex 10, paragraphs A10.33 and A10.34

[138] Note UK Dwelling Stock reported up to March 2014 only due to lack of reported data from Northern Ireland post-2014. 2014/15 UK dwelling net growth uses estimation for growth in Northern Ireland, GB actuals available from DCLG

[139] http://www.ispreview.co.uk/index.php/2014/08/new-housing-estate-locals-complain-ftth-broadband-ispmonopoly.html

use of a publicly available forecast but we do not believe this should not supersede the principle of utilising the most appropriate measure. In our view, the evidence we present above demonstrates clearly that forecast UK household growth to 2021 is highly unlikely to be achieved and not an accurate reflection of new organic demand for fixed lines. We recommend that Ofcom applies a dampening factor to the DCLG forecast of UK household growth between 2014 and 2021 to supress the exceptional level of growth over this period which is not consistent with historic data of the previous 23 years.

Mobile-only households

399. Ofcom forecasts that the proportion of UK households that are mobile-only will continue to decline but at a slower rate, applying a dampening factor of 1.6. Openreach agrees with Ofcom's forecast and justification for a more conservative level of decline through to 2020/21.

400. Openreach notes that in the two most recent publications of Ofcom's Technology Tracker, the proportion of UK households that are mobile-only measured 8%[140]. This is two percentage points below the H1 2016 figure of 10% and 1 percentage point below Ofcom's 2020/21 forecast of 9%. As Ofcom notes, the figures reported in the Technology Tracker have a margin of error in the region of plus or minus two percentage points.

401. We consider that the figures in the H2 2016 and H1 2017 issues of the Technology Tracker are subject to this margin of error and therefore do not conclude that they are reflective of a large decline in the proportion of UK households that are mobile-only over the most recent 12 months. Therefore we recommend that Ofcom appropriately dampens the impact of these latest results on its forecast when updating 2016/17 input data points in the model after this consultation.

Forecasting the number of Openreach lines per business site

402. Regarding the forecast of Openreach lines per business site, Ofcom proposes a continuation of the recent decline in average number of lines per business site with the application of a dampening factor of 1.4. Ofcom states that they *"do not see any factors which would cause this underlying trend to significantly change over this charge control period"* and adds that in view of this they *"do not consider it appropriate to apply a greater dampening factor"*[141].

403. Openreach does not view the use of a dampening factor, even at 1.4, to be an appropriate adjustment. Ofcom relies heavily on the decline observed in 2015/16 (-0.13 lines per business site), which is considerably lower than that observed between 2012/13 and 2014/15 (between -0.20 and -
0.24), and assumes that this single observation signals a slowing rate of decline. In Openreach's view the overall trend since 2012/13 is a more reliable predictor of the future rate of decline (i.e. as used in other Ofcom modelling activity such as the Pair-wise analysis) and 2015/16 appears to be an outlier. This view would also be more consistent with the justification that Ofcom provides as to what has driven the high level of decline between 2012/13 and

[140] Ofcom Technology Tracker: Half 2 2016
https://www.ofcom.org.uk/__data/assets/pdf_file/0032/93596/OfcomTechnology-Tracker-H2-2016.pdf

Ofcom Technology Tracker: Half 1 2017
https://www.ofcom.org.uk/__data/assets/pdf_file/0015/101292/technology-tracker-data-tables-h1-2017.pdf

[141] Ofcom, WLA Market Review, March 2017, Annex 10, paragraph A10.50

2015/16, namely *"declining use of ISDN and increasing take-up of VoIP as an alternative to traditional fixed voice calls"*[142]

404. There remains a large base of ISDN2 lines[143], and the level of decline observed in 2016/17 was consistent with prior years, indicating there has been no dampening of decline. Furthermore the VoIP market is still growing rapidly as forecast by Cavell Group: *"The SIP trunking market grew over 30% in 2015, and with BTs announcement of End-of-Line of ISDN this is only set to accelerate in the coming 2 years, with there being more SIP trunks than ISDN channels in the UK market by the beginning of 2017"*[144]. This outlook runs counter to Ofcom's forecast of a slowing decline in Openreach lines per business site which is significant when compared to the trend observed between 2012/13 and 2014/15.

405. If the dampening factor was removed and an average of the decline in average number of lines per business site between 2012/13 and 2015/16 (-0.19) was applied to the forecast period until 2020/21, this would result in the average number of lines per business site dropping to 1.67 by 2020/21. This is a significant deviation from Ofcom's forecast (2.22 in 2020/21) and equates to a delta of 770k business lines. This highlights the level of sensitivity and more so the overly conservative nature of Ofcom's forecast, which is not consistent with the historic trend and evidence supporting a continued sizeable decline in business lines.

406. Openreach continues to observe high levels of growth in take-up of IP-voice enabling connectivity services including Ethernet and GEA-FTTC, which provide the platform for migration from single fixed lines to IP voice. Further, we anticipate increased confidence in the quality and reliability of IPvoice alongside improved price competitiveness compared to single fixed lines. Continued high rates of IP Voice adoption will render ownership of fixed lines including ISDN2 (often multiple lines serving a single business site) redundant among many customer groups.

407. In summary, the current market evidence does not support a conclusion that the rate of decline in lines per business site will significantly dampen over the charge control period. Evidence presented to industry on VoIP take-up indicates high levels of growth in take-up over the next few years to 2020/21. Openreach does not view the lower level of reduction in lines per business site observed in 2015/16 to be indicative of a significant softening of the declining trend over the charge control period. In view of this, Openreach recommends that Ofcom remove the dampening factor of 1.4 from the forecast of Openreach lines per business site. Removal of the dampening factor equates to a reduction of c.410,000 Openreach lines by 2020/21.

[142] Ofcom, The Communications Market Report, 6 August 2015, page 286. http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr15/CMR_UK_2015.pdf

[143] c. ✂k ISDN2 lines on Openreach network as of end of March 2016, based on internal reporting

[144] Cavell Group press release, April 2016. http://www.cavellgroup.com/images/Press_Releases/13Apr16_VoIP_Market_Growth_a_Threat_to_Traditional_Telecoms.pdf

Impact of Project Lightning

408. As noted in our response to Question 4.2 above, Openreach welcomes the explicit inclusion of an adjustment to account for the competitor impact of Virgin Media's Project Lightning network expansion. We note that Ofcom's forecast of 40% take-up across a build of 4m by 2020/21 is consistent with Virgin Media's ambitions as communicated at the launch of the project[145].

    Openreach agrees with Ofcom's selection of the medium case assumption of 40% take-up which equates to a cumulative impact of 1.6m by 2020/21.

409. Beyond the Project Lightning network expansion, Ofcom does not account for any additional net
    Openreach losses to Virgin Media within their existing footprint, which is separate to the Project
    Lightning build[150]. Over 2015/16 and 2016/17, after accounting for the impact of Project Lightning,
    Virgin Media has taken a share of broadband net additions greater than its overall market share (see Figure 37). This indicates that the competitive impact of Virgin Media above the Project Lightning build has increased over the most recent two years.

Figure 37: Openreach and Virgin Media broadband net adds and shares

	Openreach broadband net adds	Openreach share of broadband net adds	Openreach share of overall broadband base	Virgin Media broadband net adds	Virgin Media share of broadband net adds	Openreach share of overall broadband base
2014/15	851k	85%	81%	148k	15%	19%
2015/16	621k	75%	81%	202k	25%	19%
2016/17	482k	67%	80%	232k	33%	20%

Source: Published KPI tables of BT and Virgin Media (Liberty Global)

410. Openreach observes that Virgin Media's two most recent speed upgrade programmes implemented in September 2015[151] and March 2017[152] have enhanced their current leadership on ultrafast speeds and the former is likely to have played a part in their increased share of broadband net adds in 2015/16 and 2016/17. Given the most recent speed upgrade, including a top tier speed of 300Mb, which was implemented recently in March 2017, the improved positioning of Virgin Media's higher speed offerings is most likely to have an impact from 2017/18 onwards and, in our view, at least maintain Virgin Media's improved share of broadband net adds as observed over 2015/16 and 2016/17.

411. Openreach raised the need to reflect the rising impact of Virgin Media's increasing advantage of ultrafast speed offerings to Ofcom during a meeting between both parties on 16th May 2017[153]. Ofcom explained that the volumes forecast model implicitly assumes that Openreach (and by extension our CP customers) will make *"economically rational decisions regarding our portfolio to defend our market position".* Accepting that 2015/16 and 2016/17 represent 'actuals', the volume movements over these two years will implicitly reflect the same assumption (Openreach has made decisions to defend our market position) yet the trend over

[145] Q4 2014 Liberty Global plc Earnings Presentation, page 8.

the past two years is clear in that Openreach has lost share of broadband net adds to Virgin Media year-on-year. As a consequence,
Openreach's market position as of 2016/17 has shifted compared to previous years and should be

http://www.libertyglobal.com/pdf/presentations/Liberty-Global-2014-Investor-Call-Presentation-FINAL.pdf

150 c.12.7m THP as at February 2015 when Project Lightning build was announced

151 http://www.ispreview.co.uk/index.php/2015/09/virgin-media-boosts-top-uk-vivid-cable-broadband-speeds-to200mbps.html

152 http://www.ispreview.co.uk/index.php/2017/03/virgin-media-uk-makes-ultrafast-broadband-standard-adds300mbps.html

153 Volumes Forecast meeting between Openreach and Ofcom, 16th May 2017, held at Ofcom's offices in Riverside House, London

accounted for in forecast volumes.

412. We also question whether Ofcom's treatment of volumes within its anchor pricing approach produces internally consistent outcomes. Ofcom ultimately uses its forecast of the volumes that can be delivered on the VDSL2 FTTC technology to drive unit costs based on that technology. If, however, the technical limitations of that technology are effectively ignored and no account is given to the higher speeds that Virgin Media is capable of delivering, then there is a significant risk that the unit costs are understated. Ofcom's approach would also overstate the value that Openreach can derive from its existing assets. We are firmly of the view that Ofcom should forecast the volumes it genuinely believes Openreach can retain on the VDSL2 FTTC network and not make simplified assumptions on the basis of an anchor pricing approach.

413. In summary Openreach recommends that that Ofcom account for the impact of these latest results on Openreach's market position either: (1) in their forecast of Openreach lines per household when updating 2016/17 input data points; or (2) include an additional adjustment line which specifically accounts for the increasing competitor impact from Virgin Media outside of their Project Lightning network build.

Impact of the PIA Remedy

414. In addition to the inclusion of the adjustment for the Project Lightning network build, Openreach welcomes the inclusion of a similar adjustment to account for the competitor impact from other network operators beyond Virgin Media. We note Ofcom's consideration of varying scenarios of the number of homes passed by new access networks built using PIA and the penetration rates that could be achieved based on inputs provided by other operators. Whilst we agree that in broad terms, the medium case (0.15m by 2020/21) is the most appropriate of those scoped, the fit of these volumes with existing known roll-outs by Alternative Network (Alt Net) operators is unclear.

415. Openreach notes that there are a number of Alt Net builds that are currently in progress with plans to achieve milestones between 2018 and 2020, i.e. within the charge control period.

Three of the most notable Alt Net builds are being undertaken by Hyperoptic[146], Gigaclear[147] and a Joint Venture project between CityFibre and TalkTalk in York[148]. As of May 2017 we estimate, based on press releases from the three operators, they have passed an aggregate total homes passed of 200-250k, none which is underpinned by PIA. Furthermore, any build undertaken by these operators in
2017/18 will by default not be underpinned by PIA given that Ofcom's volumes model does not account for PIA impact until 2018/19.

416. We acknowledge that Ofcom has stated that actuals (currently up to 2015/16 in the model) will reflect Openreach's market position at that point and will therefore include any impact from Alt Net builds. Ofcom should note, however, that network build activity amongst those Alt Net operators referred to above must increase compared to that up to 2015/16 in order to underpin their ambitions. Similarly, the compound effect of rising take-up over the total network build will increase
the impact on Openreach's WLA base during the charge control period in comparison to the impact seen up to 2015/16. As a consequence Openreach's market position will have changed and therefore an appropriate adjustment for such a change should be applied within the model.

417. The potential implicit assumption that all Alt Net build above the annualised impact seen up to 2015/16 will be delivered by PIA, in our view underestimates the total competitor impact from the Alt Nets' combined plans. Furthermore Openreach observes that whilst some network operators have shown an interest in PIA others have not, indicating that not all forecast Alt Net build from 2018/19 will be underpinned by PIA.

418. In summary, Openreach recommends that Ofcom scope a suitable additional impact from Alt Net build not using PIA reflecting the increasing rate of network build and take-up across the three Alt Net operators over the charge control period.

Broadband and Superfast Broadband Penetration

419. Ofcom observes that take-up of broadband on Openreach lines has increased year on year since 2011/12, but this trend has recently started to flatten. Ofcom assumes a growth rate in broadband penetration of Openreach lines of c.2% p.a. to 2020/21, reaching 88% by that year. We agree with Ofcom's forecast of a continued steady rate of increased broadband penetration to 2020/21.

420. Ofcom observes that Superfast Broadband (SFBB) penetration expressed as the "proportion of Openreach broadband lines that use GEA" has continually increased since 2011/12. Ofcom assumes a per annum growth rate of 8% between 2016/17 and 2020/21. Openreach views this level of sustained growth as too high given a more detailed understanding of the dynamics that have impacted growth in the Openreach GEA base to date.

[146] http://www.ispreview.co.uk/index.php/2013/05/hyperoptic-secure-gbp50m-to-expand-uk-1gbps-fibrebroadband-coverage.html

[147] http://www.ispreview.co.uk/index.php/2017/05/gigaclear-raise-111m-1gbps-rural-broadband-150000-ukpremises.html

[148] https://www.talktalkgroup.com/articles/talktalkgroup/2016/October/Ultra-Fibre-Optic-Trial-set-to-cover-thewhole-of-York

421. We note Ofcom states that it has assessed its forecasts against alternative sources and does not consider its forecast to differ widely from the inputs it collated[149]. These alternative sources include Analysys Mason's FTTx forecast from August 2015[150] and Openreach's forecasts provided in response to a number of Section 135 requests between February and October 2016. We note that Analysys Mason forecasts UK FTTC growth from 5.6m in 2015 to 15.2m by 2020. We assess this level of growth as bullish given the change in competitive impact since the forecast was published in
August 2015 and comparison of Analysys Mason's forecasted UK FTTC base of 7.9m at the end of 2016, nearly 10% higher than the published Openreach fibre base of 7.2m at the end of 2016[151].

422. Ofcom's forecast of the Openreach GEA base is more modest than the forecast provided by Analysys Mason, reaching 14.1m by 2020/21. We consider that Ofcom's forecast is too bullish for a mid-case scenario on the basis of the level of fibre base growth which would need to be achieved over the period of the charge control to 2020/21. Openreach has undertaken analysis of the internal/external splits of forecast growth in the fibre base through to 2020/21 both expressed as absolute volume growth and as a percentage of the respective total internal/external broadband bases (see Figure 38).

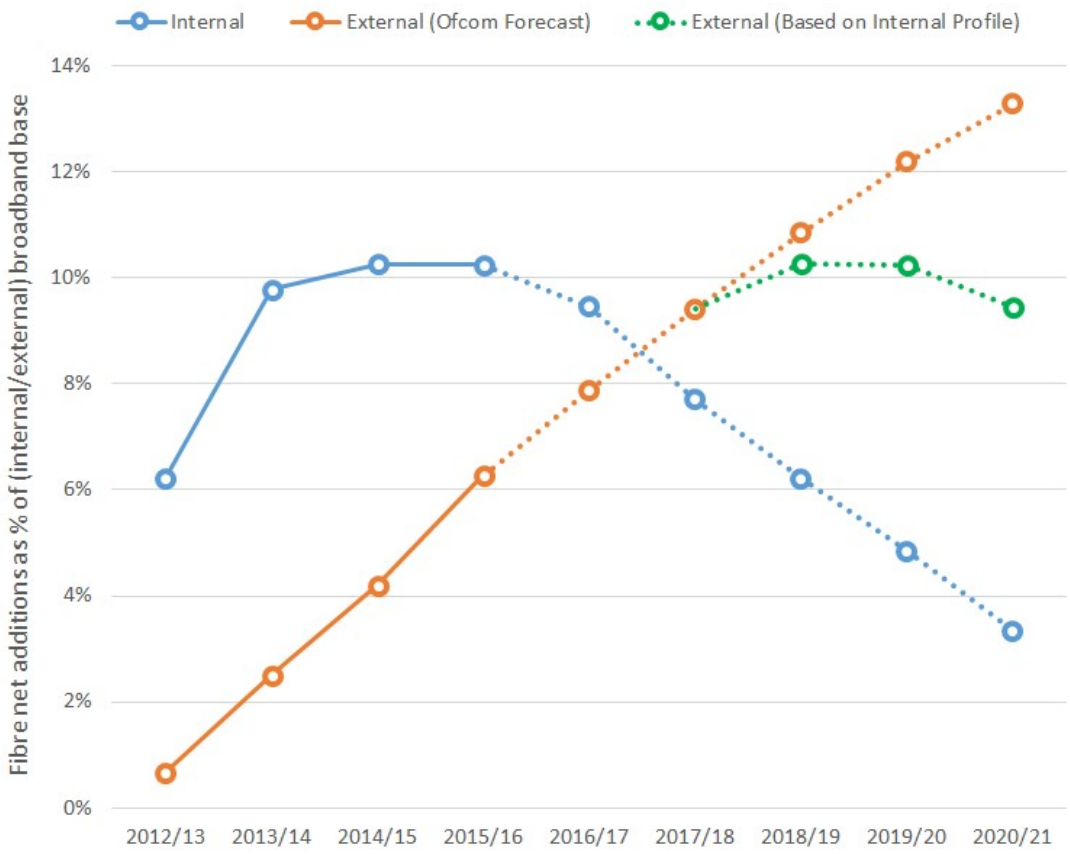
[149] Ofcom, WLA Market Review, March 2017, Annex 10, paragraph A10.66

[150] Analysys Mason, FTTx coverage, conversion and capex: worldwide trends and forecasts 2015–2020, August 2015

[151] BT Key Performance Indicators Q4 2016/17:

http://www.btplc.com/Sharesandperformance/Quarterlyresults/2016-2017/Q4/Downloads/KPIs/q417-KPIs.pdf

Figure 38: Internal/External Fibre net additions as % of respective broadband base



Source: Openreach WLA Volumes Model (including conversion of absolute GEA fibre net adds to % of internal/external broadband base by Openreach)

423. Figure 38 demonstrates that internal fibre net additions per annum have seemingly peaked at c.10% of the total internal broadband base between 2013/14 and 2015/16. The trend is forecast to downturn to 9.5% in 2016/17, which is consistent with the actuals presented in BT's reported KPIs. Ofcom further forecasts a year-on-year decline through to 2020/21, when 72% of the internal broadband base will be GEA. Openreach agrees with both the profile of decline in internal fibre net additions and the absolute volume of net additions over the forecast period to 2020/21.

424. Figure 38 illustrates that external fibre net additions as a percentage of total external broadband base has increased year-on-year to reach 6.3% in 2015/16 and is forecast to increase further to 7.9% in 2016/17. We view the trend in 2016/17 as consistent with the actuals of external CPs as presented in BT's reported KPIs. Ofcom forecasts volumes for external GEA to increase in absolute terms year-on-year through to 2020/21, exceeding 10% of the total external broadband base by 2018/19 and increasing to over 13% in 2020/21. This is a very bullish forecast, given that the rate achieved by internal CPs, predominantly BT Consumer, peaked at around 10% between 2013/14 and 2015/16.

425. Figure 38 includes a forecast of external fibre net additions as a percentage of total external broadband base modelled based on the internal fibre net additions profile. This profile deviates

from the forecast in Ofcom's WLA Volumes Model from 2018/19 onwards. The cumulative delta by 2020/21 between the two profiles on external fibre net adds amounts to ✂k.

426. We view the level of external fibre net additions forecast by Ofcom as overly optimistic. It would require a concerted incremental effort by all external CPs, particularly Sky and TalkTalk, to deliver on this forecast. External CPs have, to date, shown limited interest in actively encouraging their existing customers to upgrade to GEA-based services, so in order to deliver Ofcom's forecast their strategies would have to change materially. GEA pricing is likely to play a key role in CPs' considerations of promoting GEA-based services more actively, but Ofcom provides no insight into the level of GEA pricing that underlies its volume forecast assumptions for external GEA services.
Under current pricing scenarios Ofcom's forecasts appear to overstate the rate of external GEA line growth (as set out above in the two preceding paragraphs), given most consumers' moderate bandwidth demand[152] and their observed willingness to pay for higher speeds.[153]

427. A lower GEA price level may well change external CPs' incentives to promote GEA-based services more actively. Giving Openreach pricing flexibility for GEA would leave room for commercial negotiations between Openreach and CPs to agree prices that generate sustainable GEA take up. If however the price level necessary to incentivise the level of GEA take up forecast by Ofcom were insufficient to cover Openreach's costs, then this would be an inappropriate and unsustainable assumption. Elsewhere in its response, Openreach sets out in detail why the proposed charge control for 40/10 GEA services does not cover Openreach's costs and deters future investment. In other words, to the extent that Ofcom's forecast of GEA volume growth relies on price levels reflecting the proposed 40/10 GEA charge control, Openreach regards Ofcom's forecasts as untenable.

428. Additionally Ofcom indicates that the forecast of GEA fibre volumes reflects the remedies applied to
GEA, including the proposed price remedy of FTTC 40/10; *"We do not consider it likely that take-up of SFBB will dampen (relative to historical take-up) over the charge control period given our proposed remedies for GEA".*[154] We cannot identify a quantification of the forecast impact that the proposed remedies on GEA will have on Openreach's GEA fibre volumes. The absence of forecast volumes which do not include the price remedy makes it impossible to assess the rationale for introduction of the remedy on the grounds of the volume uplift it would deliver. In our view, this also results in invalid comparisons of the forecasts in the WLA Volumes Model with forecasts from alternative sources, as the latter is unlikely to reflect a similar impact from the proposed remedies.

429. Further, Openreach would also highlight the lack of clarity in the Consultation on the assumption
Ofcom applies to the volumes model regarding Openreach's GEA portfolio available through to

[152] This is discussed in more detail in Annex 1 to Openreach's response to Ofcom, WLA Market Review – Volume 1, March 2017

[153] As shown in section 8 of Openreach's response to Volume 1 of Ofcom's consultation only 28% of consumers living in fibre enabled areas have to date taken up a fibre-based service

[154] Ofcom, WLA Market Review, March 2017, Annex 10, paragraph A10.67

2020/21. As noted above, during a meeting between Openreach and Ofcom held on 16th May 2017 Ofcom explained that the volumes forecast model implicitly assumes that Openreach (and by extension our CP customers) will make *"economically rational decisions regarding our portfolio to defend our market position"*[155]. This was confirmed during the meeting to be inclusive of the introduction of additional GEA tiers beyond those currently available from Openreach. Openreach requests that Ofcom clarifies its assumptions regarding the NGA portfolio offered by Openreach

[155] Volumes Forecast meeting between Openreach and Ofcom, 16th May 2017, held at Ofcom's offices in Riverside House, London

through to 2020/21, which underpins Ofcom's forecasts. This will enable relevant comparison to our internal forecasts and, more importantly, appropriately scope the level of investment needed from Openreach to achieve these volumes.

430. In summary, Openreach concludes that the evidence does not support a forecast of sustained growth in the GEA fibre base of 8% p.a. between 2016/17 and 2020/21. Therefore we recommend that Ofcom apply a dampening factor to fibre net additions between 2017/18 and 2020/21 to account for a softening in take-up growth, and specifically that this adjustment is made directly to the external GEA fibre volumes. We recommend that the dampening factor applied reflects external fibre net additions as a percentage of total external broadband base peaking in 2018/19 and 2019/20 as per the Internal net additions profile, before declining marginally in both percentage terms and in absolute volume terms in 2020/21. Our estimations quantify this adjustment at ✂k fewer Openreach GEA lines by 2020/21.

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