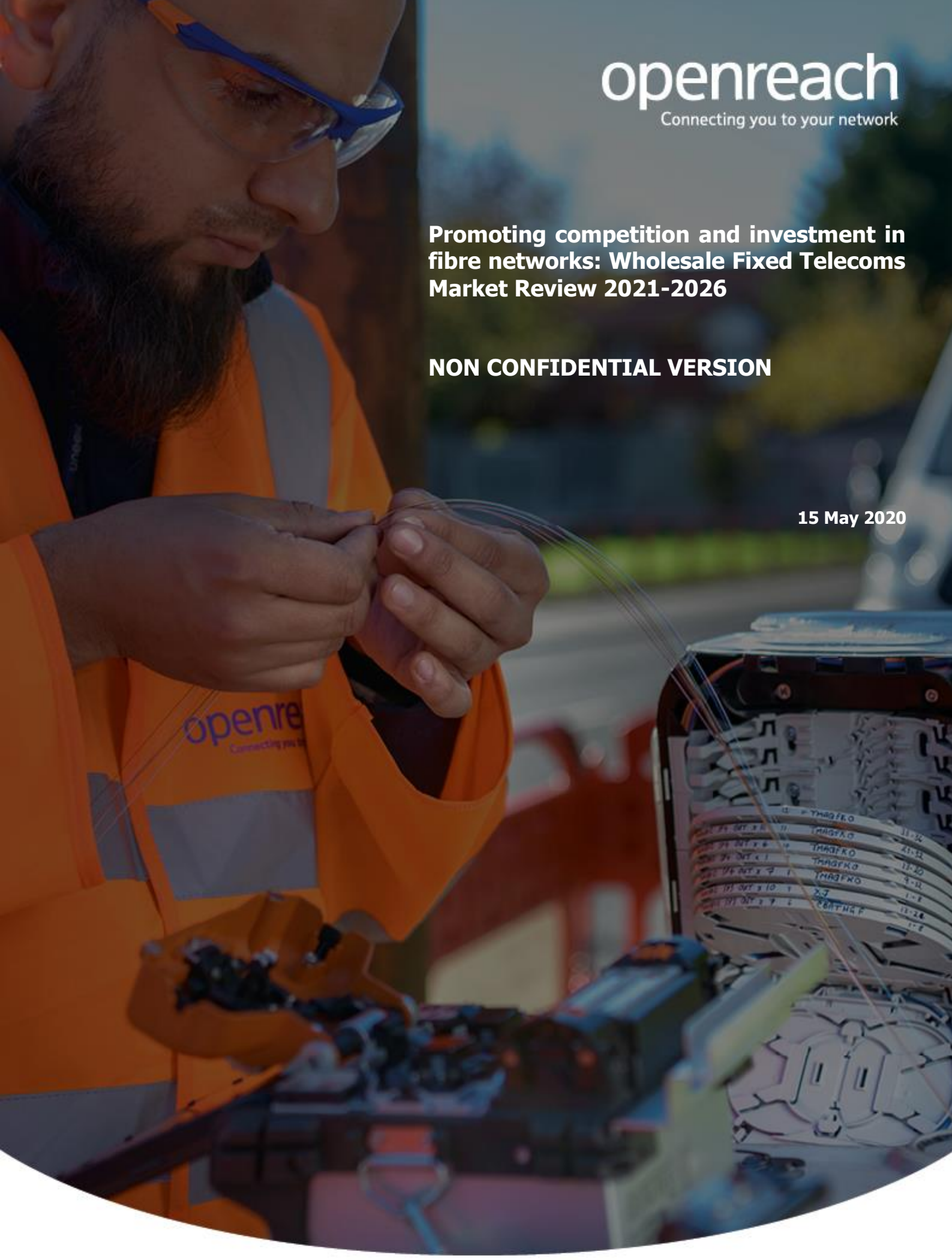

Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-2026

NON CONFIDENTIAL VERSION

15 May 2020

Foreword

This response is provided by Openreach Limited[1]. Openreach is a wholesale network provider. We support more than 600 Communications Providers (CPs) to connect the 30 million UK homes and business to their networks. We sell our products and services to CPs so they can add their own products and provide their customers with bundled landline, mobile, broadband, TV and data services. Our services are available to everybody and our products have the same prices, terms and conditions, no matter who buys them.

[1] Openreach Limited is a wholly owned subsidiary of BT Group Plc.

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1. Executive Summary

Key points

1.1 Openreach is making this response at an unprecedented time as the country focuses on dealing with the challenges posed by COVID-19. Keeping the Nation's communications network going has never been more important and our current focus is on keeping the UK connected and doing the essential work that is required to maintain and enhance our network. We have responded to this consultation as fully as possible given the current circumstances but would note that the full impact of COVID-19 and the time it will take to fully recovery cannot yet be forecast with any certainty.

1.2 Investment in Fibre to the Premises (FTTP) remains at the heart of Openreach's strategy. The current situation has shown the importance of the UK having a fast and reliable broadband network and Openreach shares Ofcom's goal of supporting investment and competition in ultrafast-capable network services. Ofcom's consultation provides much of the clarity and investment certainty needed by infrastructure builders like Openreach and Ofcom's proposals go a long way to providing a regulatory framework that could support investment.

1.3 We have now announced[2] that, on the basis that Ofcom's Wholesale Fixed Telecoms Market Review (WFTMR) proposals are confirmed and we get the required critical enablers, we will increase our FTTP target from 15 million to 20 million premises – almost two thirds of the UK – by the mid- to late-2020s, with a commitment to build significantly in rural locations (i.e. Ofcom's Area 3). We expect to invest around £12 billion to reach our target by the mid- to late-20s, making this the biggest investment in the UK's digital infrastructure for a generation. Once we are through the current COVID-19 crisis we are going to accelerate our build as fast as humanly possible.

1.4 We welcome many of the remedies proposed by Ofcom in areas defined as 'potentially competitive', where the focus is rightly on ensuring any regulatory rules in place are supportive of investment in FTTP networks:

a) We support the proposal to keep the prices of legacy services flat in real terms and to set the price for a new FTTP anchor service at a moderate premium.

b) We welcome Ofcom's support for copper retirement for the Openreach network, endorsing the approach we have consulted on with industry.

c) We welcome Ofcom's endorsement of the 'fair bet' principle.

1.5 Ofcom's proposed regulatory framework is extremely helpful to the investment case for full fibre by us and other providers, but as set out in this response could and should go further. Further, the regulatory enablers proposed by Ofcom are not sufficient in themselves: we also need Government support to remove barriers to investment and cumulo rates and we need commercial agreements with our customers to drive rapid take-up of FTTP.

1.6 We do not believe Ofcom's approach to market definitions and findings of market power reflects current or, as it should, future market dynamics. The finding of Significant Market Power (SMP) across a broadly defined Wholesale Local Access (WLA) market in particular fails to take proper account of the fact that currently Virgin Media has the ability to supply around 15 million UK premises with lines capable of delivering ultrafast access speeds (at 300Mb and above), while Openreach has only just passed 2.5m homes with its ultrafast-capable FTTP network. The

[2] BT's full-year results, 7 May 2020

recently announced merger between Virgin Media and 02 shows the market structure in our sector is subject to change. This merger will result in there being a new stronger competitor to Openreach/BT and Ofcom needs to reflect this (and the potential for further such deals) and the contestability this implies when assessing SMP and considering the need for ex-ante remedies above and beyond competition law. Ofcom should reassess its proposals and finding that Openreach holds SMP in the supply of ultrafast-capable connections.

1.7 We are concerned that Ofcom's proposals on pricing flexibility – in relation to our ability to introduce geographic discounts on access services and/or commercial terms that are conditional on the volume or range of services purchased – would constrain our ability to compete on fair terms in the provision of ultrafast-capable connections and leased lines, even where we are competing against established players – e.g. in supplying ultrafast-capable connections in competition with Virgin Media or in supplying leased line services where contracts are being awarded via competitive tender or 'bid' processes. Notwithstanding our challenge to the broad finding of SMP, Ofcom should impose remedies that take full account of market dynamics in the supply of ultrafast-capable connections and leased lines and, at most (i) limit ex ante restrictions on geographic discounts to Openreach's provision of copper/FTTC access rental services where these are clearly targeted at new entrants and (ii) only consider the merits of any commercial terms conditional on volumes/range of services under the proposed ex ante framework where there is scope for those terms to impact competition from *new* network builders.

1.8 We support Ofcom's proposal to extend indexation to Area 3 if we make a scale commitment to deliver full fibre commercially in Area 3 by the end of 2025/26. BT's May results announcement shows we are keen and ready to step up positively to this challenge. We believe this approach is more appropriate than Ofcom's proposed RAB model, since it provides greater certainty of full fibre coverage in Area 3 and avoids the complexities of correctly calibrating a RAB model – as our concerns over Ofcom's calculation of the 'X' and 'K' factors in our detailed response show. While Ofcom has defined Area 3 as "non-competitive", we believe there will be opportunities for new fibre builders to extend their network into the postcode sectors included by Ofcom in its definition. This creates demand uncertainty making any attempt to establish an effective RAB model even more challenging and further supports applying the same pricing remedies in Area 3 as are proposed in Area 2. By making a commitment to build in the defined Area 3 we are giving assurance to Ofcom that this approach will not risk an imbalance in build over the next 5 years. To underpin a commitment to build in particular parts of the country it is important that the definition of Area 3 by specific postcode sectors is now 'locked down' and not subject to further iterations or shifts in Ofcom's methodology.

1.9 We remain fully committed to delivering a world-class DPA product and understand the importance Ofcom attaches to DPA as a means of encouraging other operators to build competitive fibre networks. We note, however, that DPA is not a silver bullet and building full fibre networks remains risky and has long paybacks. We agree with Ofcom that the DPA specification remains fit-for-purpose and we are continuing to work with our industry customers to enhance the product to reflect their emerging requirements for large scale use. This includes development of new B2B functionality enabling API access to Openreach systems - allowing bulk data download, upload and edit - in addition to the many 'Day 2' product and system developments already delivered in October 2019. We do, however, have some concerns with Ofcom's proposed DPA pricing approach and set out some changes to ensure the full costs of our DPA assets are properly reflected in DPA prices and that costs are more fairly allocated.

1.10 We continue to oppose Ofcom's proposal to impose Dark Fibre in Area 3. This remedy is premature given that there has been insufficient time to assess the take-up of unrestricted DPA, and it will undermine rather than

support network build in rural areas allowing, for example, economically inefficient cherry picking. We are further concerned that Ofcom's guidance about the scope of the network access obligation could be interpreted too broadly, requiring us to build new fibre extensions where no existing fibre is available. Given Ofcom's guidance has the potential to be misinterpreted we have proposed a threshold based on economic dig distances using Ofcom's own model, to define the boundary beyond which Openreach would not be required by SMP obligations to build new infrastructure. Moreover, the proposed DFA price is too low and needs to properly reflect actual delivery costs in Area 3. We have supplied Ofcom with information on our Area 3 costs in this regard. This unduly low DFA price will send economically inefficient investment signals and is likely to give rise to accelerated migration from active to DFA services in Area 3 that may undermine our ability to build scale FTTP networks in Area 3 and deliver excellent QoS for leased lines nationally. The proposed one-month implementation timeframe for DFA is not feasible given the systems development and training required to deliver a scalable product plus the need to negotiate terms with industry to avoid unnecessary disputes further down the line.

1.11 We agree with Ofcom's overall approach to QoS with existing Quality Standards kept at 2021 levels and no new targets introduced. This reflects the significant and sustained improvements achieved in Openreach service levels. However, there needs to be sufficient flexibility in the regulatory framework to deal with any exogenous factors or unforeseen material changes that might arise during the review period. We also agree that it would be premature to introduce QoS Standards for FTTP where we are keen to move to agreeing appropriate levels of service with our customers as a replacement for formal regulation; we will be consulting industry on this during 2020.

1.12 We are not currently in a position to determine the full extent of the impact of COVID-19 (including the scope and duration of any impact) on our business and that of our customers and any resulting regulatory implications. It is likely we will need to make further representations on this to Ofcom in the future. It is highly likely that a wide range of QoS performance measures will be affected not only in the period of the outbreak, but for some time afterwards as we recover and return to usual levels in the future. This will impact this year's performance outcomes and the appropriate starting points for the new control period. In addition, there will be technological impacts and subsequent delays relating to release cycles which may not only impact service delivery but our ability to release product developments on schedule. We reserve the right to request regulatory changes that may be required once we have fully assessed the impact of COVID-19 on the business.

Establishing regulation to support fibre investment

1.13 Ofcom's WFTMR consultation's stated goal is to support investment and competition in ultrafast services to as many people and businesses as possible. Openreach shares this goal and is keen that we continue to play our part delivering benefits for our customers and the UK's consumers and businesses.

1.14 Over the last decade, Openreach has invested to drive near-universal availability of superfast broadband services based on VDSL fibre to the cabinet (FTTC) technology. We are now investing to make ultrafast services available: on 7 May 2020, we announced an increased target to pass 20 million premises with FTTP by the mid to late 2020s, up from 15 million, if the conditions are right. We have already reached over 2.6m homes and businesses with full fibre and continue to increase our build run-rate each quarter. Our current run rate stands at 32,000 premises per week. After passing 1.3 million premises in 2019/20, we are aiming at over 2 million in 2020/21, and envisage a build rate of 3 million premises per year thereafter.

1.15 The current COVID-19 situation has shown the importance of the UK having a fast and reliable broadband network and we are keen to get on with the job of building this critical infrastructure. We are continuing with our build

plans (the impact of COVID-19 on resource, working practices and efficiency excepted) during 2020/21 to exit the year in a way which would enable a scale build to seamlessly follow on.

1.16 In addition to our commercial investments, coverage in rural areas has improved significantly as a result of the success of our participation in the BDUK and other publicly funded programmes. This has made superfast broadband available to large parts of the country which would otherwise have been considered commercially unviable. Ofcom's Connected Nations report in 2019 found that rural coverage of superfast broadband had reached 79% of premises. But we are keen to help take this further forward and welcome the Government's announcement of £5bn for gigabit capable broadband for the final 20% of the country.

1.17 We are also continuing to build commercially in Ofcom's Area 3. In 2019/20 we passed [≫] homes as we sought to understand better the build economics and challenges in the "better 20% of the final third". In 2020/21 we plan a five-fold increase in this target to 250k homes passed commercially. As set out below, we remain keen to make a commitment to further commercial Area 3 build in return for the extension of indexation across the country.

1.18 Regulation is critical in shaping the conditions for full-fibre investment:

a) We are making **significant upfront investments** to construct an FTTP network that will replace existing copper-based connections to end-customers.

b) The **timeframe for achieving payback on these investments is long and uncertain** and will, among other things, depend on our ability to deploy FTTP at the right build costs at the required pace, migrate customers onto the new platform, retire existing copper-based services and drive incremental revenue from the enhanced capability of the new network.

c) The **success of these investments will be shaped by a number of factors**, including the valuation end-customers actually place on the enhanced capability over time and hence their willingness to pay and the willingness of our CP customers to share in this risk. The result is that our investment comes with material downside risks that it will fail to deliver adequate returns over adequate timeframes for investors. Investors will therefore need to see that we have the opportunity to earn and retain higher returns on the investment, in order to balance the identified risks, rather than see any returns above our cost of capital taken away by regulation – the '**fair bet'.**

d) **Regulation defines the set of access services we must provide to our industry customers, what prices we can set and can place limits on our ability to compete**. The set of regulatory remedies in place at any point in the timeframe of an investment case will play a key role in determining the costs we will incur and the maximum revenues we will be allowed to generate. Uncertainty around the shape of future regulation materially increases the risks and costs of any investment decision.

1.19 A supportive regulatory framework requires, therefore, that:

a) we are able to **minimise our costs** through efficient FTTP build and by driving efficient and timely migration from our existing copper-based services to FTTP-based services;

b) we are **allowed to compete fairly** with other networks and other technologies throughout the period of any investment case; and

c) we have the opportunity to **generate adequate future revenues to fund the investment case**: any price controls that are set over the timeframe of the investment case for access services – which may cover existing copper-based services and future FTTP-services – should provide us with the opportunity to extract the additional value required to justify the investments.

1.20 Ofcom's support for these regulatory fibre enablers is extremely helpful to our investment case and we set out in this response how Ofcom could go further to support its aims of investment and competition in full fibre. Ofcom's actions alone will not be sufficient: we also need Government support to reduce the costs of investment and we need CPs to drive rapid take-up. Hence, our scale FTTP case will remain a risky investment.

Ofcom's proposed regulatory framework

1.21 In this consultation, Ofcom has proposed a number of measures that support investment by us and by others, including those that directly address the key enablers we have identified for our scale FTTP business case.

a) **Indexation.** We support Ofcom's proposal to provide regulatory certainty in Area 2 by applying CPI indexation to the current regulated prices of legacy services (i.e. MPF, 40Mb FTTC and wholesale leased lines). This will be important during a period of transition where costs of supply will be volatile as volumes change, and as we will be looking to move customers to full-fibre services. Ofcom should confirm that indexation will remain in place for the life of the legacy assets.

b) **FTTP anchor premium.** We welcome Ofcom's support for a moderate price premium for the FTTP 40Mb anchor product when it replaces the FTTC **equivalent**. This premium reflects the increased value provided to CPs and their customers and the cost savings to CPs through the increased reliability of the new platform. However, we believe Ofcom's proposed price range of £1.50 to £1.85 is too low and the premium should be at least £2.

c) **Pricing freedom on higher bandwidth FTTP services.** We agree with Ofcom's proposal to only directly constrain our pricing of the 40Mb FTTP **anchor** services, allowing us commercial freedom – subject to 'fair and reasonable' supply obligations – to set the price premium/structure for the supply of higher bandwidth, higher value FTTP services.

d) **Copper retirement.** We welcome Ofcom's support for our approach to copper retirement which we have been consulting on extensively with **industry**. As Ofcom indicates, this is a key enabler for our fibre business case as we want to encourage customers to move off the copper platform to enable us to reduce the time period during which we will have to incur the cost of simultaneously running two networks. We are pleased that Ofcom agrees that 75% is a suitable threshold for commencing switchover by implementing stop-sell and that legacy regulation could be withdrawn after a minimum of two years. We welcome Ofcom's further consultation on this threshold given the practical difficulties of reaching 100% ultrafast coverage. We think Ofcom could go further, for example, to support stop-repair in copper where FTTP is available.

e) **Fair Bet.** Ofcom's clear in-principle support for the Fair Bet on our fibre investments is very helpful, signalling that any future regulation of the pricing of fibre services would allow for the risks faced at the outset of our build programme and would not unduly constrain upside returns once commercial outcomes are known. We would, however, also encourage Ofcom to confirm that its general approach to price regulation of FTTP services – i.e. a 40Mb anchor with freedoms on price setting above the anchor – will endure for at least two market review periods. While Ofcom has done this in a number of presentations,

including notably the analysts' presentation on the day of the publication of its WFTMR Consultation,[3] it would be very helpful if Ofcom could formally state this position in writing. This would provide comfort that we will have an extended initial period with limited regulatory constraint during which we can drive and retain value from the platform.

f) **Balanced build in the Final Third**. We support Ofcom's preferred option of extending CPI price indexation to legacy services in Area 3 if we make a commitment to build a sufficient level of fibre commercially in the final third during the 5 years of this review period to 2026. This option is preferable to the challenges and complexities of Ofcom's post-build RAB alternative, particularly as we believe there will be significant scope for commercial build by different suppliers across the postcode sectors defined within Area 3.

   (i) We remain committed to a balanced build between urban/suburban UK (Area 2) and rural UK (Area 3). To date, of our 2.6m homes footprint, approximately [✂] % of premises are in Area 3. We remain keen to commit to scale FTTP build in Area 3 and our build plan for this year includes (subject to any COVID-19 impact) deploying FTTP to a further [✂] premises in Area 3 in 2020/21.

   (ii) Ofcom should now confirm the definition of Area 3 so we can make a clear commitment to build in this area. It should also be remembered that there is an important role for Government in funding fibre roll-out to the hardest to reach rural areas.

1.22 We are also supportive of Ofcom's proposals in a number of other areas:

a) **Duct & Pole Access product specification.** We welcome Ofcom's recognition of the progress we have made in making the DPA product a best-in-class scale product that meets the needs of industry. It is sensible that the formal DPA specification and other regulatory obligations remain unchanged, but we are still continuing to improve the DPA product specification, delivery and performance metrics to meet our customers' requirements, supported by our systems development roadmap and collaborative engagement with CPs. For example, we are now looking to reflect CPs' emerging requirements for large-scale use by the development of new B2B functionality enabling API access to Openreach systems to allow bulk data download, upload and edit facilities, in addition to the many 'Day 2' product and system developments already delivered in October 2019. We also support Ofcom's proposal and consultation to simplify lead-ins.

b) **Quality of Service.** Our key points on quality of service are as follows:

   (i) We agree with Ofcom's overall approach to QoS with Quality Standards kept flat at 2021 exit levels. That said, there may be changes during the next review period that could impact our ability to meet the standards, for example, with the issues raised by proactive repair (that is, the recent proactive reporting of faults by some CPs that have not been raised by their end customers) in relation to copper and fibre services. There needs to be sufficient flexibility to address such exogenous factors and it may be appropriate for the regulation to be amended to reflect these changes as and when they occur. In relation to proactive repair specifically, we believe that it is appropriate for Ofcom to take account of this in the construct of the QoS Standards imposed. We support the view that it is premature to impose QoS regulation on FTTP and we plan to consult on this area with our industry customers later this year.

[3] https://www.ofcom.org.uk/__data/assets/pdf_file/0022/189310/access-review-analyst-briefing-transcript.pdf

(ii) Proactive repair was not foreseen by Openreach (or Ofcom) in setting the resource requirements in the WLA for the current set of QoS standards and we have not planned to be able to deal with the additional and volatile volumes that are now being submitted. The introduction of proactive repair has circumvented recognised industry processes that underpin both the SLA/SLG framework and QoS standard levels and creates significant increases in fault volumes that are not forecast and may not actually materialise as faults. Openreach is actively reviewing mitigating actions to address this with the preferred approach being to exclude such faults; we look for Ofcom's support in this. At the very least, Ofcom needs to take account of this in the construct of the QoS Standards imposed.

(iii) On Ethernet, we continue to have concerns with the Upper Percentile QoS Standard as determining the level of a standard is too complex and the measure outcome is too sensitive to external factors. We propose that the measure should be replaced with a remedy that is based on enhanced oversight which we set out in this response.

(iv) During the COVID-19 crisis, Openreach's current service focus is on keeping the UK connected with a set of operational priorities agreed with Ofcom and industry. At this stage, we cannot predict the situation for the remainder of 2020/21 and any possible impact on 2021/22 performance. Ofcom may therefore need to amend its proposals once we are back to a steady state. Our ambition of operating at 2020/21 QoS Standard exit levels remains unchanged, the timing of when we can get there at this point is unknown.

c) **WLR/ISDN deregulation**. We support Ofcom's proposals which reflect the voluntary commitment on WLR and ISDN2/30 we have offered to make covering the period up to national stop-sell and withdrawal in September 2023 and December 2025 respectively. Under this commitment, we would continue to provide new WLR and ISDN2/ISDN30 circuits until September 2023 and to support the existing WLR and ISDN2/30 customer base on a reasonable basis until December 2025.

1.23 However, we do have some significant concerns with some other aspects of Ofcom's proposed approach:

a) **Approach to market definition/SMP.** Our key points on Ofcom's approach to market definition/SMP are as follows:

(i) We do not believe Ofcom's approach to market definitions and findings of market power reflects current or, as it should, future market dynamics. The finding of SMP across a broad WLA market in particular fails to take proper account of the fact that, at this moment, Virgin Media has the ability to supply around 15 million UK premises with lines capable of delivering ultrafast access speeds (at 300Mb and above), while Openreach has only relatively recently passed 2 million premises with its ultrafast network. Recent news of the proposed merger between Virgin Media and O2 further illustrates this point and will herald a new, stronger competitor across fixed and mobile telecoms markets. The provision of access services will be transformed over this market review period with Virgin Media expanding the geographic reach of its network and a number of ambitious, well-financed entrants deploying ultrafast-capable networks. With this outlook, retail CPs are actively considering their options for how their network access requirements can be met in a way that ensures they are able to extract higher value from their customers and meet demand for ultrafast speed connectivity services from their customers as it emerges – demand at the wholesale level for ultrafast-capable connections is running ahead of demand from end-customers for connections sold at ultrafast speeds.

A finding in this review that Openreach has market power in relation to the provision of ultrafast-capable connections – i.e. that we could act independently of other players in the supply of such lines – is clearly inconsistent with this emerging outlook.

(ii) As we have noted, we welcome Ofcom's proposals not to impose direct controls on the price levels at which we supply access services above the existing 40Mb anchor service over ultrafast-capable lines. However, the broad finding of SMP across all our access services imposes additional burdens and restrictions on our terms of supply compared to other providers of ultrafast-capable connections and there is a material risk of distorting competition over the market review period. We would, therefore, ask Ofcom to reassess forward-looking conditions for the supply and demand of ultrafast-capable access lines and conclude that Openreach does not hold market power at this time. Similarly, while we welcome the fact that Ofcom has shown some recognition of differing levels of competition in the business connectivity market with the Central London Area fully deregulated and lighter-touch remedies in the HNR areas, we believe Ofcom's analysis still understates the existence of competition in these areas and beyond.

(iii) Ofcom's approach to defining a market for 'telecoms physical infrastructure' based solely on Openreach physical assets is also unsatisfactory, leading to the unsurprising finding of SMP for Openreach on a national basis. In our view, the finding does not place enough weight on the differences in competitive conditions prevailing in different geographic areas, new sites, or with respect to overhead/underground infrastructure - and does not fully reflect the broader options available to access seekers (particularly mobile operators) using alternative deployment methods and alternative telco/non-telco infrastructure. Outside of the SMP framework, Ofcom also could and should have focused more attention on opening up such options for the industry by reviewing and setting expectations for the ATI regulations (for example, in relation to levels of charges and other T&Cs, and response deadlines) to ensure they are fit for purpose. Our experience to date of trying to gain access to passive networks using the ATI regulations shows them to be inadequate. Reform and clearer guidance on their application would help Openreach (and other network providers) in scenarios where we have no pre-existing physical infrastructure and hence no market power, such as in new build sites and multi-dwelling units (MDUs) - including where we are 'locked out' of a site at the build stage by an exclusivity agreement between the serving CP and developer.

b) **Restrictions on our commercial flexibility to supply access services.** Our key points on our commercial flexibility to supply access services are as follows:

(i) We oppose Ofcom's proposals to use ex ante remedies to restrict our ability to introduce geographic discounting of prices across our access services and/or commercial terms that are conditional on the volume or range of services purchased. Ofcom is proposing that we follow new operational processes – i.e. we will need to seek consent before introducing geographic discounts on most of our rental services supplied into the proposed SMP markets, including FTTP services and leased lines services; and we will need to give 90, rather than 28, days' notice of any volume-conditional terms during which time Ofcom will consider whether to require that such terms are removed or adjusted. Ofcom's commentary and guidance in this consultation then raises concerns that it would set a high evidential barrier to allowing geographic discounting and not blocking the introduction of volume-conditional terms. We believe this approach is not justified and could result in a distortion of competition,

particularly where we are competing against established network players – e.g. Virgin Media in the supply of ultrafast-capable access lines or leased line providers, especially where we are responding to invitations to tender / bid processes.

(ii) We recognise Ofcom's policy objective of promoting competition in the supply of multi-service, ultrafast-capable networks, but we expect this competition to result in increased levels of geographic pricing and in network suppliers and wholesale customers looking to establish long-term supply arrangements where pricing certainty is offered in exchange for volume commitments and some degree of 'risk-sharing'. Openreach's case to invest in ultrafast-capable network will be undermined if we are restricted in our ability to respond fairly to these competitive dynamics.

(iii) Given our position that Openreach cannot have SMP in relation to the supply of ultrafast-capable connections, there is no case for any ex ante restrictions on our commercial activity for these services. However, we propose that, at a minimum, Ofcom amends its proposals to (i) limit the proposed ex ante restrictions on geographic discounts to Openreach's provision of FTTC access rental services only; and (ii) only use the proposed ex ante framework to assess the effects of any proposed volume-conditional commercial terms where these could have some effect on *new* network suppliers and use competition law to assess any such terms that would only have an impact on established network suppliers such as Virgin Media as part of a full evidence-led, effects-based assessment.

c) **Dark Fibre remedy.** Our key points on the Dark Fibre remedy are as follows:

(i) We oppose Ofcom's proposal to impose Dark Fibre in Area 3. This remedy is premature given there has been insufficient time to assess the take-up of unrestricted DPA, and it will undermine rather than support network build in rural areas. If DFA is mandated in Area 3, changes are needed in respect of the remedy; otherwise, the risks this could create to our Area 3 volumes will need to be reflected in our business case to build.

(ii) We are concerned that Ofcom's current guidance on when dark fibre requests would be required to be met by Openreach could be misinterpreted to go beyond what Openreach is legally required to do under the Network Access obligations. Ofcom's current guidance correctly restricts the scope of the dark fibre obligations on Openreach to the making of network adjustments that are (i) necessary; (ii) feasible; and (iii) to improve efficiency[4]. However, it provides no guidance to assist CPs and Openreach in distinguishing requests for network 'adjustments' of that kind (which would fall within the scope of the proposed regulatory Network Access obligation) from requests for network *extensions* (which would not). Openreach sets out a proposed definition to assist the market in clearly understanding which requests are subject to regulatory obligation from those that are not. To note, although Ofcom's guidance on this topic is provided solely in relation to the dark fibre remedies, Openreach's comments and proposals apply more widely, and the definitions Openreach proposes will apply equally to all leased lines services.

(iii) The proposed DFA price is significantly below costs and needs to be increased to properly reflect actual delivery costs in Area 3. We have supplied Ofcom with information on our Area 3 costs and are happy to work with them to ensure these are understood and properly reflected. The proposed DFA implementation timescales (1 month after the final statement) are not realistic given the systems

[4] Ofcom Consultation Volume 3, Paragraph 6.98

development and training required. Openreach sets out that June 2022 is sensible the date for full product launch. The unduly low price proposed for DFA in Area 3 will also drive rapid migration from active services to DFA. This migration will then impact Openreach's ability to meet QoS standards for leased lines nationally by creating significant additional work that will need to be undertaken by the operational teams.

d) **Duct & Pole Access pricing structure**. Our key points on Duct and Pole Access pricing structure are as follows:

(i) We support Ofcom's principle that DPA pricing should ensure cost recovery and a level playing field but are concerned that its current proposals will not achieve this in application. Ofcom is proposing to broadly maintain the existing price structures for DPA services which reflect current utilisation of the infrastructure assets in supporting our copper/VDSL based network. Ofcom then proposes to reduce prices for pole access based on a reduced valuation of the pole assets. Openreach is concerned that Ofcom has not yet properly taken into account the forward-looking costs of investing in DPA assets and that its approach to cost recovery does not reflect the changing way in which DPA assets will be utilised in the future by competing fibre-based suppliers.

(ii) To address this issue, it is therefore important that DPA prices properly reflect current and forecast DPA costs, based on current build scenarios. The additional DPA costs relating to the FTTP scale case will also need to be included. Finally, the methodologies for pricing multi-bore duct and manholes need to be changed to reflect a fairer allocation of costs between Openreach and other network builders. Openreach believes multi-bore duct and manhole prices do need to increase in this review period to ensure we have a glide to a sustainable medium/long term pricing structure.

1.24 Finally, there are a number of areas where Openreach has concerns about, or do not fully understand, Ofcom's modelling, or where further work is required. These include:

a) Ofcom has used nationally averaged costs to propose its DFA prices and those include volumes and costs in CLA, a geographic market where BT is assessed by Ofcom not to have SMP. Openreach considers there is no justification for including CLA volumes and costs in its estimate. Further, Openreach's geographically-disaggregated costs supplied to Ofcom prior to this consultation show that the DFA costs of supply in Area 3 are significantly higher than in the rest of the UK.

b) In calculating DFA prices, Ofcom uses the same efficiency assumptions they made in the 2018 BCMR consultation. We continue to believe that the underlying evidence (recent historic unit cost analysis and management plans) does not support these very high efficiency levels.

c) Openreach estimates, at the DFA price points proposed by Ofcom, that the rate of local access fibre provision activity in Area 3 will more than double over the charge control period. Ofcom makes no allowance for these migration costs in its assessment of DFA costs.

d) Ofcom uses undiscounted FTTC prices to estimate the x for the Area 3 RAB model. We consider that discounted FTTC prices are the appropriate start charges for modelling purposes.

e) In its 'k factor' model, Ofcom makes no allowance for legacy volume loss to FTTP as we build out FTTP. More generally, Ofcom's cost modelling will need to be updated to reflect the impact of our scale FTTP commitment.

1.25 We flag these and other similar modelling issues in this response but will need to continue to work with Ofcom to understand and align data and assumptions.

Structure of response

1.26 This response is structured as follows:

- **Section 2** considers how Ofcom should assess market definition and SMP to support investment in fibre networks
- **Section 3** considers issues relating to the pricing of WLA services
- **Section 4** considers issues relating to commercial flexibility and Ofcom's proposed prohibitions on geographic pricing and other discounts
- **Section 5** considers Ofcom's proposals on copper retirement
- **Section 6** considers DPA remedies
- **Section 7** considers issues concerning the regulation of leased lines markets, including Ofcom's proposals on dark fibre
- **Section 8** considers Quality of Service
- **Section 9** comments on Ofcom's pricing remedies and cost modelling.

2. Identifying the need for regulation in the supply of access services: market definition and SMP assessments

Key points

2.1 The technical process of defining markets at the product and geographic level is a vital first step in considering the optimal shape of regulation. This process not only establishes where competition concerns exist, but helps understand the nature of those concerns, providing the analysis needed to consider how best to address them. In this Section, we propose changes to the approach Ofcom has taken to defining markets and assessing competition in the supply of access services[5]. Market definition is a means to an end and we have rooted our assessment of Ofcom's approach in the context of the core policy objectives within this market review. We set out:

a) The focus of this review is to establish a regulatory framework that drives us towards the shared long-term ambition of delivering ultrafast access across the UK.

b) Delivering this long-term ambition requires a shift in the balance of regulation to support investment in ultrafast-capable networks.

c) Ofcom's proposed new framework would shift the balance in the right direction but would restrict Openreach's ability to compete effectively and fairly in the supply of ultrafast-capable connections.

d) Such restrictions are not justified given the competitive conditions and dynamics relating to the supply of ultrafast-capable connections and the case to invest in such connections at scale and pace would be better supported by allowing competition to 'play out'.

e) Ofcom should revisit its approach to market definition and SMP with a clearer forward-looking focus on competition in the supply of ultrafast-capable connections. Rather than define a single, broad 'Wholesale Local Access' market, we suggest Ofcom consider competitive conditions and the need for regulation separately in relation to the provision of:

   (i) Wholesale connections that can support the provision of broadband services of speeds up to c100Mb/s; and

   (ii) Wholesale ultrafast-capable connections that can support the provision of broadband services at ultrafast speeds.

f) There is growing wholesale demand for ultrafast-capable connections and, given Virgin Media's existing and planned network capabilities and the plans of a number of network builders, Ofcom should conclude that Openreach does not hold market power in their supply over the forward-looking period of this review.

[5] This Section responds to Ofcom consultation questions 2.1 (retail market assessment), 6.1 (wholesale network product definition), 7,1 (geographic market definition) and 8.2 (SMP findings) but with a focus on Ofcom's proposed definition of a single product market for the supply of 'Wholesale Local Access'. A more detailed assessment of 'Leased Line Access' markets is set out in Section 7.

The focus of this review is to establish a regulatory framework that drives us towards the shared long-term ambition of ultrafast access across the UK

2.2 This market review comes at an early point of a period of radical transformation in the way access to communications services is supplied and consumed.

2.3 This period of transformation will extend beyond this market review and, indeed, beyond the next decade. While the precise path that will be followed will be hard to plot, we think there is a clear, shared long-term ambition across industry, government and regulator: all UK homes and businesses should have access to ultrafast-capable connections, enabling them to access a richer set of services and applications.

2.4 The long-term ambition of universal ultrafast coverage will require targeted public funding and a range of technologies including wireless solutions (5G mobile, Fixed Wireless Access and Low Earth Orbit satellite). But for the vast majority of the UK, the objective will be met by private companies building high capacity multi-service fixed access networks over the next 10-15 years – i.e. networks capable of offering broadband access to UK residential customers and businesses at ultrafast speeds as well as very high bandwidth business connectivity and network connectivity services that will be used, among other things, to support deployment of high speed 5G mobile services.

2.5 This market review and the regulatory framework it ultimately establishes from 2021 should be focused on this long-term ambition: all regulatory rules should be set in a way that best supports industry-wide investment in the delivery of ultrafast-capable networks at pace and scale across the UK and sets the country on a clear trajectory towards the desired end-point.

Delivering this long-term ambition requires a shift in the regulatory balance

2.6 Regulation since privatisation has looked to strike a balance between different objectives, in particular:

a) directly protecting consumers from the risk of excess charges where there are enduring bottlenecks in supply chains;

b) promoting ongoing investment and innovation in networks and services; and

c) enabling competition to emerge as widely as is efficient across the value chain (from access networks to core networks to over-the-top retail services) and to operate effectively.

2.7 Periodic reviews of communications markets have allowed regulators to take stock of whether the right balance is being struck given changes in the outlook for supply and demand, reflecting technical and service innovation across the value chain, improvements in cost efficiency and shifts in the value end-customers place on the services they receive.

2.8 Adjustments have been made to the regulatory balance over time – e.g. early regulation was focused on direct control of retail prices; later there was a clearer focus on promoting more competition in voice and over the top value-add services and then, as new technology provided opportunities to expand network capabilities, regulation shifted to encouraging greater competition in the supply of active broadband access services through regulated access to unbundled copper loops, to superfast virtual access paths and, more recently, through providing access to Openreach's passive infrastructure on regulated terms.

2.9 This history of regulation has shaped the evolution of communications markets in the UK to where we are today and a further shift in Ofcom's approach is needed to propel us towards the ultrafast future. We therefore welcome Ofcom's upfront recognition that further adjustments to the regulatory framework are now required to "transform the business case for investment in full-fibre broadband" and enable the radical transformation of network access. The balance of regulation needs to clearly shift towards supporting investment and innovation in the delivery of new access networks.

Ofcom's proposed new framework would shift the balance in the right direction, but restrict Openreach's ability to compete effectively and fairly in the supply of ultrafast-capable network access

2.10 Ofcom's consultation captures the key policy questions that need to be considered in getting the balance right, in relation to whether, and if so how, to regulate access to:

a) Passive Infrastructure Access to support building of new MSNs and the provision of all network access services;

b) Wholesale Local Access to support competition in the provision of voice and broadband services to residential and business customers and facilitate investment in ultrafast-capable networks and the growth of competition at the access level; and

c) Wholesale Leased Line Access and Backhaul to support competition in the provision of business connectivity services at the retail level and in the supply of fixed and mobile network connectivity and facilitate further growth in competitive supply of very high bandwidth wholesale connectivity services.

2.11 In each area, Ofcom needs to consider:

a) Whether there is a need for any form of regulatory intervention to address competition concerns, taking account of forward-looking competitive conditions absent regulation or whether optimal outcomes for consumers would best be delivered by allowing competition to 'play out'.

b) Where intervention is considered appropriate, what is the most appropriate form of regulation to apply to address any competition concerns that have been identified and strike the right regulatory balance to drive towards the desired long-term policy outcomes.

2.12 In this submission, we comment on the detailed proposals put forward by Ofcom in its consultation. We are supportive of many aspects of the proposed regulatory framework which we believe – if maintained beyond this market review period – could support the shared long-term ambition of investment and competition in full fibre networks. The broad structure of regulation proposed would represent a shift in the balance away from tight restrictions on the prices Openreach can charge for access to its existing network services which in recent reviews has been based on forecasting costs of supply in a 'steady state' world and towards an approach that more actively seeks to promote investment in new ultrafast-capable full fibre networks. Overall, we support Ofcom's broad approach to the regulation of the active layer of access services to the extent that it moves us towards a position where regulation would:

a) Be focused on safeguard regulation of existing anchor services during the period of network transformation and allow competition in the supply of ultrafast-capable connections to develop and 'play out' to the maximum extent to;

b) actively support the Openreach FTTP investment case in areas where competitive build is considered less likely to emerge; and

c) support commercial fibre build in a significant part of Area 3 if Ofcom extends proposed indexation of copper prices across the whole of the country.

2.13 However, Ofcom's proposals also contain remedies that move beyond safeguard regulation and would restrict Openreach's ability to compete effectively, and fairly, in the supply of network access as the access market transforms. In particular, Ofcom proposes:

a) to restrict Openreach's ability to set prices on any FTTP lines and wholesale leased lines on a geographic basis; and

b) to use ex ante remedies to limit Openreach's ability to introduce certain commercial terms when supplying ultrafast-capable connections (FTTP lines or wholesale leased lines) even where such terms would be permitted under competition law.

2.14 The effect of these proposals would work against competition in the supply of ultrafast-capable connections 'playing out' in the optimal way, undermining the Openreach investment case and limiting the benefits that would ordinarily be expected to arise for end-customers from the efficient operation of competitive dynamics. So, while Ofcom's proposals undeniably shift the regulatory balance in the right direction, the shift does not go far enough.

Ofcom's approach to market definition should start with a clearer focus on competition in the supply of ultrafast-capable networks

2.15 In our view, the root cause of our concerns with Ofcom's proposal is a misdiagnosis of the underlying competition concerns in network access markets. This is driven by the approach Ofcom has taken to defining access markets and to assessing the extent to which, on a forward-looking basis, Openreach holds a position of Significant Market Power ("SMP").

2.16 Ofcom acknowledges that the process of market definition is a 'means to an end' and we agree. Ofcom is defining markets in order to assess whether potential competition concerns exist which may justify the imposition of regulatory remedies. In concluding that Openreach has market power over the supply of any access services, Ofcom must believe that we could, absent the imposition of regulatory constraints on our activity, supply those services on terms which:

a) excluded rival network builders; and/or

b) distorted downstream competition; and/or

c) exploited customers by holding prices above efficient competitive levels.

2.17 Ofcom's provisional conclusion is that Openreach continues to hold a position of SMP across the majority of fixed access services in the UK on a forward-looking basis – i.e. in the provision of any and all forms of network access at fixed locations in all exchange areas except for Leased Line Access services in the defined Central London Area

and backhaul services on certain inter-exchange routes. We do not accept the implication from this that over the forward-looking five-year period of this review, we will have the ability to supply ultrafast-capable connections that support the provision of broadband services across the UK on terms which risk excluding rivals, distorting downstream competition and/or exploiting customers. We therefore challenge the basis on which Ofcom suggests remedies are required to restrict the terms on which Openreach supplies services over ultrafast-capable connections. We therefore urge Ofcom to revisit its approach to assessing competitive conditions across access markets with a clearer focus – at the market definition stage and at the SMP assessment stage – on the specific supply of ultrafast-capable connections.

2.18 We agree with Ofcom that it makes sense – despite the convergence in the supply of access services as ultrafast-capable MSNs are deployed – to consider competition in the supply of access services providing very high speed leased lines separately from competition in the supply of access services supporting the provision of voice and broadband services. This allows a clear focus on differences in competitive conditions and market dynamics in the way that these very high bandwidth access services are supplied and purchased. We comment on the detail of Ofcom's assessment of competition in the supply of Leased Lines Access in Section 7.

2.19 But by the same logic, it makes sense that Ofcom should look ***separately*** at competition in the supply of access services offered from Openreach's ***current*** access network – i.e. largely based on copper/FTTC network support connections with maximum capabilities no greater than superfast speeds up to c100Mb/s – and competition in the supply of access services from ultrafast-capable networks.

2.20 That is, rather than defining a single broad product market for 'Wholesale Local Access' supporting the provision of broadband services that covers the supply of all/any forms of network access supporting broadband at different speed capabilities, Ofcom should adopt an approach that allows it to consider competitive conditions and the need for regulation separately in relation to the provision of:

a) Wholesale connections that can support the provision of broadband services of speeds up to c100Mb/s – i.e. connections that can be supported by Openreach's existing copper and FTTC network; and

b) Wholesale ultrafast-capable connections that can support the provision of broadband services at ultrafast speeds.

2.21 We believe it is clear that competitive conditions and dynamics in the latter will be radically different over the 5 years of this review:

a) Openreach is at the start of a journey to deploy an ultrafast-capable network (c.2.5m FTTP homes passed at the end of March 2020) and supply services from that network under a phased programme[6].

b) Virgin Media is currently selling services from an ultrafast-capable network (c.15m homes passed, mainly using DOCSIS3.1 technology) and has further expansion plans; and

c) alternative network builders (altnets) have significant plans to deploy ultrafast-capable networks over the next five years.

2.22 In the remainder of this Section, we focus on Ofcom's assessment of Wholesale Local Access and argue that Ofcom should adopt an approach that reflects the significant differences in competitive conditions and dynamics in

[6] Openreach has deployed G.fast technology to around 2.7m UK premises which can offer speeds up to c 330Mb but has now stopped this build programme given the focus on full fibre.

relation to the supply of ultrafast-capable connections over the 5 years of this market review period and, on this basis, avoid placing restrictions on Openreach's activities in supplying services from its FTTP network as and when and where it is deployed.

2.23 In raising these concerns, we acknowledge that Ofcom's overall set of regulatory proposals reflect expectations about increased network deployment and the potential for access markets to *become* effectively competitive as ultrafast-capable networks are expanded and compete against the provision of access services by Openreach. As noted above, Ofcom has moved the regulatory balance in the right direction and in what it defines as the potentially competitive area 2 recognises that there is no justification to regulate price levels for Openreach's supply of services from its FTTP network beyond retaining some anchor price protection at the point where existing network begins to be retired in a given area. However, the fact is that the proposed scope of the SMP finding in the broadly defined 'Wholesale Local Access' product market still extends across the whole of the UK – i.e. the potentially competitive Area 2 and Area 3 where competitive future build is considered less viable – and this finding underpins Ofcom's rationale for imposing restrictions on the terms on which Openreach supplies ultrafast-capable connections as these are deployed and released for sale as well as on existing connections.

Ofcom's analytical approach to WLA market definition and identifying SMP

2.24 Ofcom proposes that there is a product market for 'Wholesale Local Access at a fixed location' ("WLA") which includes all technologies and all bandwidths. In Volume 1, Section 6, Ofcom defines WLA as "access to network assets used by a retail telecoms provider to deliver a range of differentiated services and bundles to residential and business customers at a fixed point close to the end user." Ofcom states that the services include:

a) Broadband;

b) The ability to receive TV content; and

c) The ability to make and receive voice calls.

2.25 Ofcom then says "although multiple services can be provided over a local access connection the key supply requirement is the local access connection itself. Once a connection is in place, a range of services can be supplied. Of the retail services listed, the most important is broadband." This means the focus of Ofcom's analysis is on the provision of fixed access services that can support the delivery of broadband services.

2.26 Starting with a focal product of "the supply of WLA services by fixed networks to support the delivery of broadband services to residential and business customers", Ofcom assesses demand and supply side substitutability in context of a series of hypothetical monopolist tests and provisionally concludes that:

a) All fixed network technologies are in the same market;

b) All speeds are in the same market;

c) Residential and business services are in the same market;

d) Leased lines are outside the WLA market; and

e) Wireless services are outside the market.

2.27 In Section 7, Ofcom effectively splits the WLA product market into two geographic areas on the basis that the prospects for competition differ in each of the areas and in Section 8, Ofcom provisionally concludes that Openreach has SMP in WLA in both those geographic areas.

2.28 A consequence of this approach is that Openreach is considered to hold SMP in its supply of any and every form of WLA in any area of the UK (outside Hull), including in the supply of ultrafast access services. We set out below why we do not believe this conclusion is logical and why Ofcom's analysis is insufficient to justify the proposed restrictions on the way Openreach will supply ultrafast access services in the five-year period from April 2021.

The supply of WLA access services

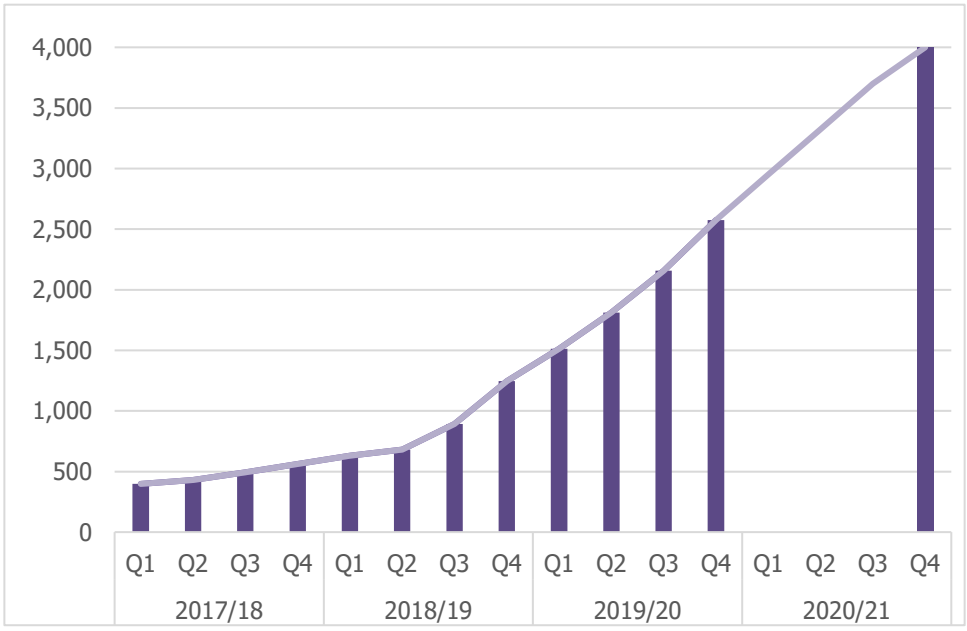
Current Openreach supply and future ambitions

2.29 Ofcom's analysis suggests there are around 30m broadband lines supplied in the UK, of which about 25m are supported on the Openreach network. Openreach has been investing in Fibre to the Cabinet technology since the end of the last decade and has the capability to supply superfast speeds of above 30Mb/s to about 28m premises.

2.30 As a result of this investment and commercial initiatives – e.g. our GEA discount scheme – to drive take-up from retail suppliers, over half of broadband lines supported by Openreach are now provided at speeds above 30Mb/s.

2.31 We have also been investing in our ability to supply ultrafast-capable connections over FTTP. We have now deployed FTTP to over 2.5m locations. Our build rate has increased to over 400k homes passed per quarter and we passed over 1.3m homes in the year to 31 March 2020 to get us on a trajectory to achieve our target of passing 4m homes by March 2021 and putting us in a position to accelerate build further and move towards our ambition of passing 20m homes by the mid-late 2020s.

Figure 2.1: Openreach FTTP deployment, Total Homes Passed (k) at end quarter (ambition to end Q4 2020/21)



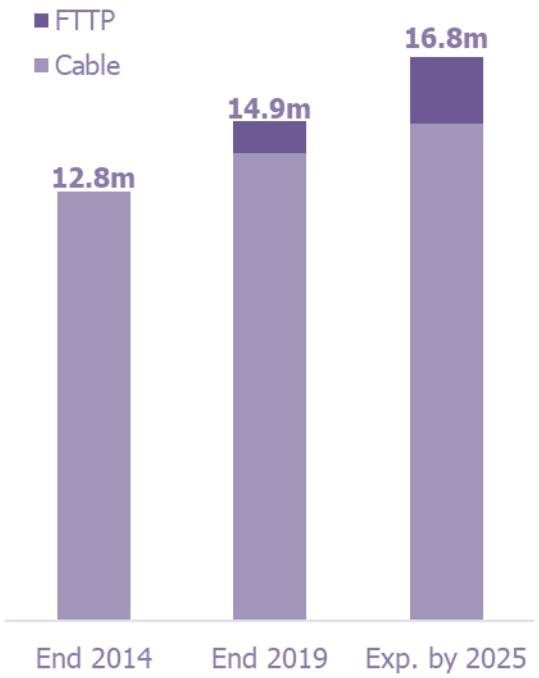
Source: BT plc Quarterly Key Performance Indicators

2.32 Our ambitions to deploy FTTP and increase our capability to provide ultrafast services are clearly high: we are proving our ability to build at scale and pace across a range of locations at the cost points that can support our investment case given expectations of end-customer willingness to pay and resulting demand from our CP customers. However, as of today, our ubiquitous UK access network is, in the vast majority of areas, limited in its capabilities and, ahead of further phased network deployment, we can offer access services at speeds no greater than 80Mb access.

Current competition from other networks and future ambitions

2.33 Virgin Media has the capability to supply about 15m connections at ultrafast speeds following its Virgin Lightning expansion over recent years. This is mainly supported by DOCSIS-3.1 technology, though does include FTTP capabilities.

Figure 2.2: Virgin Media Ultrafast network coverage, Total Homes Passed end of period



Source: Openreach analysis of publicly available information and statements

2.34 As shown above, Virgin Media also expects to extend its network reach further over the period to 2025 such that it could reach almost 17m premises.

2.35 Ofcom's own analysis of Virgin Media's current position and ambitions out to 2025 is consistent with the above assessment and this is summarised in Table A7.1 alongside the build ambitions of other network builders providing WLA services.

Table 2.1: Planned coverage by 2025 of Network Suppliers

Network supplier	Planned coverage by 2025
Virgin Media	17 million
City Fibre	5 million
Hyperoptic	5 million
FibreNation	3 million
Gigaclear	0.5 million
Jurassic Fibre	300,000+
Other	3.5 million

Source: Ofcom WFTMR Consultation, Annex 7, Table A7.1

2.36 To be clear, all the network deployments set out by Ofcom in Table A7.1 will be capable of supplying access services at ultrafast speeds. This means that Ofcom's definition of WLA Area 2 – based on actual or planned network build – directly captures areas where ultrafast-capable networks are either already available or where Ofcom has identified plans for them to be built by network suppliers other than Openreach.

There is clear wholesale demand for ultrafast-capable connections

2.37 Ofcom's position that all speeds of network access are in the same broad WLA product market is based on a limited assessment of demand-side constraints exerted on observed prices for ultrafast services by the availability of slower superfast access services.

2.38 Ofcom effectively adopts an 'incremental' approach to assessing the future shape of demand from end-customers for higher broadband speeds – i.e. acknowledging that there has been and will continue to be a shift in the mix of total broadband sales towards faster speeds but suggesting that take-up of ultrafast connections (at/above 300Mb/s) will be limited over the next five-years and that pricing of such services would therefore be constrained by the availability of slower speed services, such as those that are offered from Openreach's existing copper/FTTC network. This analysis leads Ofcom to provisionally conclude that all bandwidths and all technologies (and therefore fixed access networks of different capabilities) are in the same wholesale market.

2.39 Ofcom then supports its provisional finding that Openreach holds SMP in the broadly defined WLA market by giving weight to, among other things:

a) Openreach's share of sales of all fixed network connections;

b) The ubiquity of Openreach's access network at the national level;

c) The fact that Virgin Media is not currently active in the provision of wholesale access services; and

d) The costs CPs may face in purchasing wholesale access from different network suppliers.

2.40 Our view is that Ofcom's assessment gives too much weight to these factors as we move into a period where new ultrafast-capable networks will be deployed on a phased, area-by-area basis and where, therefore, retail CPs will necessarily focus on their supply options area-by-area. [✂]

2.41 We acknowledge that take-up of access connections at ultrafast speeds is relatively low at the present time, although that will necessarily be a function of current supply-side capabilities. It may also be true that by the end of this review period, the majority of lines purchased by end-customers will be at maximum speeds no higher than the 300Mb/s threshold for defining a connection as 'ultrafast'. But that does not necessarily imply there is not and will not be a distinct market for such ultrafast speed connections. Where such services are available – most notably in Virgin Media's footprint – demand from early adopters is driving a willingness to pay a premium and such early adopters are less likely to switch back to slower speeds. The pool of individuals seeking ultrafast speeds and the value they place on such speeds will only grow over time as demand for bandwidth hungry services and applications grows. We would ask Ofcom to conduct a more detailed analysis of the demand for ultrafast services in reaching any conclusions around retail market distinctions.

2.42 However, even if Ofcom concluded that end-customers have limited demand and willingness to pay no more than a modest premium for ultrafast speed connections today and over the course of this review, there is clear evidence today that retail CPs see commercial benefits to purchasing ultrafast-capable connections where these are available. The availability of these access networks deployed at significant upfront cost with payback dependent on rapid adoption to drive network utilisation presents opportunities to secure attractive prices by moving customers to such networks even if end customers do not have clear demand for the higher ultrafast access speeds that can be supported by those networks. But CPs will also see a number of value creating opportunities in supplying more of their end-customers from ultrafast-capable networks on the basis that:

a) There will be some pent-up demand and willingness to pay for ultrafast speeds from some of the CP's customer base – particularly outside the Virgin Media footprint where customers have not had the opportunity to switch – that can be passed through in a price premium;

b) There will also be some pent-up demand and willingness to pay for connections at superfast speeds above the maximum headline capability of existing Openreach copper/VDSL connections that could be passed through in a price premium by migrating them to an ultrafast-capable network;

c) Migrating existing end-customers or acquiring new customers onto services supported by ultrafast-capable connections provides opportunities to increase the perceived overall value provided to end-customers and/or increased customer satisfaction by improved reliability of the headline connection speed the customer is already purchasing and/or by increasing the maximum headline speed the customer is receiving without applying a retail price premium. This would then result in increased longer-term value to the CP through either reduced churn or an increased willingness to pay for the services supplied in the future.

d) Migrating existing end-customers or acquiring new customers onto services supported by ultrafast-capable connections as they become available provides opportunities for the CP to differentiate its services from those supplied by other retail suppliers.

e) Migrating existing end-customers or acquiring new customers onto ultrafast-capable connections creates future opportunities to drive increased value from the end-customer either directly through specifically upselling higher speed connections over time or through the greater ability to supply enhanced bundles of services – e.g. broadband and content – of differentiated overall value (e.g. comparable to the approach

adopted by Virgin Media in retail markets bundling higher capacity connections with content-rich TV services).

2.43 Reflecting the above, we are seeing evidence that this market dynamic is playing out and there is demand for early wholesale access to ultrafast-capable networks from retail CPs as they are being deployed and this is running ahead of demand/willingness to pay from end-customers for ultrafast speed connections. For instance, [✂].

Openreach will be constrained in setting the terms of supply for ultrafast-capable connections

2.44 Where retail CPs are considering utilising ultrafast-capable networks as/when they become available, they will assess the potential long-term value of such a move by reference to:

a) the ongoing cost of serving those customers using wholesale inputs supplied from the Openreach copper/FTTC network;

b) the price of accessing any other wholesale networks that may be available in that area or that are planned to be built; and

c) retail prices for access services in that area, which may include ultrafast access services or access to superfast services above the maximum speeds available on Openreach's copper/VDSL access services (e.g. in the range 100-300Mb/s).

2.45 The reality is that the factors impacting this decision will vary across the Ofcom-defined potentially competitive 'area 2' and retail CPs will, as networks are deployed and released for sale, face a wide range of possible scenarios shaping their decisions about whether to supply end-customers over existing Openreach connections or new ultrafast-capable connections. Some of these scenarios are set out in the table below reflecting areas where either Virgin Media is present or altnet FTTP network is planned or has been deployed. The key point is that retail CPs will face different choices in different areas at different times. It logically follows that wherever and whenever Openreach deploys ultrafast-capable FTTP network, its pricing of services from that network would be constrained by the continued availability of the existing Openreach network services, the actual or planned presence of Virgin Media at either the retail or wholesale level and/or the actual or planned availability of altnet ultrafast-capable networks.

Table 2.2: Planned coverage by 2025 of Network Suppliers

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario7
Openreach copper/VDSL connection	Available to wholesale	Available to wholesale	Available to wholesale	Available to wholesale	Available to wholesale	Available to wholesale	Available to wholesale
Openreach FTTP build	Not available	Planned	Available to wholesale	Available to wholesale	Available to wholesale	Available to wholesale	Available to wholesale
Virgin Media network	Available to retail	Available to retail	Available to retail	Available to wholesale	Not available	Not available	Available to wholesale
Altnet FTTP build	Not available	Not available	Not available	Not available	Planned	Available to wholesale	Available to wholesale

No greater than 100Mb/s

Ultrafast-capable

2.46 To expand on this, in any scenario where Openreach builds FTTP:

a) Openreach's supply of access from the FTTP network will be competitively constrained in all areas where Virgin Media has deployed its ultrafast-capable network, noting that:

(i) Virgin Media may choose to wholesale access to its ultrafast-capable network at very low incremental cost relative to the cost of deploying new FTTP infrastructure over a similar network footprint.; and

(ii) The fact that Virgin Media has not wholesaled access to its network to date is not a helpful indicator of decisions it might make in the future. At the moment the ultrafast capabilities of Virgin Media's network provide an opportunity to differentiate their services at the retail level, but this will be unsustainable as other ultrafast-capable networks are deployed.

b) Openreach's supply of access from the FTTP network will be constrained where alternative network providers have built or are planning to build ultrafast-capable networks noting that at the point retail CPs consider migrating any of their customer base to any Openreach ultrafast-capable FTTP connections, they can be expected to explore all options for meeting their access needs before committing to migrate customers to any particular ultrafast-capable network.

2.47 It is also already becoming clear that as ultrafast-capable networks are deployed and retail CPs consider their options for supporting retail services to end-customers, we are effectively seeing the emergence of bidding markets for the supply of a retail CP's access needs in different areas with CPs seeking certainty on build ambitions, timings, provisioning/migration processes and timings ahead of making the commitment and incurring the costs of moving customers to the new connections. This will further enhance competitive dynamics as, for instance, over the course of this market review any prices offered for the supply of services on ultrafast-capable networks will need to be framed by reference to the potential for Virgin Media to wholesale its services and/or the potential for Openreach or an altnet to deploy ultrafast-capable networks in a particular area and not just the point in time availability of wholesale services from different suppliers.

2.48 The focus on competition in the supply of ultrafast-capable connections also then impacts any consideration of the factors that Ofcom has, in the consultation, given particular weight to when assessing Openreach's alleged SMP:

a) Openreach will have a very low share of sales of ultrafast-capable connections given Virgin Media's existing volume of connections on its network – i.e. Virgin Media is supplying 15m ultrafast-capable connections and Openreach has just over 500k live connections;

b) Openreach does not have ubiquity in the supply of ultrafast-capable network connections at either the national level or at any regional or local level.

c) The change in market dynamics with growth in the availability of ultrafast-capable networks will impact Virgin Media's assessment of whether it should provide wholesale access to its network – i.e. as its USP as an ultrafast retail supplier reduces and competitive threats increase.

d) With area-by-area deployment by Openreach and altnets and with Virgin Media considering wholesaling access to its network, retail CPs will inevitably need to be open to sourcing their access requirements from different suppliers and investing in systems capabilities to minimise the costs of such arrangements.

2.49 Openreach's incentive to invest in ultrafast-capable networks is to retain volumes that could otherwise shift to other network suppliers and to drive incremental value from the increased capabilities of the network compared to what is currently supplied. Openreach is a willing wholesaler looking to work with retail CPs to incentivise them to migrate onto our new network as it becomes available and to utilise its increased capabilities and opportunities for them to drive increased value from their end-customers. To do this, we need to meet our customers' needs and support their strategies by competing on the merits with other network suppliers.

2.50 In conclusion, therefore, as retail CPs are shifting towards demanding ultrafast-capable connections, Ofcom assessment of competition in access networks overall should allow for specific consideration of dynamics in the supply of such connections. Ofcom's proposed approach has the effect of placing too much weight on the current supply of wholesale access services supporting voice and broadband services which is inevitably based on the technical capabilities/limitations of Openreach's copper/VDSL network. We accept the ongoing need for safeguard protections on our supply of existing WLA services supplied over that copper/FTTC network as new networks are deployed. We also accept that some safeguard protection is needed to address concerns that could theoretically arise around ongoing supply of anchor services as existing network is retired. But there is no basis on which to conclude that Openreach has market power in the supply of ultrafast-capable connections on a forward-looking view such that, over the next five years as we roll out our capabilities, we could supply services from any deployed FTTP network on terms that excluded rivals, distorted downstream competition and/or exploited customers.

2.51 We therefore propose that Ofcom adopt an approach to product market definition and/or assessing SMP in relation to WLA that focuses separately on:

a) The provision of wholesale connections that can support broadband services of speeds up to c100Mb/s – i.e. the capability of Openreach's existing copper/VDSL network. Ofcom has identified that there is *potential* for effective competition in the supply of these lines to emerge in many geographic areas given existing Virgin Media network presence and planned new network deployments over the period of this review. But the current position justifies some safeguard protection to support ongoing supply of existing connections from Openreach as this competition develops.

b) The provision of wholesale ultrafast-capable connections that can support broadband services at ultrafast speeds. Competitive dynamics may vary area by area reflecting (i) existing Virgin Media presence and (ii) the pace of planned build by Openreach and other network builders. Competitive constraints on Openreach's supply of services from any new ultrafast-capable FTTP network will be widespread and – as we expand upon below – extend beyond the boundaries of the Ofcom-defined 'Area 2' given the scope for entry, but be most obvious in areas where Virgin Media or other network builders have already deployed their own networks – i.e. where Openreach builds and releases FTTP network connections for sales in areas where at least one other provider is already supplying ultrafast-capable connections at the retail or wholesale level.

2.52 Overall, Ofcom should not conclude that Openreach has SMP on a national level across a broadly defined WLA market that includes existing Openreach network connections where the majority of lines support speeds no greater than 100Mb/s and any future ultrafast-capable network that is deployed during this review period.

2.53 To repeat, we agree that the process of market definition is a means to an end. The relevant policy question for Ofcom is not about market boundaries *per se* but whether it is necessary to place regulatory constraints on Openreach's provision of services on ultrafast-capable connections as these are deployed and released for sale.

2.54 Our fundamental concern is that the proposed finding that Openreach has SMP across a broadly defined WLA market is insufficient to justify the need for and proportionality of remedies that Ofcom proposes to introduce on our supply of ultrafast-capable connections and that this undermines our case to invest and, therefore, the delivery of the core policy objective at the heart of this review. That is, as set out above, Ofcom's analysis has not focused on our ability to compete against Virgin Media and altnets in the supply of ultrafast-capable connections and does not therefore provide a sufficient basis to identify clear competition concerns with Openreach's ability and incentive to supply ultrafast-capable connections in ways that could exploit customers, exclude rivals and/or distort downstream competition.

The geographic boundaries between Area 2 and Area 3

2.55 The analysis above makes reference to the Ofcom-defined 'Area 2'. Under its proposed definition, 'Area 2' consists of any postcode sector where either:

a) At least 50% of premises are currently supplied by Virgin Media and/or another network builder as well as Openreach; or

b) Ofcom has identified plans for Virgin Media and/or another network builder to deploy new network in the period of this review such that at least 50% of premises will be passed by another supplier as well as Openreach.

2.56 In our view, Ofcom's approach to defining 'Area 2' is insufficient to establish that build outside of these postcode sectors is not economically viable and that therefore 'Area 3' should be termed "non-competitive" on a forward looking basis – i.e. that Openreach would face no competitive pressure in the supply of any form of WLA network access. We consider that there will be significant scope to deploy new ultrafast-capable networks in the postcode sectors Ofcom has placed within Area 3, either commercially or supported by both public funding. While build costs may on average rise as deployments move within the 'final third' of the country, we do not believe the cost curve is especially steep before building in the 'final 10%' (where the need for public funding has already been identified). Indeed, Openreach has been doing some pilot build in Area 3 –[✂] homes passed in 2019/20 across a range of geo-types – that supports this view.

2.57 Different network builders may therefore see strategic opportunities in targeting certain types of geographic areas where any uplift in build costs could be offset by the potential for higher take-up. This may include deployments across parts of 'Area 3' that use public funding for only some of the build in postcode sectors that span reasonably dense areas and relatively sparsely populated areas. Altnets may also see opportunities to be the only supplier of ultrafast-capable connections in certain areas. So, while there may not be competing ultrafast-capable networks, there may still be commercial deployment of networks that compete with existing Openreach supply with scope for such deployments to deliver higher take-up as demand for ultrafast speeds grows over time.

2.58 In further support of this view, we note that other operators are continuing to revise and develop their rollout plans and this includes commercial build in Area 3. Indeed, we note that Ofcom revised its Area 2 and 3 postcodes in light of these revised plans. Given we consider the build cost curve to be flatter for much more of the country than Ofcom's initial estimates - [✂] we consider there to be considerable scope for commercial build subject to the right regulatory conditions – i.e. an extension of indexation across the whole of the UK.

2.59 Inevitably, any methodology to assess the potential scope of future build will involve a high degree of judgement. Ofcom appears to have mainly based that judgement on objective data available at this point in time: i.e. where

alternative network is already in place and where specific plans for alternative network build in particular areas has been identified by Ofcom. Ofcom has then overlaid the more objective evidence with subjective calls relating to the proposal to base assessments on a particular level of coverage at a particular geographic unit (i.e. 50% coverage at the postcode sector level). Different metrics could have been used for this exercise and/or more weight could have been placed on the underlying economic viability of deploying network in particular sectors.

2.60 But any assessment of Ofcom's methodology needs to start from a recognition that this exercise is, again, a means to an end. In attempting to draw any boundary between 'Area 2' and 'Area 3' postcode sectors, Ofcom is ultimately considering whether there may be a need to adopt different policies in different parts of the country in order to deliver the overarching objective of driving UK-wide coverage of ultrafast-capable networks. In this case, the relevant policy question is whether policies to promote competitive network build will be sufficient to drive wide coverage of ultrafast-capable networks over all parts of the UK. By focusing on current levels of actual and planned network build, Ofcom's methodology provides some basis for identifying postcode sectors where competitive build of ultrafast-capable networks is perhaps less likely to occur compared to other postcode sectors, even if we would challenge the suggestion that that there is *no* potential for competition in those sectors and that therefore they should be labelled 'non-competitive' on a forward-looking basis.

2.61 Our view – expanded in Section 3 – is that the best policy approach to support commercial build of ultrafast-capable networks in the final third would be to adopt the same remedies as proposed in the areas Ofcom identifies as potentially competitive. We believe this would facilitate commercial build by Openreach and by other network builders over the next 5 years and beyond. To address the concerns that Ofcom has about the likelihood of competitive build in 'Area 3' postcode sectors over the 5 years of this review, we would look to provide assurances to Ofcom about our build plans in this area via a commitment to a certain level of deployment. We will be discussing the scale and nature of this commitment with Ofcom over the coming months.

2.62 Under this approach, the key issue with defining postcode sectors within Area 3 is to establish the specific area within which we would provide assurance over our plans and that would be covered by the firm commitment to build. For practical planning reasons, it is important that the definition of Area 3 postcode sectors is now fixed and not subject to further analysis and/or adjustments to Ofcom's methodology. As noted, our view is that Ofcom's analysis to date establishes a reasonable forward view of areas where competitive overbuild may be less likely to occur. This does not mean that there will be no scope for competitive overbuild in any parts of Area 3 – indeed, the risk of some competitive build, supported by the availability of DPA and DFA, will need to be factored into our case for building in areas Area 3 which we will discuss with Ofcom.

3. Pricing of WLA access services: setting regulation to drive investment in ultrafast-capable networks

Key points

3.1 We support Ofcom's proposed approach of pricing stability to regulate the provision of existing anchor services provided by Openreach over its copper/FTTC network

3.2 Ofcom should signal that this approach will apply until these existing network platforms have been retired to provide an opportunity to manage these networks during the extended period of network transformation where customer lines migrate onto ultrafast-capable connections

3.3 We agree that as exchange areas move towards copper retirement, some form of safeguard protection to provide assurance about the ongoing supply of access services is proportionate. It is sensible to set the FTTP anchor at the same headline speed as the current FTTC anchor and set the price cap on that service at a modest premium reflecting the additional value available to both the CP and the end-customer over the new connection. We believe a premium of at least £2 is justified by Ofcom's analysis and would not result in any material movements in retail prices.

3.4 Openreach does not hold SMP in the provision of ultrafast-capable FTTP connections and the terms on which we supply FTTP to retail CPs – at both ultrafast and superfast speeds – will be constrained by the availability of existing anchors on regulated terms and the presence of Virgin Media and/or other planned altnet FTTP networks. We therefore argue that no constraints on Openreach's pricing of FTTP services beyond that necessary to provide anchor protection is justified during the period of network deployment and we would not expect to face any controls for at least two review periods as competition in the supply of ultrafast-capable services plays out.

3.5 Ofcom should agree the terms of the commercial fair bet at the outset of investment to increase confidence that investors will not lose any upside necessary to support the investment decision

3.6 We believe that investment in the final third of the UK, where build and provision costs will be higher than elsewhere and where commercial deployment may be relatively less likely , is best supported by setting the same remedies on legacy anchor services and on FTTP services across the Ofcom-defined Areas 2 and 3. Given Ofcom's concerns about the scope for commercial build within 'Area 3' however, we would consider providing assurance over our build plans in the relevant postcode sectors over the next five years by making a build commitment. We will engage with Ofcom over the coming months to secure a commitment to a 'balanced build' approach to our FTTP deployment plan that will provide assurance that commercial FTTP build will take place in Area 3 over the next five years that will, alongside public funding, move us towards the long-term ambition of delivering ultrafast-capable connections across the UK.

Ofcom's policy objectives

3.7 Ofcom's objective in Area 2 is to promote network competition and investment in ultrafast-capable fibre networks. Ofcom states that its proposals for regulating price levels in Area 2 seek to balance:

a) Providing incentives for access seekers to build their own new networks and/or enter into commercial arrangements with other network builders;

b) Providing incentives for Openreach to invest in fibre; and

c) Protecting consumers from excessive pricing and maintaining retail competition in the short term as network competition develops.

3.8 In practical terms, Ofcom needs to consider what constraints, if any, it should place on Openreach's prices for 'current generation' access services and what constraints, if any, it should place on access services provided over new fibre networks as they are deployed.

Regulating the price of existing access services

3.9 In previous market reviews, Ofcom adopted the following approach to the price regulation of rental charges for access services:

a) From 2009, Ofcom set cost-based controls, based on the outputs of forecasting models, on charges for unbundled copper access lines and wholesale analogue exchange lines. Rental charges for access services offering connectivity at superfast speeds using Fibre to the Cabinet (FTTC) technology were not directly charge controlled on the basis that pricing was constrained by the availability of the regulated copper access services.

b) From 2018, Ofcom set cost-based controls, again based on the outputs of forecasting models, on two 'anchor' access services: (i) unbundled copper access and (ii) 40Mb/s FTTC access lines.

3.10 Cost-based controls based on the outputs of forecasting models are designed to align prices with the efficient costs of supply by the end of the control period, allowing a fair opportunity for the supplier to earn a return on its ongoing investments over time equal to its cost of capital as estimated by Ofcom. "CPI-X" type controls have been used to provide incentives for ongoing efficiency improvements which are then reflected in subsequent pricing reviews.

3.11 However, while cost-based CPI-X controls have typically been set over 3-year review periods, suppliers of network access services are investing in assets with significantly longer asset lives – e.g. 40 years for passive infrastructure, 17 years for copper, etc. It is therefore important that they have confidence about the ability to recover the full value of the assets they are investing in over the longer term. The regulatory approach to the long-term valuation of assets and to annual depreciation charges for those assets overtime has therefore been crucial in supporting ongoing investment in the assets required to maintain supply – i.e. investors have had confidence that (i) controls would allow recovery of a sufficient level of annual depreciation consistent with the long-term value of the assets and (ii) controls would be set over the long-term in a way that will support full recovery – including a fair return – on investments in the long-lived assets. To date, confidence has been based on a broad understanding that regulation is consistent over time and that controls are based on reasonable accounting treatments.

3.12 While forecasting future volumes is a key part of setting cost-based controls - and judgements have needed to be made in recent reviews about, for instance, overall growth in UK household creation, trends in the growth of mobile-only households and the pace of growth in demand for superfast access lines – we are now clearly entering a period of more radical, dynamic change in the way access services are supplied and consumed. This would

present considerable challenges for setting cost-based controls based on forecast modelling with any significant degree of certainty that they would be sufficient to support ongoing investment in network assets.

3.13 The cost-based prices set for the anchor services in 2018 – i.e. MPF (service level 1) and 40Mb FTTC – were driven by volume forecasts under a 'technology neutral' approach that effectively assumed there would be no FTTP investment and therefore no significant migration of volumes away from the Openreach platform. The objective at that point was to establish a baseline 'efficient price' for supplying services over the existing platform that would allow the market to decide whether investments in ultrafast-capable fibre networks could generate incremental value over the long-run. However, we are now clearly on the path towards those networks being deployed, reflecting Ofcom's policy objectives and actions, and lines being migrated away from the existing platforms; a technology neutral approach to cost modelling would not be appropriate.

3.14 It is also clear that until ultrafast-capable fibre networks have been deployed in all parts of Area 2 and until the proposed switchover timeframe has been reached such that all lines have been migrated, Openreach will be expected to continue to make network access services available from the current platforms to support ongoing competitive supply of service to end-customers. The volume profile for those services from now until the point of network retirement is likely to follow a period of accelerating decline as the new networks are built and a phased migration of customer lines takes place followed by a flatter tail as networks are completed and/or the last remaining customers are migrated. The precise shape and overall duration of that path will be based on the speed at which new networks are deployed, the scope of coverage and the pace at which CPs and their end-customers are willing and able to migrate lines, but the fact that volumes will fall over time is clear.

3.15 This creates challenges in ensuring that price levels for existing services allow for full cost recovery and support ongoing investment in the platform ahead of retirement. Furthermore, even if Ofcom attempted to base controls on cost forecasting models, making judgements about the precise pace of migration, the expected volume reductions would lead to significant unit cost volatility across the period of migration, unless Ofcom adjusted its approach to the valuation of existing assets and/or the depreciation of those values over the period of network retirement.

3.16 In the face of these uncertainties and challenges, we believe Ofcom's proposal to take an approach based on 'pricing continuity' that would maintain existing prices for existing anchor services in real terms is the most appropriate approach. Ofcom should be clear, however, that this approach will be maintained beyond the end of this review period and until the existing platforms have been retired. This will continue to incentivise efficient network investment by network builders, including Openreach, and provide an opportunity for Openreach to manage the retirement of existing assets in an efficient way that could support long-term recovery of costs based on certainty of and stability in long-term pricing.

3.17 It is misleading, however, to suggest that pricing stability will lead to higher levels of short-term profitability compared to a cost-based control. Such an assessment appears to be based on analysis that assumes limited changes in the depreciation profiles for relevant network assets and would not, therefore, fully capture the effect that long-term dynamics in access markets will impact the ability to extract value from existing assets over the period of migration ahead of retirement. We believe that were Ofcom to attempt to model the long-term costs of supply and long-term movements in volumes and asset utilisation in order to set a more stable long-term unit price, a control close to the proposed CPI indexation would be a reasonable output under plausible assumptions.

3.18 We then agree with Ofcom that CPI indexation has additional benefits of providing an appropriate 'anchor' baseline for the provision of access services against which all potential network builders can assess investment opportunities, deciding where, when and how far to overbuild ultrafast-capable networks. We also note that Ofcom's own modelling of the costs of deploying these alternative networks and the price levels needed to support full cost recovery for investors is based on the assumption that there would be real terms increases in prices over the longer term. Certainly, any measures that reduced anchor prices even further – noting the significant reductions in FTTC prices imposed by the 2018 WLA pricing decision – would make investment cases even more challenging.

3.19 Overall, therefore, we believe that setting 'safeguard' caps on the rental prices of existing anchor services is a sensible and appropriate policy approach across the upcoming period of radical transformation in the way access services are supplied as ultrafast-capable networks are deployed. This will allow prices to remain stable at levels that should support ongoing investment in legacy services ahead of retirement and facilitate investment by new network builders.

Regulating prices of FTTP services

3.20 As set out in Section 2, Openreach will face effective competitive constraints over the course of this review on terms on which it can make access to its ultrafast-capable FTTP network available. Retail CPs may face different choices in different parts of Area 2 at different points in time over the next 5 years (see Table 2.2) but Openreach will not have the ability to establish FTTP prices in a way that excludes rivals, distorts downstream competition and/or exploits customers given (i) the availability of existing wholesale anchor access services from Openreach on regulated terms, (ii) the availability of ultrafast-capable connections from Virgin Media and (iii) planned build by altnets offer ultrafast-capable connections. This supports an approach that allows the market to 'play out' as competing ultrafast-capable networks are deployed and does not impose constraints on Openreach's commercial flexibility in supply ultrafast-capable connections over its deployed FTTP network as this is released for sale.

3.21 However, we accept that the scope to retire the existing copper access network once sufficient ultrafast-capable build has been deployed to an exchange area presents the need to have some form of safeguard protection to ensure that customers are not faced with significant price shocks as they are moved across from the current Openreach network to Openreach ultrafast-capable connections. We support setting this safeguard protection by reference to the current anchor service available on the existing copper/FTTC platform – i.e. the combined price of MPF (service level 1) plus 40Mb FTTC.

3.22 We also agree with Ofcom's proposal to move the anchor from FTTC to FTTP once certain coverage thresholds are met and agree that this anchor should be set at a modest premium to the anchor price available on the copper/FTTC platform. We believe a premium of at least £2 is justified given the improved overall service on an FTTP line compared to an FTTC line and the impacts this will have on end-customer willingness to pay, reduced customer churn, etc, as well as the reduced costs CPs will face in using FTTP to supply services to their customers compared to the use of copper/FTTC access services. Ofcom has attempted to place specific values on some of these elements: specifically, suggesting the value of FTTP offering greater certainty of delivering a minimum 40Mb connection speed at £1.10 and the value of CP cost savings at £0.40 to £0.75 to give a proposed premium of £1.50 to £1.85. Our view is that a premium above this level is justified given that Ofcom acknowledges that it has not captured any value for improved service levels – and resulting lower costs for CPs and reduced churn – or for the increasing value that customers will place on receiving at least a 40Mb connection over time.

3.23 The case to invest in ultrafast-capable fibre networks is challenging for all potential builders and payback on investments are long and uncertain. At a minimum, investors need confidence that they can drive higher value from the new networks than is currently available from the supply of existing access lines. While additional value can and will be extracted from the supply of higher bandwidth services priced at a premium to the 40Mb anchor, the 40Mb anchor will be effective in weighing down the prices for those higher bandwidth services and the overall level of revenues that investors can expect to generate. We therefore believe it is reasonable to apply judgment in setting the premium at a level above the range Ofcom has estimated. We do not believe that such a premium would lead to material increases in retail prices for access services as customers are migrated from FTTC to FTTP, given the scope for cost savings by the CP and the long-term customer value the CP can create by increased customer satisfaction and the scope to upsell the customer with higher bandwidths in the future and/or a wider range of value added services over the higher bandwidth connections.

3.24 We also note that Ofcom has estimated a level of real terms pricing that it thinks could support entrant build. There will be uncertainties in any assessment based on projections about deployment and provisioning costs, but Ofcom suggests it has reconciled the estimates within its model with data supplied by a number of potential network builders. This suggests that investment would best be supported with a premium on the FTTP anchor that allowed entrants to offer their services by reference to that anchor price and that pricing without such a premium would present challenges.

3.25 We also note that this would set a price ceiling that would apply during a period where Openreach will face clear commercial pressures and constraints in the way it offers ultrafast-capable connections.

3.26 With the 40Mb anchor in place – first on FTTC and then on FTTP - the precise way that pricing of services across ultrafast-capable networks will develop will be shaped by competitive supply and demand side dynamics in the access market – i.e. this will be an outcome of the market for the supply of ultrafast-capable connections being allowed to 'play out' as different network builders engage with retail CPs to develop commercial structures that strike the right balance between supporting payback on investments, driving customer volumes and increasing the overall value that can be extracted from higher capability networks providing access to a richer set of services, content and applications over time. This market dynamic will dictate the structure of bandwidth gradients and shape how opportunities to increase the mix of higher bandwidth, higher value services over time may emerge. But the pricing of the anchor services will remain an important reference point for decisions made by retail CPs about their wholesale supply of access services.

3.27 This is why it is particularly important that Ofcom does not introduce any charge controls on higher bandwidth services above the anchor protection product – i.e. at speeds above 40Mb – and continues to allow competition to 'play out' reflecting shifting access market dynamics. The 2018 WLA anchor control on 40Mb FTTC access services provided a reference point for Openreach to negotiate with customers about pricing of higher bandwidth services and this resulted in a pricing structure that offered lower prices and longer-term certainty in exchange for commitments to accelerate migration onto superfast services and drive increased volumes to the higher bandwidth services. This has been mutually beneficial for Openreach and industry and it has allowed pricing to reduce across the portfolio while improving overall platform take-up and service mix. The anchor price has therefore served a clear purpose in 'rooting' negotiations around a price point but allowing flexibility for us to work with our customers to construct an overall framework across the portfolio that is driving improved outcomes. This remains the right model moving forwards. An FTTP anchor introduced as a safeguard ahead of copper/FTTC retirement and set at a £2 premium to the indexed FTTC price would provide an efficient baseline for network builders to construct

investment cases and develop commercial propositions that could drive volume and earn a fair return over the life of the investment.

3.28 The need to allow Openreach commercial flexibility in its supply of ultrafast-capable connections over FTTP extends beyond the price levels for rental services. We refer to our comments on Ofcom's proposed charge control for FTTP CP to CP migrations at Section 9 (paragraphs 9.304 to 9.307) and require that Ofcom does not extend the current restriction on minimum contract terms. We also challenge Ofcom's proposal to issue a Direction to extend the restriction on minimum contract terms already existing for FTTC to Gfast and FTTP[7]. However, it should be noted that:

a) The minimum contract period in respect of the initial connection should provide a basis to recover relevant wholesale costs and investments. The FTTP connection price (£98.48 in 2020/21) is [✂].

b) This is particularly relevant considering that FTTP is still at its infancy as a platform and take up is at a nascent stage. Ofcom has failed to take into account the negative consequences of removing the flexibility to offer reduced connection prices or higher speeds/service levels in exchange of longer minimum contract lengths. Such flexibility enables Openreach to promote the take-up of higher bandwidth services, with consequent benefits for downstream customers. This amounts to the imposition of a regulatory burden that is unjustified and unnecessary.

c) Ofcom states that its proposal will facilitate switching at both wholesale and retail levels but does not substantiate its assertion with any evidence. For instance, at the retail level, retailers often have minimum contract lengths in their consumer contracts which are much longer than one month. Without evidence that Ofcom's proposal will facilitate switching and promote retail competition, the proposed restriction on Openreach's commercial freedom is neither appropriate nor proportionate.

d) [✂]

The fair bet and long-term certainty

3.29 Finally, Ofcom's approach must recognise that Openreach faces at least the potential threat of constraints on its future pricing of services supplied over ultrafast capable networks. Even if Ofcom attempted to introduce 'cost-based' controls on the supply of these services at some future point based on the forward-looking cost of supply measured at that point, this may have the effect of removing the upside outcomes from uncertain business case projections and, as a result, compromising the 'fair bet' investors are considering today – i.e. where investments are based on expected returns in the face of downside risks. We welcome Ofcom's continued in-principle commitment to honouring the fair bet but there will always be a concern that any future regulatory intervention will be based on an understatement of the risks perceived by investors ahead of build. We therefore request that Ofcom clarify the detail of the terms of the bet ahead of investment such that these would be explicitly captured within any future regulatory decisions.

3.30 But we also think it is important that Ofcom provides a higher degree of certainty around its longer-term expectations on how it will regulate pricing. Notwithstanding the challenges made in this response to Ofcom's

[7] We note that in Schedule 1, [draft] Direction under section 49 of the Communications Act and Condition 1 relating to the terms on which BT provides network access, the definition of VULA connection only refers to FTTC and Gfast services and seems therefore incomplete.

approach to defining markets and finding Openreach to have SMP in relation to the provision of ultrafast-capable networks or the need for Ofcom to reassess those findings in future market reviews, we believe that Ofcom should signal the following expectations about its approach to price regulation:

a) CPI indexation on MPF and 40Mb FTTC anchors to apply until platform retirement;

b) 40Mb FTTP anchor price at £2 premium to apply until platform retirement;

c) No direct controls on bandwidths above 40Mb until at least 2031.

3.31 Alongside the commitment to the fair bet this will provide comfort that the current regulatory approach is expected to persist across the period where investment decisions are being made and lines migrated.

Supporting investment in the final third

3.32 As noted in Section 2, Area 3 is best defined, in our view, not as a rigid, fixed 'non-competitive' area where commercial build by Openreach or other network builders is not economically viable, but as the area of the country where Virgin Media is not yet present and where commercial investment in full-fibre networks is considered relatively less likely than elsewhere. The is potential for commercial build of FTTP networks in the postcode sectors defined as falling within Area 3 and a number of network builders are targeting rural areas without public funding. Ofcom's methodology for identifying postcode sectors where investment is more or less likely will not be a perfect predictor of how competition will evolve.

3.33 However, the policy issue in Area 3 – however, this is defined – is essentially the same as in Area 2: i.e. Ofcom wants to regulate in a way that addresses competition concerns in existing access services and incentivises investment by Openreach and/or other network builders in ultrafast-capable networks.

3.34 In principle, what Ofcom labels a "RAB approach" could support fibre investment in Area 3 insofar as that approach – as described in the consultation – could provide a route for the costs of fibre investment in Area 3 to be recovered from the prices Openreach charges for all forms of WLA access services – i.e. over existing copper/FTTC networks and any new FTTP network – in Area 3 over the long term. However, the scope for commercial – as well as publicly funded – deployment of ultrafast networks in Area 3 by other network builders over a long-run period, combined with the threats to demand levels from the emergence of new wireless and low earth orbit satellite technologies, means there will be volume risk to any "RAB model" that may be introduced. Furthermore, as we set out in Section 9, we have significant concerns with the modelling approach Ofcom has taken in suggesting what a 'post-build' approach attempting to model how costs of any FTTP build could be recovered would actually look like. We believe this modelling both (i) understates the ongoing costs of supplying existing FTTC network services and, therefore, overstates the annual real terms reductions that would be required in the supply of FTTC services and (ii) understates the scope to recover deployment costs across Openreach lines in the final third from the proposed uplift 'K' for given volumes of build. The effect of this is that the post-build approach would not deliver against its objective of incentivising investment.

3.35 Our position is that commercial build in Area 3 will be best supported by applying the remedies Ofcom proposes in Area 2 across the whole of the UK. We believe this provides pricing stability during a transformational period of build and migration and scope for Openreach and other builders to construct commercial investment cases to support deployment into the final third in the same way as we believe the policy would drive outcomes in Area 2. However, to address Ofcom's concerns that adopting this approach may not lead to sufficient commercial build in

Area 3, we are willing to explore how we could provide assurances about our network deployment plans in this area by making firm commercial build commitments if Ofcom were to extend its indexation proposals for as long as we face copper charge controls.

3.36 We will engage with Ofcom over the coming months to put forward proposals for the level of build we could commit to make in Area 3 in the five years of this review period. We would envisage continuation of indexation on existing anchor services for as long as there remains a copper charge control.

4. Regulation of geographic discounts and other commercial terms

Key points

4.1 In Section 3, we emphasised the importance of having commercial flexibility in the way we supply ultrafast-capable connections over FTTP. In Section 7, we also, among other things, highlight the competitive market dynamics across leased lines markets and stress the importance of our ability to be able to compete fairly against both established and new suppliers. We are therefore concerned that Ofcom is proposing to introduce separate remedies across all access services that could restrict our commercial flexibility. Specifically:

a) Ofcom is proposing to introduce new operational processes that we would need to follow before we could supply *any and all* forms of network access, including FTTP and leased lines services, into the proposed SMP markets on certain commercial terms – i.e. we would have to seek prior consent before introducing geographic discounts and we would need to give 90, rather than 28, days' notice before introducing any supply terms contingent of the volume or mix of services purchased. Even the need to follow these processes would directly impact our commercial agility and place restrictions on our activity that would not be faced by our competitors. This is a particular problem where we face competitive bid situations.

b) We are concerned that the proposals will ultimately result in Ofcom taking action to block – whether by refusing consent to proposed pricing structures or issuing directions to remove or amend terms of supply – commercial approaches that would be economically efficient outcomes in competitive markets. That is, the commentary and guidance set out in the consultation document (e.g. the "analytical framework" for considering certain commercial terms) suggests that Ofcom will follow a restrictive approach that would establish high evidential barriers around our ability to pursue certain commercial approaches in the face of competition.

4.2 Taken together, these proposals therefore threaten to undermine our ability to compete on the merits, raising particular concerns about our ability to compete in the supply of ultrafast-capable connections and leased lines services where we are competing against established suppliers as well as new builders and where we expect competition over the next 5 years to be via local/regional bidding processes with customers seeking long term certainty over the terms of supply.

4.3 We challenge Ofcom's proposals: Ofcom's expressed competition concern that its proposals purport to address is unspecific and generalised. Ofcom has not adduced any substantial material supporting the introduction of the proposed remedies and Ofcom has also not conducted a proper balancing exercise between the benefits and downsides of its proposed approach. In this Section, we set out why Ofcom should reconsider the nature of the 'competition concerns' it has identified and the remedies it is proposing should be removed or adjusted. At most:

a) Ex ante restrictions on geographic discounts should only apply in respect of Openreach's provision of existing WLA access services (i.e. FTTC and Gfast services) and only where such discounts are clearly targeted at new entrants, not at established network providers. No ex ante restrictions on geographic pricing of FTTP and leased line rental services should be introduced.

b) Ofcom should only use ex ante powers to address concerns with commercial terms which are conditional on the volume and/or mix of services purchased where those terms *could* impact new network build, not where they would only impact established competitors. Even then, Ofcom should assess the term by reference to an effects-based analysis. Where terms would not have any potential impact on new builders, Ofcom should not require Openreach to follow any new ex ante processes and should rely on competition law to assess the reasonableness of any terms.

Summary of Ofcom's proposals

4.4 In Annex 15, Ofcom sets out its proposals to address its generally expressed concern that Openreach "may adopt wholesale pricing structures which would deter alternative network rollout."

4.5 In summary, Ofcom proposes to introduce remedies that would introduce operational processes around Openreach's ability to adopt certain commercial approaches when supplying network access services into SMP markets:

a) To require Openreach to seek consent to introducing geographically targeted price discounts to the following services:

(i) All FTTC and G/fast rental services supplied in WLA Area 2 and WLA Area 3

(ii) All FTTP rental charges supplied in WLA Area 2

(iii) All leased line rental services supplied in LL Area 2 (i.e. the WLA Area 2 excluding defined HNR areas)

b) In Ofcom's preferred Option 2, to require Openreach to give 90-days' notice of plans to introduce any terms across any access service that is conditional on the customer purchasing particular volumes and/or range of services[8].

4.6 Ofcom also sets out some commentary on the details of the process and guiding principles it expects to follow when considering whether to grant consent for geographically targeted price discounts and/to issue directions to remove and/or amend proposals to include supply terms that are conditional on the volume and/or range of services purchased.

Ofcom's stated competition concerns

4.7 In the opening paragraphs of Annex 15, Ofcom makes a number of statements in explaining its general competition concerns (emphasis added in all quotes):

a) At paragraph A15.5, Ofcom states: "*nascent* alternative network deployment is relatively fragile while it establishes scale and reputation. In these early stages we consider that it is potentially vulnerable to conduct on the part of Openreach… Openreach is likely to have incentives to deter *new* build."

b) At paragraph A15.6, Ofcom states: "Openreach could use wholesale pricing structures to reduce the returns available to investors in *new* fibre networks and undermine their investment incentives."

[8] We interpret "range of services" to capture arrangements where pricing might be contingent on customers purchasing a particular mix of access services regardless of total volumes purchased of any particular service, but we would welcome Ofcom's confirmation on this interpretation.

c) At paragraph A15.7, in relation to concerns about geographic pricing discounts, Ofcom states: "Openreach may use geographically targeted price reductions... in order to deter rollout in areas where others are *starting/planning* to roll out new fibre network."

4.8 Given the core policy objective in this review to promote new competitive investment in ultrafast-capable networks, we understand why Ofcom is considering the *risks* that such rollout could be deterred by the commercial approaches and wholesale pricing structures that Openreach could adopt in supplying access services in this review period. But these commercial approaches could also reflect efficient outcomes in effectively competitive markets. The ability for Openreach – and other market players – to adopt these approaches can therefore enhance competitive outcomes to the benefit of consumers.

4.9 Furthermore, we expect that competition in the supply of ultrafast-capable connections and leased lines access from established and new suppliers over the next five years will result in both:

a) Geographic differences in the terms of supply given differences in the phasing of deployment, costs of deployment across different geo-types and the different commercial strategies pursued by different builders in different areas; and

b) Suppliers looking to reduce the degree of demand-side risk they face in making investments to deploy new networks by seeking volume commitments from customers and offering them longer-term certainty over lower pricing in exchange.

4.10 We are therefore concerned that Ofcom's proposals could restrict our ability to adopt commercial approaches that we expect to become widespread and typical in the access market over the period of this review.

4.11 Our concerns would be allayed if:

a) Ofcom's approach did not place operational barriers on our ability to implement any geographic discounts and/or volume-conditional terms of supply; and/or

b) Ofcom conducted an evidence-led, effects-based analysis of specific pricing/terms on a case by case basis and only acted to block pricing/terms where it had appropriately identified that there were likely to be exclusionary effects on rivals and there was no broader efficiency justification for the terms – i.e. that there was specific evidence that competition could be harmed by the pricing/terms that outweighed the benefits according to established competition law principles.

4.12 But Ofcom's proposed approach would require us to seek consent for any geographical pricing of rental services within nearly all defined SMP markets and to give lengthy notification 90-days ahead of any volume/mix of services-conditional terms taking effect during which time Ofcom will consider whether to require us to remove or amend such terms. This, in itself, presents challenges in competing head-to-head against rivals given that they will not face such barriers to introducing or changing their terms of supply to customers. This presents particular concerns when we are looking to introduce new terms within time-bound bidding processes.

4.13 Furthermore, the commentary within the consultation document and the guidance set out in the proposed "analytical framework", combined with the timing constraints Ofcom's processes could place on decision making (considering whether to grant consent within 28 days and considering whether to block volume-contingent terms within the 90 day notification window), suggests that any case-by-case assessments of geographic pricing and/or

volume-conditional terms could fall significantly short of an appropriate evidence-led, effects-based analysis of exclusionary effects and potential efficiency justifications. For instance:

a) At A15.5, Ofcom states: "our concern goes beyond Openreach setting potentially anti-competitive prices within the meaning of competition law and extends to the broader impact that commercial terms may have on an alternative network operators' incentives to invest in FTTP"; and

b) At A15.8, Ofcom states: "while rivals to Openreach are becoming established, we consider it appropriate to limit Openreach's commercial flexibility to a greater extent, including pricing arrangements that might normally be regarded as legitimate commercial reactions to competitive entry for operators with SMP."

4.14 We are particularly concerned that looking across the statements made in the consultation and the processes it proposes to introduce, Ofcom is likely to approach its case-by-case assessments from a starting position that any form of geographic discounting or any volume-conditional terms of supply will be considered "problematic" unless we can demonstrate otherwise in the time window Ofcom has allowed. This would set a high evidential hurdle for us to be able to introduce geographic pricing and/or volume/mix of services-conditional terms and place us at a potentially significant competitive disadvantage to our rivals.

4.15 In our view, Ofcom has not justified why such high evidential hurdles to introducing pricing and/or terms that could be beneficial to competition and, therefore, investments are necessary over the period of this review. Ofcom's generally expressed concerns about Openreach's incentive to "deter" competition is not underpinned by any substantive market analysis in Annex 15 about our ability to successfully pursue exclusionary strategies against rivals for longer-term benefits. Ultimately, Ofcom's concerns are not based on any analysis beyond that set out when Ofcom defines various product/geographic markets and provisionally concludes that Openreach has SMP. This analysis is in itself not sufficient to justify the necessity and the proportionality if the proposed remedies.

4.16 In the rest of this Section, we look separately at the detail of the remedies proposes to address (i) geographic pricing and (ii) the introduction of volume-conditional terms of supply. However, we consider that overall Ofcom should follow an approach that:

a) Is rooted in a full and proper market assessment that duly considers actual and forward-looking market dynamics across each access service – i.e. wholesale connections to support provision of broadband services of speeds up to c100Mb/s, wholesale ultrafast-capable connections to support provision of broadband services at ultrafast speeds and wholesale leased line services – and clearly identifies the nature and scale of the risks raised by Openreach's potential commercial activities in the five-year period covered by this review;

b) balances any identified risks against the benefits that can be generated where market players have flexibility in setting the commercial terms of supply;

c) takes full account of the constraints already placed on commercial activities by general competition law and/or by the overall proposed set of remedies; and, ultimately,

d) imposes only the minimum necessary additional constraints on the terms on which any service is supplied by any market player in a way that is proportional and targeted to the specific identified competition concerns.

4.17 Leaving aside our doubts around Ofcom's reasoning as to why the proposals are necessary and proportionate, we are concerned that Ofcom has not followed the steps identified in points (a) to (d) above. We set out our views on this below.

Actual and forward-looking market dynamics and nature of identified risks

4.18 As we have set out in this response, Ofcom's overall approach to market definition in relation the supply of WLA supporting the provision of broadband services and in assessing SMP is insufficiently focussed on the different forward-looking competitive conditions in the supply of ultrafast-capable connections. In light of Virgin Media's existing ultrafast-capable network and the acknowledged plans of new network builders, the broad finding of SMP on all and any form of WLA network access is inconsistent with observable market dynamics. Ofcom's assessment has not, and could not, identify that Openreach has the ability to supply ultrafast-capable connections on terms that exploit customers, exclude rivals and/or distort downstream competition. As such, it follows that there can be no justifiable need to introduce any ex ante remedies on the terms of supply of ultrafast-capable connections whether in relation to geographic discounting of pricing or the introduction of volume-conditional terms of supply.

4.19 But even if Ofcom maintained its position that we have SMP in the provision of all WLA services, including ultrafast-capable FTTP connections, we believe Ofcom's proposed remedies are unsuitable given the specific forward-looking market dynamics relating to the supply of those services. [✂]. This activity is likely to result in geographical variations in the level of wholesale pricing available to retail CPs and in them receiving long-term certainty around prices in return for purchasing commitments, independently of whatever commercial approach Openreach may adopt in supplying ultrafast services. Ofcom has not considered this dynamic in identifying general risks that Openreach may adopt certain commercial approaches in the supply of ultrafast-capable FTTP connections.

4.20 Ofcom's analysis in Annex 15 also gives no weight to the presence of established leased line network providers in not only the Central London Area (CLA), but also in defined High Network Reach (HNR) areas and other parts of the UK. These network providers compete on a local and regional basis to secure wholesale supply of high bandwidth connectivity to customers again leading to geographic variations in pricing and making long-term supply arrangements involving volume commitments common place. Evidence of increasing buyer power and competition comes clear from the growth of competitive tendering for large-scale projects such as 5G, HSCN and LFFN. This is a distinctive feature of the leased lines market which Ofcom has not (or insufficiently) considered.

4.21 Therefore, and notwithstanding the points raised in section 2 about the technical approach Ofcom proposes to take in defining markets and assessing market power, it is important that, as Ofcom assesses competition concerns with Openreach's potential wholesale pricing strategies and options for addressing these, full account is given to both (a) the presence and capabilities of other *established* suppliers of network access services supporting the provision of ultrafast-capable access lines to residential customers and very high bandwidth connectivity services to businesses and other network providers; and (b) the outlook for future competitive dynamics in the supply of those services. That is, even if Ofcom does not adjust its market definition and/or SMP findings, Ofcom must still establish the specific competition concerns as they apply to each form of network access supplied by Openreach into the defined SMP markets – e.g. services offered over copper/FTTC lines or over FTTP lines or over leased lines.

Balance risks against the benefits that can be generated

4.22 Our primary concern is that Ofcom's proposals are disproportionate and not targeted at the specific alleged competition concern, and they could have the effect of restricting our ability to (i) compete effectively against both established network providers of ultrafast-capable connections and new builders of ultrafast networks who compete to sell access to their services and (ii) promptly respond to customers' needs. Ofcom is imposing

restrictions to avoid any alleged barrier to switching and to new entrants. However, it does not consider the negative impact the proposed restrictions could have on the market.

4.23 This is particularly the case when looking at the way restrictions on geographic pricing or volume-contingent pricing could impact Openreach's supply of ultrafast-capable connections and/or services into leased lines markets, which are characterised by bidding processes. Ofcom has not taken into consideration significant downsides of the proposals, mainly (i) the fact that the consent process for geographic pricing and/or the extended notification period for volume-conditional terms would place Openreach at an unfair disadvantage considering the ordinary timescale required to respond to tenders; and (ii) potential chilling effects stemming from the public consultation/extended notice period which are part of Ofcom approval process (as competing providers would get advance notice on our proposed price to adjust or follow our price).

4.24 In addition, as we will show in the sections below, a number of geographic pricing approaches and/or volume-contingent pricing offers could provide a valuable benefit to consumers in terms of economic efficiency and are legitimate forms of pricing. To address this concern, Ofcom should reconsider the proposed remedies and the unnecessarily burdensome process they would establish around Openreach's commercial activities.

Constraints already placed on commercial activities by general competition law

4.25 Ofcom has not provided sufficient justification as to why there is a need for further remedies to address competition concerns about the exclusion of rivals given the constraints already placed on Openreach's commercial activity by competition law. The competition law framework already constrains Openreach's ability to price differentiate by targeting specific operators and/or undermining their incentives to rollout and to introduce volume-conditional terms where these could exclude rivals without offsetting efficiency benefits. Ofcom's rationale appears, at most, to be linked to a concern that *new* fibre network builders could be at a heighted risk of exclusion during the next 5 years as they seek to expand their networks and become established. But Ofcom does not assess that risk in any significant detail and outline, for instance, behaviours that could be permitted under competition law, but still result in exclusion of these new entrants during the period of this review.

4.26 Neither does Ofcom make reference to Openreach's position as a supplier of different forms of network access – so it does not distinguish between the terms on which Openreach may supply WLA services over the existing near-ubiquitous copper/FTTC network and the terms on which Openreach may supply of WLA services over ultrafast-capable FTTP connections where Openreach has only limited geographic coverage at present and will remain a long way short of ubiquity at the end of this review period. We also note that Ofcom has not identified a concern that competition law would be insufficient to prevent Openreach excluding established network rivals although it is clear that its generalised concern is limited to new network builders.

4.27 Where competition law is sufficient to address Ofcom's identified competition concerns, there is no need to introduce further remedies. Ofcom is required to carry out a detailed impact assessment. However, in the consultation document, Ofcom has not conducted any qualitative or quantitative analysis capable of justifying the imposition of further constraints.

Ofcom should impose only the minimum necessary additional constraints targeted to the specific identified competition concerns.

4.28 Given the gaps in Ofcom's analysis identified above, it follows that Ofcom has not identified that it is only imposing the minimum necessary additional constraints. However, it is clear that Ofcom's proposals go beyond what Ofcom

itself identifies as necessary, even on its highly generalised terms. Ofcom's stated concern is that we could adopt geographic pricing that was targeted at new fibre network builders and/or introduce volume-conditional terms that could impact a customer's decision to purchase connections from these new builders. But the proposed remedies would also restrict our ability to introduce any geographic pricing and/or volume-conditional terms even if their potential impact – whether exclusionary or not – was on established network suppliers – e.g. Virgin Media in WLA markets and/or established leased line providers – or even where there was no likely impact on competition at all. Regardless of whether Ofcom ultimately allowed certain geographic pricing – i.e. by granting consent - and/or volume-conditional terms – i.e. by choosing not to issue a Direction before terms took effect – we would still be required to follow the operational processes impacting our commercial agility.

4.29 It follows that, at a minimum, Ofcom should amend remedies to ensure consent was not required to implement geographic pricing that was not targeted at new entrants and that 90-day notice should not be required for volume-conditional terms where these would not impact decisions to purchase from new entrants and that such terms would be considered as appropriate under competition law.

Detailed assessment of Ofcom's proposed approach to restrict geographic discounts

4.30 Ofcom is proposing to apply restrictions on Openreach's ability to introduce geographically targeted price discounts across all forms of network access supplied over this five year review period into markets where Ofcom proposes to find that we hold SMP – i.e. (i) all FTTC and Gfast rental services supplied in WLA Area 2 and WLA Area 3 (ii) all FTTP rental charges supplied in WLA Area 2; (iii) all leased line rental services supplied in LL Area 2 (i.e. the WLA Area 2 excluding defined HNR areas). Openreach would be required to obtain prior consent for introducing any geographic price differentiation. Ofcom indicates that it will attempt to consult in a period of one month (which would include gathering feedback from industry) and prior to that the onus will be on Openreach to demonstrate that the proposed geographic discount is (i) objectively justified; and (ii) consistent with Ofcom's overarching policy objectives (including our strategy to promote network competition). Ofcom's approach would introduce a presumption that any form of geographic discount would amount to undue discrimination unless Openreach is able to demonstrate that it is satisfying the criteria under (i) and (ii) above, and this places a heavy burden on Openreach in justifying the geographic discount.

Ofcom's analysis and identified competition concerns leading it to impose geographic pricing prohibition are vague and unfounded.

4.31 Ex ante SMP regulatory conditions can only be used when competition law is ineffective[9]. This means that Ofcom must establish a lack of effective competition as a necessary pre-condition for the imposition of an SMP condition. In the consultation document, Ofcom's geographic pricing prohibition proposal is not supported by any hard evidence demonstrating a clear competition concern and relies on a misperception of competition dynamics. Notwithstanding our position on market definition and SMP, evidence does not support the existence of a material competition concern in relation to geographic discounts, particularly in the supply of ultrafast-capable connections and in leased lines. The result is that (i) Ofcom has not identified a clear competition concern requiring the

[9] Recital (27) to the Framework Directive provides in this regard that: "It is essential that ex ante regulatory obligations should only be imposed where there is not effective competition, i.e. in markets where there are one or more undertakings with significant market power, and where national and competition law remedies are not sufficient to address the problem."

imposition of additional SMP remedies compared to the existing framework and (ii) the proposed remedies could deprive the market from the pro-competitive effects and/or efficiencies of geographic prices.

4.32 As noted above, Ofcom has expressed an unspecified generalised concern that Openreach could use geographic discounts to deter other builders 'starting/planning' to roll out new fibre networks. We note that Ofcom's position on whether it is necessary to conduct an effects-based assessment in considering geographic discounts is somewhat ambiguous. On the one hand, as noted above, Ofcom is clear that it considers an ex post competition law assessment of the impacts of geographic discounting would not provide sufficient protection to entrants at this time and/or would not provide sufficient certainty to allay concerns about the risks that could arise from Openreach's ability to geographically discount. On the other hand, Ofcom recognises there are circumstances where geographic discounts would not deter investment and could be beneficial to customers and proposes an involved process where Openreach can seek consent to introduce such discounts and where Ofcom would need to consider such requests. But while Ofcom is not proposing an absolute prohibition on any form of geographic discounting, we remain concerned that such pricing may not be allowed even if likely negative effects on competition could not be demonstrated.

4.33 We also note that Ofcom's generalised concern, as stated, implies that it is less concerned with the impact geographic discounts may have on established, rather than new, fibre network builders even though the effect of the proposed remedy would place operational requirements on the way Openreach could introduce any discounts even if they were clearly targeted at established suppliers, such as Virgin Media and not at new fibre networks.

4.34 In this context, we are also mindful of more explicit comments made by Ofcom about the purpose of introducing restrictions on geographic discounted when these were first introduced in relation to Openreach's supply of FTTC/Gfast rental services (and only on those services) in the 2018 WLA market review (Vol 1 Section 11) where Ofcom stated that:

- Its concern was that Openreach could target discounts at areas where *new* ultrafast-capable networks were being deployed.
- It did not expect such a remedy to be necessary in its next market review: "*in the longer term we agree with Openreach that geographic pricing may become more common. We do not envisage that a provision in this form is likely to be necessary in the longer term*" (WLA 2018, Vol 1, 11.33).
- "*In the longer-term consumers' interests are likely to be best served by removing such restrictions and allowing BT to respond to competition. New investors will know that they will have to compete with BT without this provision in the longer term*" (WLA 2018, Vol 1, 11.37).

4.35 The focus of any competition concerns should therefore be limited to potential impacts on builders 'starting/planning to roll out new fibre networks' and that a proper forward-looking analysis requires Ofcom to balance its proposal against longer-term consumers' interests.

4.36 Yet, we note that Ofcom frames its competition concern as it relates to impacts on new network builders in very broad terms – i.e. around the simply stated potential for geographic discounting to "deter rollout". This raises concerns that Ofcom infers any such geographic discounting by Openreach on any access service may not represent fair competition on the merits with the new network builders, but rather inefficiently deter new builders' entry and roll out plans. If this presumption reflects Ofcom's view, then we do not accept it.

4.37 The relevant question about the fairness of pricing from a competition perspective is not simply whether pricing differs by geographic area, but whether the pricing offered in any particular area for any particular access service could be profitably matched by a new fibre network builder. The focus should ultimately be on the effect that Openreach's prices may have on the ability of other access network builders to profitably invest in an area, taking account of a wide range of circumstances relevant to the area/entrants under consideration – for instance, local cost factors, local demand/willingness to pay and pricing of other established suppliers in the area. The focus of such an effects-based assessment should be on the impact on efficient entrants – i.e. Ofcom should not be concerned about protecting and/or promoting inefficient entry.

4.38 There is an implicit assumption in Ofcom's pricing flexibility proposals that there is a similarity in the competitive conditions that exist across the supply of different forms of network access in Ofcom's separately delineated WLA and leased lines markets, giving rise to the same concern about new entry that Ofcom's proposed changes seek to address. Openreach does not agree with this assumption. In particular, Openreach does not consider that the risk to new entry is as evident in relation to Openreach's supply of ultrafast-capable connections from its new FTTP network deployment or in leased lines markets.

a) Ofcom's logic in introducing restrictions on geographic discounting for FTTC services in the 2018 WLA market review was that Openreach had a near-ubiquitous access network capable of supporting the provision of broadband services and could therefore quickly target price reductions for services from this network at areas where new suppliers were building or planning to build ultrafast-capable networks. We believe this remains Ofcom's core logic today.

b) This logic is not justified when applied to FTTP and on a forward-looking perspective: Openreach is deploying its ultrafast-capable FTTP network on a phased basis, releasing connections for sale as network build is completed. Services will not be supplied on a single national FTTP network during this review period and the costs of building network and provisioning service to customer premises will vary by geographic location and over time. Supply and demand conditions may also vary between geographies and over time meaning a single commercial approach across the growing FTTP footprint may neither be appropriate nor desirable for Openreach and our customers. Our incentives as we deploy network in each phase is to generate sufficient revenue to make a return on the costs of build and supply, not to target entrants in terms of our choice and timing of build location or in terms of our price levels. It is vital from our perspective that we retain flexibility to ensure we can drive our retail CP customers to migrate to our new FTTP network at the earliest opportunities and to respond to competitive threats from Virgin Media and new network builders. As we noted in section 2, competitive conditions in relation to the supply of ultrafast-capable connections suggest that Ofcom should allow market dynamics to 'play out' over this five-year period to support investment and encourage commercial innovation.

c) Considering leased lines, Ofcom's concern is even more opaque and unfounded. Ofcom's proposal to depart from the previous position expressed in the BCMR 2019 where restrictions on geographic pricing were not even considered is only supported by the prospective nature of a 'combined' market where new MSN fibre suppliers could offer both WLA services and leased lines. But Ofcom has not assessed why there may be any significant effect on a new MSN builder if Openreach engaged in geographic pricing of leased line services only given restrictions on FTTC services. Ofcom has ignored the peculiarities of leased lines markets, which clearly demonstrate the absence of a competition concern capable of justifying the extension of the remedy at stake to leased lines. Openreach has been working in the leased lines market for a number of years

utilising a minimum 28 days notification obligation for geographic discounts with no impact to competitive entry evident. There is therefore an absence of evidence, based on history, that operating on a reduced 28-day notification has harmed competition or stymied new entry into the leased lines market. Openreach also notes that as part of its standard governance processes for any new commercial arrangement, a detailed assessment is made to ensure that the proposal is compliant with relevant SMP, competition law and equal treatment obligations[10]. This means that there is already a mechanism in place to help ensure that the arrangements created are not anti-competitive in nature.

Ofcom's proposal places an unjustified and disproportionate burden on Openreach when balanced with potential efficiencies and customers' benefit deriving from geographic pricing

4.39 We are concerned that Ofcom's assessment gives insufficient weight to the potential for geographic discounting to increase economic efficiency and benefit consumers. For example:

a) Geographic pricing provides consumer benefits when the pricing reflects cost differences. If costs vary geographically, varying prices to reflect these differences in costs helps achieve a productively efficient outcome.

b) For a new service that customers are unfamiliar with, localised offers can help stimulate demand. This may be particularly true for areas with specific economic or demographic characteristics where there may be few natural early adopters. Localised offers in these areas may induce customers to switch to the new service, such that over time more consumers demand the product in the long run.

c) Geographic price differentiation could also reflect differences in characteristics of customers. The cost of FTTP rollout includes a large portion of common costs (e.g. network adjustments) and recovering more of these common costs from customers that are price inelastic leads to an efficient consumer outcome (Ramsey pricing). Price inelastic customers are more willing to bear the common costs, and so such price discrimination leads to consumers paying prices that reflect the marginal benefit of the service to them.

4.40 Each of the above forms of price differentiation provides a valuable benefit to consumers in terms of improvements to economic efficiency and are legitimate forms of geographic pricing.

4.41 These are summarised in Table 4.1 below.

[10] This is the OCPPB governance process that Openreach uses to evaluate all commercial and pricing proposals.

Table 4.1: Benefits of various forms of price differentiation

	Productive efficiency	Allocative efficiency	Dynamic efficiency
Reflect cost differences	✓ Prices that reflect local differences in marginal cost of rollout lead to a productively efficient outcome	N/A	N/A
Stimulate demand	N/A	✓ Prices that induce demand from certain customer types are more likely to lead to customers getting the benefits of full fibre	✓ Localised pricing that enables greater rollout by inducing demand ensures customers get the benefits of full fibre services quicker
Respond to demand-side differentials	N/A	✓ Price discrimination based on the price elasticity of different customer types (Ramsey pricing) leads to efficient consumer outcomes	N/A

4.42 The above forms of geographic pricing also help meet competition against established networks. [✂].

4.43 Ofcom has not balanced all the above benefits against their stated competition concern.

Ofcom's proposal is not proportionate and should be narrower in scope

4.44 Recital 15 of the Access Directive[11] states that: "*The imposition of a specific obligation on an undertaking with significant market power does not require an additional market analysis but a justification that the obligation in question is appropriate and proportionate in relation to the nature of the problem identified*".

4.45 Our position is that, viewed in the round, Ofcom's approach would place a disproportionate and inappropriate restrictions on our commercial activities. Ofcom should consider a more permissive approach to Openreach offering geographic discounts on access services that is focussed on the nature of the risks faced on a forward-looking basis. We assess Ofcom's proposed approach to geographic discounting in more detail below, in relation to:

- Its application to rental services only;
- Its application to any form of geographic discounting within a defined geographic area;

[11] Directive of the European Parliament and the Council on access to, and interconnection of, electronic communications network and associated facilities 2002/19/EC.

- Its application to FTTP rental services;
- Its application to leased line rental services; and
- Its application to FTTC/Gfast rental services.

Application to rental services only

4.46 Notwithstanding the points we make below, we support the lack of restrictions on connections.

Application to any form of geographic discounting within a defined geographic area

4.47 Ofcom should be clear that any geographic discounting of any rental services that was not targeted at entrants – either in areas where they are already actively selling services or have no plans to build network – would not be considered in breach of existing SMP conditions and/or competition law. For instance, Ofcom has set out no evidence to explain why it could be exclusionary for Openreach to differentiate pricing in areas where Virgin Media was present, where there were competing leased lines networks or where there is no prospect of emerging competition at all (for instance in the WLA 2018 Vol. 1 11.47, Ofcom explicitly stated that the remedy proposed at the time on geographic pricing would have allowed Ofcom to grant consent to price reduction "*in areas* ***without emerging network competition****… allowing for such exemptions we do not consider the obligation disproportionate to address our concern*").

Application to FTTP rental services

4.48 As outlined in this response, our position is that Openreach does not have SMP on a forward-looking basis in relation to the supply of ultrafast-capable connections. But even if Ofcom maintained its broad WLA market definition and found Openreach to hold SMP across all and any forms of network access into that market, we see no reason to impose the proposed restrictions on geographic discounting in relation to Openreach's supply of ultrafast-capable connections over FTTP. Openreach has ambitions to deploy FTTP at scale and pace. Those ambitions may mean that our FTTP footprint is bigger than that of new network builders, but we will still have a smaller ultrafast-capable network than Virgin Media for the period of this review.

4.49 In any event, as noted above, we are following a phased deployment programme and facing challenges in driving volumes onto our network as each phase of build is released as 'ready for service'. The competitive conditions may vary for and within each tranche of network release. [✂].

4.50 Flexibility to introduce localised pricing will be important here. In the immediate period following the release of network, our wholesale customers will want to test order and provisioning processes as well as end-customer willingness to pay. [✂].

4.51 We accept that Ofcom's proposed approach *may* allow for such terms to be introduced by requesting and receiving consent. But we are concerned that Ofcom's proposed process will significantly delay the pricing flexibility Openreach requires to respond to customers and market conditions, and that Ofcom may place a high burden on Openreach to justify any proposals involving geographic discounting creating uncertainty over what may be allowed.

4.52 It would be proportionate for Ofcom to not apply any ex ante constraints on Openreach offering geographic discounts in relation to the provision of FTTP rental services, noting that this would still allow Ofcom to consider

whether any geographic pricing introduced into the market constituted a breach of other SMP conditions and/or competition law.

4.53 Notwithstanding our position, if Ofcom did include FTTP rental services within the proposed restrictions, Ofcom should set out clear guidance on the types of discounts that would be allowed, including short-term offers applying to different cohorts of released network. Ideally, Ofcom should aim to issue such guidance in a way that would allow such pricing to be introduced without seeking consent.

4.54 Ofcom should also exclude existing FTTP offers as of April 2021.

Application to leased line services

4.55 Ofcom should exclude leased line rental services from its proposed approach. There is no reason why these restrictions should be introduced for the first time in this review. Insofar as Ofcom wants to promote investment in MSNs offering both WLA and leased line services, any restrictions on WLA services would – where they themselves as justified – be sufficient to address this.

4.56 Furthermore, leased lines markets are typically bidding markets, with bespoke local tenders. Geographic prices in leased lines that reflect local demand-side and cost differences are a direct response to these localised bids, and help promote productive efficiency (e.g. when tenders highlight cost differences), allocative efficiency (e.g. when tenders reflect specific demand-side features) and dynamic efficiency (by promoting investment in areas where demand is greatest). The mechanics of such processes, such as the obligation to respond to a tender within a certain time limit mean that the need to obtain permission if the arrangement was geographic in nature (which could feasibly take at least 90 days to complete)[12], would place Openreach at an unfair structural disadvantage versus other competing organisations when such processes are used. In some cases, such requirements could even lead to Openreach not being able to place a competing bid. Such an outcome would be unfair to Openreach and would harm the proper functioning of competition in the market.

4.57 Further, Openreach being subject to a consent process that other parties in a competitive tendering process are not could lead to outcomes that would be anti-competitive. By putting Openreach's proposals to public consultation as part of any Ofcom approval process the outcome of which competing providers could then seek to influence, could further increase transparency on the market and led competitors either to 'price follow' or speculatively give negative feedback in order to try persuading Ofcom to 'prohibit' that proposal. This would have a paradoxical chilling effect on competition, ultimately reducing consumers' welfare, rather than supporting investment and competition. This would be clearly inconsistent with Ofcom's stated policy objective.

Application to FTTC/Gfast services

4.58 We already face restrictions on geographic pricing in relation to FTTC and Gfast services so Ofcom's proposals here are to maintain those constraints. While we do not agree that these restrictions are appropriate –, the impact is likely to be more limited so long as:

a) Restrictions remain limited to rental services and exclude existing offers as of April 2021;

b) Ofcom clarifies that discounting that did not target new entrants would be allowed;

[12] This is typically the minimum period of time it would take Ofcom, from receiving a request for a regulatory waiver, to confirm the application of that waiver on a forward-looking basis.

c) Restrictions would not apply to any discounting in areas where there was no actual or planned new network build, which by definition would cover the whole of Ofcom's defined area 3.

d) Restrictions would be lifted in areas where switchover thresholds had been met;

e) Full consideration would be given to local offers driven by other commercial factors – e.g. promoting migration to/from services to support efficiency, etc. We would welcome further guidance from Ofcom clarifying the evidence it would consider relevant to its assessment.

Detailed assessment of Ofcom's concerns with volume-conditional terms

4.59 Ofcom sets out a specific concern with Openreach introducing commercial terms, such as pricing levels, that are conditional on the volume and/or range of services purchased by the customer. Ofcom notes (at A15.12) that: *"Openreach is the only operator with a national network footprint. In order to serve the national market access seekers must purchase some wholesale services from Openreach (i.e. in areas where there is no alternative network). Openreach could design commercial terms which mean access seekers face a significantly higher average charge for services purchased from Openreach if they also purchase from an alternative network operator. This could undermine the business case for alternative network operators which operate on a wholesale business model as they need to attract access seekers to achieve scale and financial viability."* Also, Ofcom starts from the assumption that such a concern is the same across the supply of all forms of network access supplied into the defined WLA and the Leased Lines markets.

4.60 Openreach does not challenge the concern in principle, but any such commercial terms would need to be considered on case-by-case basis to determine the likelihood of those terms foreclosing efficient rivals, including those deploying new networks or planning to build such networks. Furthermore, we see a clear distinction in the nature of concerns that could arise in relation to (i) the provision of existing services from the existing Openreach copper/FTTC network; (ii) the provision of ultrafast-capable connections from any newly deployed and growing FTTP network; and (iii) the provision of leased line services given the significant differences in competitive conditions and/or market dynamics. For instance, so long as the terms on which Openreach supplied ultrafast-capable connections was not contingent on the volumes of existing network services purchased, we do not see obvious competition concerns arising if retail CPs committed to purchasing certain volumes of ultrafast-capable connections from Openreach as we deployed FTTP into particular areas and looked to reduce demand uncertainty. We would certainly see no reason to assess the potential impact of such terms outside the scope of competition law and no reason why such terms may raise concerns if introduced by Openreach but not, for instance, Virgin Media or new builders deploying FTTP network at scale.

4.61 But, as noted above, Ofcom states that its concern goes "*beyond Openreach setting potentially anti-competitive prices within the meaning of competition law and extends to the broader impact that commercial terms may have on alternative network operators' incentives to invest in FTTP*." (A15.15). This raises considerable concerns about *how far* Ofcom believes it is appropriate to restrict commercial terms that could be permissible under an appropriate competition law assessment. We can only reasonably interpret Ofcom's comments as implying that they would look to block commercial offers which were contingent of volumes and/or mix of services purchased in circumstances that may otherwise have been permitted under competition law – e.g. in circumstances where there was no clear evidence of an exclusionary effect of the offer on efficient rivals. And Ofcom's "analytical framework" then suggests Ofcom would look to ensure that volume-contingent terms both (a) did not exclude new fibre

builders *and* (b) generated clear benefits which we believe would be likely to impose evidential and/or analytical requirements that go further than what would reasonably be required under competition law.

Ofcom has not duly considered market dynamics and weighted its proposal against the benefits volume-related/mix services deals could generate

4.62 We do not object to the suggestion that Ofcom would *consider* any volume-contingent terms – i.e. that it may assess the potential effects such terms could have on competition taking account of the specific circumstances in which they were being offered – e.g. the level of any price discount that may be offered, the level of volumes or mix of services that needed to be purchased, the geographic scope of any offer, the services covered, the competitive context, etc. But such considerations can be made under competition law where concerns arise (including where they may be raised by rivals). The policy question here is whether Ofcom should introduce a new ex ante framework within which it can consider the terms and use ex ante remedies to remove or adjust terms that may have been acceptable under a competition law assessment.

4.63 In this regard, we are concerned that Ofcom's assessment of its policy options makes only generalised statements about the risks of volume-contingent terms and does not give sufficient weight to market dynamics and the potential benefits of volume-contingent terms[13]:

a) CPs have a leveraging power in seeking to purchase ultrafast-capable connections. They have various options which include signing up as anchor tenants for new fibre providers, seeking supply from Virgin Media (which is now widely reported to be considering commercial wholesaling to CPs for the first time) or looking to Openreach to build FTTP at scale and pace and offer attractive terms to migrate lines from the copper/VDSL network. Openreach must compete with other access providers to maintain its CP base on full fibre and these CPs are largely driving the terms of the offers they want to see. This includes seeking long-term pricing certainty in return for long-term commitments on volumes.

b) According to Ofcom, Openreach has only 11%[14] of UFBB connections and a limited current UFBB network whilst Virgin Media has an existing widespread UFBB network with 75-85% share of retail UFBB connections and low incremental costs to connect additional customers on its existing network.

c) Other Altnets have secured funding and have commenced rollout of rival FTTP networks including with regulated access to Openreach's ducts and poles ('PIA');

d) Ofcom's proposal understates the effect that terms other Altnets might adopt on nascent providers. In making these proposals, Ofcom is giving insufficient weight to Virgin Media's existing capabilities in relation to the supply of ultrafast-capable capabilities to residential and business customers and to the capabilities of existing leased line networks. It is inconsistent to be concerned about Openreach's ability, for instance, to offer ultrafast-capable services from any FTTP network that is deployed over the next 5 years on terms which could impact nascent providers, but not – by implication – be concerned about the terms on which Virgin Media might make access to its network available on wholesale terms and the impact this may have on those same nascent providers.

[13] The importance of volume discounts is recognised also by EU Commission – Recommendation of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment: "*Volume discounts and/or long-term access pricing agreements are an important tool to foster NGA investment".*

[14] Ofcom Consultation, Volume 2, paragraph 8.51.

e) Offers that include volume discounts are valuable for consumers when they provide long-term price certainty: CPs are better able to plan their retail offers and develop a long-term strategy for commercialising FTTP. This in turn helps drive take-up of FTTP and customers can benefit from full fibre services quicker.

f) Volume discounts that provide greater certainty of customer volumes lower risk in Openreach's FTTP business case. This also reduces the risk for Openreach's investors and makes them more likely to commit capital to large-scale FTTP investments.

g) Volume discounts can also help stimulate demand. Localised offers in specific areas with lower demand may induce customers to switch to the new service, such that over time more consumers demand the product in the long-run and get the benefits of full fibre services.

h) Offers that include a requirement for CPs to switch customers from copper and FTTC to FTTP at a faster rate (for example through a stop-sell of copper requirement) in order to access certain discounts, will enable Openreach to achieve copper switchover faster. Ultimately this reduces the costs of running two networks simultaneously and helps achieve productive efficiency in the long run.

4.64 Ofcom has not conducted a forward-looking market analysis that considers all these factors in proposing to introduce the ex ante remedies relating to volume-contingent terms. As a result, its proposal is not proportionate and could result in a distortion of competition particularly where Openreach is competing with established network players e.g. Virgin Media in the supply of ultrafast-capable access lines or leased lines. Market dynamics should prompt Ofcom to reconsider the necessity and proportionality of the proposed remedies as well as the consistency with Ofcom's own policy objectives.

4.65 In addition, the above scenarios show how Ofcom has also ignored the improvements in economic efficiency that can arise from volume-contingent terms which are summarised below in Table 4.2.

Table 4.2: Summary of improvements in economic efficiency from volume-contingent terms

	Productive efficiency	Allocative efficiency	Dynamic efficiency
Provide long-term price certainty	N/A	N/A	✓ Enables CPs to develop a long-term FTTP retail strategy to stimulate demand
Lower volume risk for investors	N/A	N/A	✓ By reducing volume risk, investors are more likely to commit capital and thereby enable Openreach to rollout FTTP quicker
Stimulate demand for a new service	N/A	✓ Prices that induce demand from certain customer types are more likely to lead to customers getting the benefits of full fibre	✓ Localised pricing that enables greater rollout by inducing demand ensures customers get the benefits of full fibre services quicker
Include commitments to help with switchover	✓ Minimises the time running two networks, lowering total costs during the transition	N/A	✓ Helps achieve a lower cost in the long run faster than without the offer

4.66 Volume-contingent pricing can help Openreach fairly meet competition from Virgin Media, which operates an established ultrafast-capable network. Preventing Openreach from competing with Virgin Media on the merits could hinder the rollout of FTTP whilst protecting Virgin's DOCSIS network from competition, which appears inconsistent with Ofcom policy objective.

4.67 Lastly, end customers would be affected as they would be deprived from competitive commercial offers and they would have to pay higher prices, receive less valuable products or terms, and/or face less choice. There is no evidence that Ofcom has considered, or properly weighed, the negative effects of the remedies on efficiency, sustainability, innovation and on consumer prices against the positive outcomes that it says will be generated by its proposal. Ofcom has not fulfilled its obligation under section 7 of the Communications Act 2003 (the Act) to carry out an impact assessment of the proposal and the analysis in the consultation does not constitute a proper impact assessment of the proposal.

Concerns around the 'analytical framework' proposed by Ofcom to assess volume-contingent terms set out in Annex 15

4.68 We are concerned that Ofcom is, as a matter of operational process, - (i) considering the option of requiring that Openreach seek consent before introducing certain commercial terms conditional on the volumes and/or range of services purchased; and (ii) at a minimum, proposing that Openreach give 90-days' notice, rather than the current 28-days' notice, of such terms . The requirement to follow such processes before introducing such terms raises concerns about Openreach's competitive agility in the face of strong competitive dynamics around the supply of ultrafast-capable connections and leased lines. In addition, Ofcom's proposed 'analytical framework' for considering whether such terms are acceptable could require Openreach to demonstrate the necessity and/or benefits of such terms to a high evidential standard, regardless of the evidence around the impact of the proposed terms on competition, particularly on new network builders. Ofcom's proposals would therefore place high burdens on Openreach's ability to offer the type of commercial terms within offers that we expect our rivals, including potentially Virgin Media, will be offering. In particular, we are concerned that:

a) ***the 'analytical framework' is inconsistent with Ofcom stated intent of promoting efficient competition and is neither justified nor necessary when volume-contingent terms would not have any potential foreclosure effect -*** if Ofcom's objective is to promote/facilitate emerging competition, going beyond evidence of no-foreclosure for a new entrant is inconsistent with its own stated intent, is not necessary and not the "least" possible measure as required by the EU framework. Competition law principles (i) already consider potential barriers to entry in setting the "as efficient operator" test and; and (ii) its overall framework[15] captures scenarios with potential competitors and/or emerging competition. Going beyond the framework established under competition law is neither justified nor necessary in light of Ofcom's objectives.

b) ***The proposed 'analytical framework' does not provide sufficient regulatory certainty to Openreach, contrary to Ofcom's policy intent*** – Ofcom's proposal creates additional hurdles and uncertainty as to what type of deals will be permissible (potentially moving further away from well-known competition principles, as stated above). Ofcom's proposed approach does not provide any certainty to Openreach that a legitimate pricing proposal could eventually be assessed as compliant with Ofcom's regulatory remedies. Ofcom's analytical framework seems to impose such a high burden on Openreach that it is difficult to anticipate which proposal could pass the test. Even if a proposal is ultimately permitted (i.e. ultimately the proposal is assessed as compliant), the delay can impact commercial decisions, undermine certainty, and therefore undermine investment decisions. This lack of regulatory certainty is inconsistent with (i) Ofcom's objective to ensure regulatory certainty to support long-term investment in full-fibre broadband[16]; (ii) the principles promoted by the EU Commission[17].

[15] EU Commission — Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, Point 16 "*Competition is a dynamic process and an assessment of the competitive constraints on an undertaking cannot be based solely on the existing market situation. The potential impact of expansion by actual competitors or entry by potential competitors, including the threat of such expansion or entry, is also relevant".*

[16] https://www.ofcom.org.uk/__data/assets/pdf_file/0025/116539/investment-full-fibre-broadband.pdf

[17] EU Commission *Recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance broadband investment environment (2013)* point 4: "*Creating regulatory predictability is essential to promoting efficient investment and innovation in new and enhanced infrastructure. Applying a consistent and stable regulatory approach over time is crucial to give investors the confidence needed to design sustainable business plans. In order to provide the necessary predictability over a longer time period, i.e. beyond the lifetime of an individual market review, NRAs should clarify in measures that impose regulatory remedies under Regulatory Framework as far as possible how foreseeable changes*

c) ***The proposal would impose on Openreach a very high burden of proof, even in relation to pricing proposals which would not be problematic from a competition law point of view***.

(i) The justification/evidence required to demonstrate that the test set forth under the 'analytical framework' would unjustifiably place the burden on Openreach to convince Ofcom that particular pricing should be permitted whilst the burden should remain on Ofcom to demonstrate that these commercial schemes amount to foreclosure. In Ofcom's proposal the same requirements apply to all pricing proposals, regardless of their scale/duration/type. This means that a number of proposals, which are clearly not problematic from a competition point of view, would be captured under an analytical framework which is clearly deviating from established guidelines and principles for regulators about how to assess volume-contingent discounts[18].

(ii) The proposal would hamper Openreach's ability to respond in a timely manner to meet competition and customer demand, particularly in leased lines markets: by the time consent has been sought/notice period has expired Openreach may already have lost a significant number of customers or might have been placed at a structural disadvantage in bid scenarios – or even lost the chance to participate in a call for tender.

d) ***Ofcom has not considered the likely negative effect of the proposed remedies.*** In particular:

(i) [✂].

(ii) In addition, the extended notification period allows for feedback from industry. Competitors could therefore 'respond' in order to seek to delay unnecessarily the launch of a pro-competitive offer.

(iii) During the consultation/notice period other network rival(s) could leverage on the increased transparency on the market to win and/or undercut/respond to Openreach's offer in the meantime. In other words, the proposed remedies could have the effect of softening the competitive pressure between Openreach, Virgin Media and Altnets. Ofcom recognises that "price notification "may have "chilling effect"" but underestimates the potential negative / distorted effects of the proposal[19].

(iv) This is particularly relevant considering leased lines – which as stated above, is a market increasingly characterised by tender processes. Bids tend to be used for large scale projects such as 5G mobile network build, or large-scale public and enterprise projects (e.g. HSCN) that require leased lines connectivity as part of a wider, more complex set of arrangements. Bids of this kind tend to have

in market circumstances might affect the relevant remedies". Point 49 states: …"*due to current demand uncertainty regarding the provision of very-high speed broadband services it is important in order to promote efficient investment and innovation …to allow those operators investing in NGA networks a certain degree of pricing flexibility to test price points and conduct appropriate penetration pricing. This would allow SMP operators and access seekers to share some of the investment risk by differentiating wholesale access prices according to the access seekers' level of commitment. This could result in lower prices for long-term agreements with volume guarantees, which could reflect access seekers taking on some of the risks associated with uncertain demand. In addition, pricing flexibility at wholesale level is necessary to allow both the access seeker and the SMP operator's retail business to introduce price differentiation on the retail broadband market in order to better address consumer preferences and foster penetration of very high-speed broadband services*".

[18] EU Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA): criteria to assess volume discounts in case of FTTH *"Access prices adjusted for risk based on volume discounts reflect the fact that investment risk decreases with the total number of fibre loops already sold in a given area. Investment risk is closely tied to the number of fibre loops which remain unused. … A volume discount should only be accepted by NRAs provided the following conditions are met: (a) a single level volume discount is calculated per area as appropriately sized by the NRA taking account of national circumstances and network architecture, and applies equally to all access seekers which, in the area concerned, are willing to purchase at least the volume of lines giving access to the discount; and (b) the volume discount only reflects the reduction of risk for the investor; and (c) over an appropriate timeframe there is a sufficient margin between wholesale and retail prices to allow for market entry by an efficient competitor".*

[19] Paragraph 3.124 Vol 3 WFTMR condoc.

features including that (i) bidding parties are required to make an offer that is capable of acceptance within a specified time period; and (ii) competing bids tend to be confidential at the point they are provided to the purchaser – which helps ensure that suppliers make their best offer and do not simply 'price follow'. It is reasonable to assume that Ofcom's current proposals will affect Openreach's ability to compete fairly for business in leased lines markets in particular where such business is subject to bid-type processes. Our two specific concerns are:

(a) The timescales required of bid processes may place Openreach at a structural disadvantage in cases where Openreach is required to notify at a minimum of 90 days; and

(b) Openreach would be subject to disclosure requirements that could both impede its ability to compete fairly and could unintentionally lead to anti-competitive outcomes. For example, it could be problematic if an Openreach bid proposal was subject to a notification/public feedback process that enabled other competing bidders to influence the outcome of the bid or price follow.

4.69 In light of the above, we believe that Ofcom should **not** require Openreach to give 90-days' notice or provide further evidence in support of any commercial terms where it can clearly be shown that the impact of such terms on nascent network competition is unlikely to be material. An additional requirement to show 'clear and demonstrable benefits' – which would go well beyond established competition law principles - is also unnecessary and not proportionate, particularly if Ofcom intends to conduct assessments in a short period.

4.70 In this regard we note that in the WLA 2018 point 11.86 and 11.87 Ofcom noted with reference to the proposed consent process at the time that "…*Moreover, such an effects-based test would be difficult to administer in a timely manner which would slow down the process and potentially lead to the need for a longer consultation period..*". Ofcom itself was recognising the practical difficulties of its proposed approach and now the 'analytical framework' would result in an even higher administrative burden.

4.71 The case to exclude any extension of notice periods in relation to the supply of ultrafast-capable connections and leased lines services is particularly strong given the above described impacts this could have on Openreach's ability to engage effectively in competitive tender processes where customers are actively seeking long-term supply arrangements. Openreach is aware of constraints placed on terms within such deals arising from competition law and takes competition law compliance very seriously. Additional processes should not be introduced that would allow rivals to gain early visibility of our competitive strategies and undermine the effectiveness of competition.

4.72 In conclusion, we would propose that, at most, Ofcom focus any ex ante remedies to address potential concerns with volume-conditional pricing impacting on new fibre network builders. Where volume-conditional terms would have no impact on such builders – i.e. where terms would not affect customer decisions about using new fibre network providers - Ofcom should consider those terms under competition law.

4.73 For the avoidance of doubt, we consider all the above arguments are relevant *a fortiori* against the implementation of 'Option 1' (i.e. Openreach would be required to notify certain specific commercial arrangements in advance of them entering into force. Following consultation, Ofcom would reach a decision either permitting Openreach to proceed with the commercial arrangements or maintaining the prohibition). Option 1 is not Ofcom's preferred option but it is mentioned in the consultation document as a backstop option. We strongly object to Option 1, which we consider is (i) incapable of fostering Ofcom's policy objectives including the promotion of effective

infrastructure competition (ii) detrimental for consumers' welfare (iii) not proportionate, especially considering market dynamics and (iv) unlawful as a matter of law.

Ofcom has not demonstrated that the proposed remedies are lawful

4.74 Ofcom proposes to introduce two specific conditions to control Openreach's pricing flexibility in respect of (i) geographic and (ii) loyalty/volume discounts. These are:

a) In order to achieve Ofcom's stated purpose of preventing Openreach from offering different rental prices in different geographic areas[20], Ofcom has introduced conditions (conditions 4.4 to 4.6[21]) into proposed condition 4. Proposed condition 4 is expressly designed to ensure "*No undue discrimination*".

b) In order to achieve Ofcom's stated purpose of controlling Openreach's ability to offer lower prices for loyalty or volume agreements[22], Ofcom has introduced a condition (condition 8.6[23]) into proposed condition 8. Proposed condition 8 is expressly designed to ensure "*….. the Dominant Provider must publish charges, terms and conditions*".

4.75 Section 47(2) of the Act provides that Ofcom may only set an SMP condition if it is (a) objectively justifiable, (b) not unduly discriminatory, (c) proportionate to what the condition is intended to achieve, and (d) transparent in relation to what it is intended to achieve.

4.76 In exercising its legal powers under the Act, Ofcom is subject to a range of legal duties, including -pursuant to section 4 of the Act - Ofcom must act in accordance with EU requirements, which incorporate the policy objectives and regulatory principles in Framework Direction, Article 8 (including promoting competition). Pursuant to Section 6 of the Act, Ofcom must carry out its functions with a view to securing that regulation by Ofcom does not involve the imposition of burdens which are unnecessary. Ofcom is also required to carry out an impact assessment in relation to any important proposal unless the urgency of the matter makes it impractical or inappropriate for them to do so. Finally, according to Recital 15 of the Access Directive, the remedies imposed must be justified by Ofcom as being appropriate and proportionate in relation to the nature of the problem identified.

4.77 We believe that Ofcom has not satisfied its legal duties pursuant to the framework outlined above. This is for the reasons set out below.

Ofcom has not produced any substantial evidence to justify the introduction of the proposed remedies

4.78 As explained in the above sections, the analysis set out in the Consultation is an insufficient basis for *ex ante* regulation as it fails to identify and target a substantiated risk of harm. There is no evidence to objectively justify the Proposal as required by sections 47(2) and 87 *et seq* of the Act.

4.79 *Ex ante* SMP regulatory conditions can only be used when competition is ineffective. Recital (27) of the Framework Directive[24] provides in this regard that: "*It is essential that ex ante regulatory obligations should only be imposed where there is not effective competition, i.e. in markets where there are one or more undertakings with significant market power, and where national and competition law remedies are not sufficient to address the problem*." This

[20] See e.g. paragraph 3.80 of Volume 3 of the Consultation
[21] Pages 33- 34 of Volume 5 of the Consultation.
[22] See e.g. paragraphs A15.59-A15.61 of Annex 15 of the Consultation.
[23] Page 50 of Volume 5 of the Consultation.
[24] Directive of the European Parliament and the Council on a common regulatory framework for electronic communications network and services 2002/19/EC.

means that Ofcom must establish a lack of effective competition as a necessary pre-condition for the imposition of a SMP condition. In the consultation, Ofcom does not do this and mostly ignores the competition dynamics on a forward-looking perspective. Rather, the Proposal is based on a vague theory, which is unsupported by any hard evidence. No substantive analysis is made of when, why or how this theory could occur.

4.80 The result is that Openreach may be acting legally from a competition law perspective and might not deter efficient entry and yet Ofcom would still perceive a need to intervene. Without clarity on the nature of the competition concern and a proper counterfactual analysis and some quantification of the risks identified by Ofcom, there can be no meaningful analysis of the need or suitability of the options to address the perceived concern. Ofcom's approach is therefore inconsistent with its regulatory duties.

Ofcom has not undertaken a balancing exercise between benefits and detriment of the proposed remedies

4.81 Ofcom has not undertaken a proper analysis to determine whether the combination of the remedies proposed in its Consultation and competition law more broadly are sufficient to address the concerns identified.

4.82 Ofcom has failed to undertake a balancing exercise between benefits and detriment stemming from the imposition of the proposed remedies. Ofcom wants actively to promote infrastructure competition. However, for the reasons set out above, the proposal could impede competition – particularly in bidding market contexts - and deprive customers and end-users of the benefits of cost savings and efficiencies generated by competition on the merit.

The proposed remedies are neither proportionate nor appropriate

4.83 Ofcom is only empowered to impose remedies which do not go beyond what is necessary in order to address identified competition concerns and should be proportionate to the objectives of – amongst other – promoting competition and effective investment (Article 8 of the Framework Directive).

4.84 Ofcom has not considered whether the imposition of these new conditions is consistent with Section 6 of the Act, i.e. the requirement on Ofcom to carry out its functions "*with a view to securing that regulation by Ofcom does not involve…the imposition of burdens which are unnecessary*".

4.85 Openreach contends that the way in which Ofcom has sought to control Openreach's geographic and loyalty/volume pricing goes beyond what is necessary and proportionate and imposes an excessively intrusive intervention that prevents Openreach from operating its business in competing on the merit, to the ultimate detriment of consumers.

4.86 As described in the above sections, Ofcom has not conducted any kind of proportionality assessment, either in general terms of assessing whether there are less restrictive alternatives to the proposed SMP conditions that could achieve its objectives or in the more detailed impact assessment. Absent careful consideration of these factors, Ofcom has not demonstrated that the proposed SMP conditions are necessary or proportionate or in line with the principles of better regulation. Once these factors are taken into action, it becomes clear that the proposal is wholly disproportionate and therefore contrary to Section 47(2)(c) of the Act.

4.87 For the same reasons, the Proposal does not comply with Ofcom's obligation under Article 8(4) of the Access Directive to ensure that the intervention is based on the nature of the problem identified. It is evident from the

matters discussed above that the proposal will prevent legitimate pricing behaviour. In addition to being wholly disproportionate, it is also not targeted at the specific alleged competition risks identified by Ofcom.

Ofcom's proposed conditions on geographic discounting and volume discounts do not accord with the legal powers Ofcom has under the Act

4.88 Ofcom is only empowered to "*….. set such SMP conditions"* as are *"authorised by"* section 87 of the Act[25]. Openreach contends that the way in which Ofcom has sought to control Openreach's geographic and loyalty/volume pricing does not accord with Ofcom's powers under the Act. Openreach considers that the two specific conditions Ofcom has proposed to control Openreach's pricing flexibility in respect of (i) geographic and (ii) loyalty/volume discounts respectively below.

4.89 As to (i), in relying on an "*undue discrimination*" condition, Ofcom is clearly purporting to use the provisions of section 87(6)(a) of the Act to impose the prohibition against differential geographic pricing. However, SMP conditions relating to undue discrimination are focussed on preventing a dominant undertaking from offering preferential treatment to its own vertically integrated downstream retail subsidiary.

4.90 This is clear from the Access Directive[26] from which section 87(6)(a) of the Act is derived. Thus (all emphasis added):

a) Article 10(2) of the Access Directive states in terms: "*Obligations of non-discrimination shall ensure, in particular, that* ***the operator applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services,*** *and* ***provides services and information to others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners***."

b) Recital 17 Access Directive states in terms: "*The principle of non-discrimination ensures that undertakings with market power do not distort competition, in particular where they are* ***vertically integrated undertakings that supply services to undertakings with whom they compete on downstream markets***"

4.91 Ofcom's proposed conditions 4.4. to 4.6 have nothing to do with ensuring proper equivalence in the downstream market. They are not imposed to ensure that there is no discrimination in the conditions that Openreach offers BT subsidiaries, as opposed to other operators in that downstream market. Instead they are focussed upon controlling Openreach's *pricing* in the wholesale market so as to permit wholesale competitors to enter that market. That is necessarily in the nature of a price control and does not fall within the remit of Section 87(6)(a) of the Act.

4.92 As to (ii), Ofcom is seeking to impose a control on Openreach's pricing flexibility under the guise of a transparency condition pursuant to sections 87(6)(b)-(d) of the Act. Ofcom's make it clear at Vol. 3, 3.141 ("*we propose to set the draft SMP Condition 8 in Volume 5. … for the purpose of securing transparency"*) and in condition 8.1, stating in terms "*….. the Dominant Provider* ***must publish charges, terms and conditions*** *and act in the manner set*

[25] See section 87(1)(a) of the CA 2003.
[26] Directive of the European Parliament and the Council on access to, and interconnection of, electronic communications network and associated facilities 2002/19/EC.

out in this Condition" [27]. It is purporting to be the transparency obligation intended by Article 9 of the Access Directive[28], which directly led to sections 87(6)(b)-(d) of the Act.

4.93 However, the reality is that Ofcom is seeking to impose a control on Openreach's pricing, where Openreach would want to set more favourable prices for customers who are prepared to commit to larger volumes or longer (loyalty) periods. Where Openreach might wish to change its prices in this way then it is clear that Ofcom is seeking to control those prices by the following constraints:

- Openreach cannot do so for at least 90 days;
- It must first have notified Ofcom;
- Ofcom will then "*gather feedback from industry participants*"[29]; and
- Openreach would not be permitted to give such pricing discounts unless Openreach satisfies the particularly high threshold of showing, not only that there was no impact on "*nascent network competitors*", but also that the discounts would "*generate clear and demonstrable benefits*"[30].

4.94 The regulatory control is clearly focussed, not on the transparency of Openreach's terms and conditions, but on controlling (and normally preventing) the prices Openreach can set. As such, section 87(6) of the Act is not an appropriate statutory basis - and Ofcom does not have the legal power thereunder - for imposing regulation on Openreach to control the pricing discounts Openreach might wish to offer for loyalty or volume agreements.

Ofcom does not have the legal power to impose constraints prior to the actual imposition of the SMP conditions which it proposes

4.95 Ofcom has proposed new SMP conditions in the Consultation precisely because it considers that existing regulation to be deficient for Ofcom's current concerns. Thus, for example, in condition 8.6 of the proposed conditions[31], Ofcom has introduced an entirely new condition relating to a 90-notification period "*where the price or other contractual conditions are conditional on the volume and/or range of services purchased*". There was no analogous provision in the SMP conditions imposed in the Wholesale Local Access Market Review Statement 28 March 2018 (***2018 WLA***)[32] or the Business Connectivity Market Review 28 June 2019 (***2019 BCMR***)[33].

4.96 Ofcom cannot impose such a new condition retrospectively. Thus, for example, proposed Condition 8.6 cannot prevent Openreach implementing volume discounts without 90 days' notice, until that condition has been specifically imposed pursuant to section 45(2)(iv) of the Act in accordance with the relevant procedures contained in the Act. Condition 8.6 can only operate prospectively: i.e. from the date it is actually imposed, not retrospectively[34].

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[27] Page 48 of Volume 5 of the Consultation.
[28] Article 8(1) (as amended by the Better Regulation Directive 2009/140/EC) provides "*National regulatory authorities may, in accordance with the provisions of Article 8,* ***impose obligations for transparency in relation to interconnection and/or access, requiring operators to make public specified information****, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use, including any conditions limiting access to and/or use of services and applications where such conditions are allowed by Member States in conformity with Community law, and prices."* (emphasis added).
[29] Paragraph A15.67 of Annex 15 to the Consultation
[30] Paragraph A15.61 of Annex 15 of the Consultation.
[31] Page 50 of Volume 5 of the Consultation.
[32] See condition 9 at pages 116-119 of Annex 33 (as modified 22 May 2018).
[33] See condition 8 at page 38-41 of Annex 26.
[34] See for example paragraph 37 of the decision in ***Vodafone v BT*** [2010] EWCA Civ 391.

4.97 It is highly surprising, therefore, to find Ofcom that suggests in the Consultation (admittedly in a single paragraph of an Annex) that it is concerned that "*Openreach could [today] design commercial terms which undermine alternative operator rollout*" but that "*[t]he powers were are proposing in this consultation to use to address this risk are already available under the SMP condition imposed in the 2018 WLA and 2019 BCMR Market Reviews*"[35]. If the powers were already in place, then Ofcom has no necessity to introduce the proposed new SMP conditions and should withdraw them.

4.98 It is, though, clear that the 2018 WLA and the 2019 BCMR did not consider or contemplate the regulatory interventions which Ofcom is proposing in the Consultation. Any attempt by Ofcom now to interpret the conditions introduced by the 2018 WLA and the 2019 BCMR as preventing volume discounts, would offend the rules on the retrospective imposition of SMP conditions which were neither imposed, nor understood as applying, at the time of Ofcom's original regulation in the 2018 WLA and 2019 BCMR.

4.99 A measure "*purporting to alter the content of past obligations*" is clearly retrospective in effect and Ofcom has no power to do so under section 45 of the Act. A regulated party must be in a position to know what its obligation are when any condition is imposed. That point has been clearly established by the Court of Appeal's decision in ***Vodafone v BT***[36]. It is, thus, wholly wrong for Ofcom to seek now to apply previous SMP conditions in a way for which they were never designed or intended.

4.100 For example, in the 2018 WLA, when the notification obligations were considered[37], it was not once suggested that Ofcom had a concern about volume discounts and, as noted above, Ofcom did not include any provision analogous to the Consultation's proposed condition 8.6.

4.101 To the contrary, the only place at which volume discounts was considered in the WLA statement was at paragraph 6.96 where the concern was about Openreach favouring its own downstream customer, BT Consumer, not about lowering prices for other customers to tie them to Openreach so as to prevent market entry by wholesale competitors[38]. Moreover, that discussion was in the context of an undue discrimination obligation (to prevent Openreach favouring its downstream arm) not about preventing volume discounts. It is clear that the regulatory obligations concerning notification were never intended or designed to affect volume discounts.

4.102 Indeed, even if such retrospective regulation were not wrong as a matter of established case law, it would, in any event, infringe the principle of regulatory certainty. In this regard, applying the guidance retrospectively would create considerable uncertainty for access providers and access seekers, potentially undermining incentives for future investment. If Ofcom now considered, for example, volume discounts to be a matter of concern, then parties would have to review their existing commercial agreements and consider whether, going forward, they could rely on the lower pricing negotiated. Such uncertainty could have a chilling effect on investment. This is particularly relevant in light of significant investment decisions and commercial decisions which might have already been taken by Openreach and BT in the context of scale business cases for FTTP rollout as well as CPs' own investment to join the FTTP platform as well as their sales'/marketing efforts which relied on previously negotiated terms and conditions.

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[35] See paragraph A15.73 of Annex 15 of the Consultation. It is clear that this paragraph relates to the notification condition since it is in the section headed (above paragraph A15.59) "*Other Commercial Terms*" and expressly deals with volume discounts.
[36] See for example paragraph 41 of the decision in ***Vodafone v BT*** [2010] EWCA Civ 391.
[37] Paragraphs 6.166 et seq. in the 2018 WLA, dated 28 March 2018.
[38] "*there remains the scope for BT to discriminate, and for its actions to have a discriminatory effect even if this were not BT's intention (**for instance, some volume discounts could favour the largest customer of Openreach, BT Consumer, and potentially be detrimental to other downstream competitors**), thereby damaging competition and harming consumer choice"* (emphasis added).

5. Copper retirement

Key points

5.1 We welcome Ofcom's approach to copper retirement on which we have consulted extensively with industry

5.2 We agree that 75% is a suitable threshold for commencing switchover by implementing stop-sell and that legacy regulation could be withdrawn after a minimum of two years.

5.3 We welcome Ofcom's proposed further consultation on the threshold for withdrawing legacy regulation given the practical difficulties of reaching 100% ultrafast coverage. The definition of complete coverage needs to be practical and achievable and reflect that this could be an important incentive to drive FTTP take-up.

5.4 A 'no move back to copper' policy for any premises where FTTP has been taken is also required and Ofcom should consider additional measures such as stop-repair to further incentivise copper retirement.

Question 2.1: Do you agree with our proposed approach to Copper *retirement? Please set out your reasons and supporting evidence for your response*

Ofcom's proposals support our exchanged-based approach to FTTP upgrade on which we have consulted extensively with industry

5.5 We welcome Ofcom's proposals in respect of copper retirement. We are pleased that these generally support and align with the approach which we have been consulting on with industry. To help the economic viability of a large-scale investment in FTTP, we need to ensure that consumers and businesses move quickly to the new platform. This will help to maximise the opportunity for the UK in terms of productivity and increase competitiveness. It will also drive cost savings across the industry and ensure everyone benefits from the new platform once it is built.

5.6 This is a complex undertaking that requires co-operation and investment across the industry value-chain and the active support of Ofcom and the UK Government. We want to make the upgrade a smooth process for residential, business and public sector customers, and to make the experience of the new platform a brilliant one. We are also determined to make sure that vulnerable customers are protected though this transition.

5.7 Over the past two years, Openreach has therefore been undertaking an intensive period of consultation with its industry customers. In 2017 Openreach consulted with CPs on the right future vision for UK digital infrastructure and there was virtually universal support for adopting FTTP. In this consultation Openreach highlighted the importance of moving all customers onto the FTTP platform quickly where it is available and switching off the legacy copper-based network. This would maximise the scope for cost saving and ensure that all customers benefit from the new platform. CPs were supportive of the concept of rapid migration but pointed out some of the operational complexity likely to be involved.

5.8 Separately, in May 2018 Openreach consulted with CPs on the withdrawal of Wholesale Line Rental (WLR): an analogue, copper-based service that relies on the Public Switched Telephone Network (PSTN). Openreach will stop selling WLR, ISDN and other services that rely on the PSTN nationally from September 2023 and will withdraw

those services altogether in December 2025 when the PSTN reaches end of life. The resultant move to All-IP services is an important part of a full-fibre future.

5.9 Openreach is actively engaged with industry to progress WLR withdrawal and through this process industry is addressing many of the issues that we will also face in moving from copper-based services to FTTP. Copper lines currently support a range of 'special services', including security alarm monitoring, healthcare alarms and various industrial and commercial uses. These services may need to be replaced with modern equivalents to ensure service continuity, vital for both vulnerable customers and critical national infrastructure (CNI) solutions, and these issues are being addressed through the WLR withdrawal industry working groups.

5.10 On 21 March 2019, Openreach issued an industry consultation. 'An exchange-based approach to upgrading the UK's digital infrastructure with GEA-FTTP', which set out our proposed exchange-based approach to FTTP upgrade and the withdrawal of legacy services. We then issued a further industry consultation in June 2019, covering proposals for trials of both FTTP Exchange Upgrade and WLR withdrawal in Salisbury and Mildenhall respectively. We are pleased that Ofcom, in its statement of 29 January 2020, has agreed to regulatory waivers to allow the 'stop-sell' of legacy services in these pilots and also to allow commercial offers (launched on 3 February 2020) to encourage early migration to our new strategic portfolio. We notified our intention to introduce stop-sell in Salisbury and Mildenhall in December 2019 for implementation in December 2020 and May 2021 respectively.

5.11 Openreach is also moving ahead with the development of its product portfolio to support the move to full fibre. On 21 February 2020, we notified industry of the launch of a new low-bandwidth FTTP product suitable for CPs to use to provide voice-only telephony, priced at the same level as WLR.

5.12 The key elements of our proposed approach, as set out in our industry consultations[39], are as follows:

- To take an exchange-based approach, building contiguous footprint within exchange areas to provide ubiquitous ultrafast coverage
- To work closely with CPs to migrate all customers within an ultrafast enabled exchange quickly onto the new platforms once the network is built
- To offer a compelling but simple portfolio of services in ultrafast enabled exchanges that in turn allow voice and broadband services to be offered by CPs
- For the large majority of migration to be voluntary, with an industry developed process to deal with any late adopters
- To withdraw legacy services progressively, starting with a 'no move back' policy on premises already connected with FTTP, stopping selling to new customers, and then ultimately withdrawing copper-based services
- To work with industry and Ofcom to develop a consumer charter that helps to ensure transparent communications with end customers and protects vulnerable customers.

5.13 As indicated, we welcome the fact that Ofcom's proposals in this consultation generally reflect this approach. We set out some specific comments on the proposals below.

[39] see Openreach industry consultation on: An exchange-based approach to upgrading the UK's digital infrastructure with GEA-FTTP, 21 March 2019, p3, para A8.

We support a phased approach to copper retirement with reasonable thresholds for switching

5.14 Ofcom sets out (in Figure 2.1 of its consultation) a progressive approach to copper retirement with a number of stages from Openreach giving notice of commencing build in an exchange area through to the point when exchange coverage is declared complete and regulation can 'flip' with the charge control on copper services replaced by regulation based on the FTTP anchor product. This phased approach is consistent with our discussions with industry on the approach and likely timing of these changes and the proposed transparency and notification requirements align with our general approach.

5.15 We agree that 75% ultrafast coverage in an exchange area is a suitable threshold for commencing switchover by implementing stop-sell. It is welcome that Ofcom now acknowledge that stop-sell, which is effectively the starting point for the switch from copper to fibre platforms, can be implemented when this threshold is reached. This is the basis on which Openreach has consulted with industry and, as Ofcom notes, this has met with general approval. For the avoidance of doubt, stop-sell of copper-based services will only apply to those premises where FTTP is available. We will also ensure that vulnerable customers with specific requirements that can only be met in the short-term over copper lines are protected and we will use our Salisbury pilot to test our exception and 'revert back' processes albeit in the longer term such specific requirements will need to be adapted to the new network.

5.16 We note and support Ofcom's proposed legal instrument to give effect to stop-sell. We note that with stop-sell, Openreach would not need to meet requests for new copper services nor be obliged to develop new forms of access on legacy services. We support this but additionally wish to clarify that we would define requests for new copper services as including bandwidth upgrades as well as working line take-overs and CP-CP migrations.

5.17 We are committed to maintain our legacy platform to continue to offer reasonable levels of service, but as we begin to transition to the full-fibre platform, we want to avoid unnecessary and short-lived expenditure. Therefore, as part of 'stop-sell' we also propose to make FTTP the alternative to any 'expensive' or complex repair activity on legacy platforms. Expensive repair could include any repair requiring time-consuming engineering work where moving to FTTP can provide the end-customer with a preferred outcome. At this stage, we propose to offer this as a reasonable alternative subject to CP and end-customer agreement, but as our FTTP roll-out accelerates, we would increasingly expect to provide new fibre lines instead of effecting copper repairs. A stop-repair option could prove a useful regulatory back stop.

5.18 Similarly, there will be instances where we do not believe it makes sense to carry out an expensive repair on to replace network assets (for example, a node or cable) providing copper-based services to a number of premises where an FTTP alternative is available for these customers. In these cases, it will not be practical to obtain prior permission from multiple CPs/end-customers, but we believe our general access conditions already allow for this option if the asset is beyond economic repair/replacement.

5.19 As noted above, we will be implementing stop-sell in the Salisbury pilot area from December 2020. Assuming Ofcom's regulatory proposals are confirmed, we then plan to implement stop-sell in further fibre upgrade exchanges during 2021 and 2022.

The definition of complete coverage needs to be practical and achievable

5.20 We welcome Ofcom's view that we should be allowed to withdraw legacy regulation after two years, but, as Ofcom indicates, the definition of complete ultrafast coverage as the threshold for this change is problematic. We are pleased that Ofcom recognises that reaching 100% full fibre coverage is not likely to be practically achievable in an exchange area and that there will always be factors that prevent this, in effect creating a 'glass ceiling'. Ofcom recognises this in its proposal to exclude those premises where Openreach has made all reasonable efforts but has been unable to provide ultrafast services because of long-term restrictions to street or premises access, or other factors beyond Openreach's control. Ofcom indicates that such factors could include flooding, or a 'no-dig' order from a Local Authority that prevents any civil works from taking place within a specific area for several years. In our experience, the two main areas of difficulty are:

a) Premises where the access required to make FTTP available is not granted. For example, a block of flats where the landlord refuses permission for internal cabling work to be performed

b) Premises where the build cost for FTTP is prohibitively expensive or too disruptive. For example, an historic building or a housing estate where no duct is available and local residents oppose the use of telegraph poles, including areas where another operator's physical infrastructure is available but where we have been unable to obtain access on reasonable terms.

5.21 We therefore think it is sensible that Ofcom has signalled a further consultation on these 'exceptional circumstances' that would prevent us reaching 100% in an exchange area and this will enable us to share some evidence and learnings from our FTTP build programme. We would note though that our build programme is currently in progress and our body of learning is still developing with every exchange area differing in terms of engineering challenges, extent of directly buried cable, and the number and type of multi dwelling units (MDUs) requiring landlord permissions for access. We will aim to provide Ofcom with all available information at the time of this consultation, but it will be important that Ofcom does not reach final conclusions prematurely.

5.22 There have been many learnings to date from the Salisbury fibre build, not least that uncooperative landlords represent a material obstacle to achieving a ubiquitous fibre build. As at 31 March 2020, we achieved a [✂]% FTTP footprint in the City. Landlords of MDUs and a landowner of a tract of land that we must cross with fibre cables have prevented us approaching the 100% target. We continue to campaign for access to the remaining buildings. The local MP and the local Council are assisting. We also found a number of premises in Salisbury with substantially higher build costs that we have absorbed for the purposes of the trial but which would be hugely challenging to include in our business case without some form of Government subsidy. This also points to a 'glass ceiling' currently of about 90% FTTP coverage within an exchange area but, as indicated, we are keen to engage further with Ofcom on this issue as we gather further evidence.

5.23 We are however somewhat disappointed that having acknowledged that there are many possible reasons as to why Openreach may not be able to connect a premises despite all reasonable efforts, Ofcom then say that the expectation is that premises would only be exempted from the coverage assessment in very exceptional cases. Although our intention is to extend ultrafast coverage as far as possible within each exchange area, there are barriers to achieving coverage levels approaching 100%. We look forward to engaging with Ofcom, through its proposed further consultation, on a workable and pragmatic definition of Relevant Premises relevant to this threshold.

5.24 An example of where we disagree with Ofcom's current position regarding 'exceptional circumstance' is in relation to Landlord access issues where Ofcom expect us to have used the Lands Tribunal to seek to impose Code powers rights. Our experience with our fibre build programme, including in Salisbury where we have invested significant resources in this area, is that this is much more complex and there are significant issues with identifying, contacting and agreeing internal works landlords and their agents, over and above the difficulty of using existing legal routes to try to obtain the necessary wayleaves. Proposed legislative reform, not yet tabled at the time of writing, will be helpful but will not be sufficient to address the issues identified. We will provide Ofcom and industry with details of the difficulties we are encountering in order to reach the right conclusions. We also think that other FTTP builders – including KCOM whose FTTP build is well advanced – will have important insights into this topic.

A 'no move back' policy on FTTP is also required

5.25 Additional to stop-sell, which applies to premises where FTTP is available, we also want to implement a policy of 'no move back to copper' for any premises where FTTP has been taken. We believe this is a practical, and non-controversial, step and in Openreach's industry consultation, we proposed to implement this at the point of notification of stop -sell (i.e. a year before stop-sell). This proposal has not been opposed by CPs. We note that this step has not been reflected in Ofcom's proposed legal instruments and we therefore suggest an additional clause to be included within Condition 1 of the SMP conditions, as follows:

5.26 *"Where the Dominant Provider* publishes *a notice that it anticipates ultrafast network access will be available to 75% of Relevant Premises served by a Local Serving Exchange within 1 Year of the date of publication of the Notice, from the date of publication of the notice the requirement to provide network access under Condition 1.1. does not apply to new requests for Copper-based network access in respect of any end user supplied with electronic communications services using that Local Service Exchange where Fibre-based network access is available to a Third Party on reasonable request in respect of any such end users and where that end user has an existing electronic communications service using Fibre-based network access."*

5.27 This proposal would allow the implementation of 'no move back' as part of our exchange upgrade process. We believe it would also make sense to implement this policy on individual FTTP lines outside our exchange upgrade areas. In practice, this would be no different to the situation in greenfield sites where only fibre has been provided. We would welcome further discussions with Ofcom on the necessary legal instrument to enable this change, noting that this is already the practical situation in fibre-only new sites.

Inter-platform switching

5.28 Ofcom notes (in paragraph 2.44 of its consultation) its current consultation on the changes to General Conditions required to implement new EEECC requirements, including in relation to switching between different physical networks. Openreach is engaged heavily in discussions with industry on the best way of delivering these requirements. Inter-platform switching is important today and will become more critical in the future as more competing access infrastructure is deployed. However, this is separate to ensuring efficient and suitable migration processes are established on each platform, which is the responsibility of each infrastructure provider working with their industry customers.

Our voluntary commitment in respect of WLR and ISDN2/30 products

5.29 As noted above, Openreach has announced that it will be ceasing new supply of the WLR and ISDN2/30 products in September 2023 and will be withdrawing these products in December 2025. On the basis of Ofcom's provisional conclusions (as set out in section 9 of its consultation) that BT is no longer required to provide the WLR and ISDN2/30 products on an SMP basis, Openreach has indicated it would be willing to make voluntary commitments to industry in respect of these products until the cessation of new supply and product withdrawal. Under these proposed commitments,

a) Openreach would be willing to continue to provide new WLR and ISDN2/ISDN30 circuits until September 2023[40].

b) Openreach would further be willing to continue to support the existing WLR and ISDN2/30 customer base (including any new circuits provided up to September 2023) on a reasonable basis until December 2025.

c) We will continue to provide network access with respect to the WLR and ISDN2/30 products on fair and reasonable terms; will not unduly discriminate; will supply on Equivalence of Input (EoI) terms; will maintain published reference offers; and will notify changes to terms and conditions on the same basis as previously for these products.

d) We commit to continuing to price these products on a reasonable basis until withdrawal i.e. on wholesale terms that do not distort downstream competition by squeezing margins.

e) We also commit to maintaining a good level of quality of service for these products until withdrawal and will continue to provide Ofcom with monthly KPI reports (and publish KPI reports on a quarterly basis if required).

5.30 It should be noted that these commitments do not apply in exchange areas where, under the FTMR regulation or as otherwise agreed by a regulatory waiver, Openreach has been allowed to implement stop-sell or withdraw these products at an earlier date, or otherwise vary the basis on which it provides service.

5.31 We believe that agreement to this voluntary commitment would be a sensible outcome with Ofcom able to deregulate these products, for the reasons set out in section 9 which we support, whilst industry retains sufficient certainty up to the point of withdrawal.

5.32 We would note in passing that Openreach's letter offering to make this voluntary commitment (which Ofcom has published on its website alongside this consultation) inadvertently says that 'Openreach would therefore be willing to continue to provide new WLR and ISDN2/ISDN30 circuits until *December* 2023'. As noted above, this should read '…September 2023' in line with the date for national stop-sell and we will correct this in a finalised voluntary offer ahead of Ofcom's final statement.

[40] Note that BT no longer has a regulatory obligation to provide new ISDN2/30 circuits but continues to offer these products on a commercial basis.

6. Duct & Pole Access

Key Points

6.1 We remain fully committed to delivering a world-class Physical Infrastructure Access (PIA)[41] product and recognise the important role that it plays in the WFTMR framework supporting alternative investment in fibre networks. We agree with Ofcom that the product specification remains fit-for-purpose and we are continuing to work with our PIA customers and other stakeholders to enhance the product to reflect their emerging requirements for large scale use.

6.2 In the response which follows we comment both on elements of the proposals that still concern us as well as those which we support. The key points are as follows:

PIA Pricing

6.3 We are supportive of Ofcom's key principles for PIA pricing: (full cost recovery, level playing field and incentivising full fibre investment. However, for the reasons set out below we have concerns in a number of places about how the currently proposed approach may not meet these objectives.

6.4 PIA Rental Pricing – we are concerned that (i) Ofcom has not yet captured our forward-looking costs of investing in physical infrastructure assets and (ii) that the proposed approach to cost recovery is not sustainable as it does not properly reflect the way in which our physical assets will be utilised in future by alternative fibre providers. To address these issues, it is important that Ofcom's approach to setting PIA rental prices fully reflects:

a) The starting value of physical infrastructure assets in place today. It is important that Ofcom updates its estimates to reflect the latest RFS data as its starting point as we regard 2017/18 data as atypical in a number of respects.

b) The current best estimates of forecast costs, including an adjustment for the increased infrastructure investment relating to our recently announced large scale FTTP case.

c) A commitment to ensuring PIA rental prices reflect an appropriate share of the end-user value derived from the use of Openreach physical infrastructure. Ofcom should signal that certain PIA rental prices (e.g. multi-bore duct, manhole) where external DPA users contribute a low percentage of costs will need to increase to ensure that cost recovery is shared between Openreach and other network builders in a sustainable way. We believe multi-bore duct and manhole prices do need to increase in this review period to ensure we have a glide to a sustainable medium/long term pricing structure.

6.5 Removal of hosting charges – we disagree with Ofcom's proposals to remove certain manhole/joint box hosting charges. Continuing to charge customers for occupancy is the most appropriate charging mechanism and much more likely to incentivise better use of scarce asset space.

[41] We largely refer to the Physical Infrastructure Access (PIA) product in this document as the majority of comments relate to the Physical Infrastructure (PI) market and Openreach's PIA product rather than a discussion of DPA policy.

6.6 Financial Limit for Network Adjustments – as we set out in both our WLAMR and PIMR responses[42] we view the financial limit as being set too high, and our recent operational evidence supports this.

PIA Product Specification

6.7 Product - we fully agree with Ofcom's proposal that the formal PIA product specification and other regulatory obligations should remain largely unchanged. We are committed to continuing to improve PIA product performance to meet our customers' requirements, supported by our systems development roadmap and collaborative engagement with CPs on important product enhancements such as Path to Collaboration (PTC) and Self-Provide Orders (SPO).

6.8 QoS & KPIs - Ofcom's approach in not mandating specific QoS standards and KPIs is also proportionate and appropriate given the constant state of change of the product, systems and processes at this time.

6.9 No Undue Discrimination (NUD) – we strongly support the flexibility of the No Undue Discrimination (NUD) approach compared to an inflexible Equivalence of Inputs (EoI) obligation. Openreach has been able to work proactively with PIA customers, plus openly share its thinking and progress with Ofcom directly (and with industry CEOs)[43] to develop tailored systems for PIA customers to access the key physical infrastructure data they require.

6.10 Transparency - we also fully understand the need to support transparency of Openreach's internal operations by enabling comparison with our PIA product and are committed to producing regular updates of the Internal Reference Offer (IRO) as and when changes occur to the PIA product or Openreach's internal use of physical infrastructure.[44]

6.11 New Simplified Lead-in product - we fully support Ofcom's proposal to simplify the PIA lead-in product and pricing. This is completely aligned with our proposed product specification and with the feedback received from our customers during 2019. Based on Ofcom's consultation we have now notified the launch the new product on a voluntary basis during June 2020 but will not withdraw the legacy product until determined by Ofcom's consultation process. Initial positive industry feedback has already been received.

6.12 PIA Ancillary Services - we have made positive proposals to simplify the legal instrument and change control processes related to PIA ancillary services and make them more flexible and responsive to customers' needs.

Market Definition and SMP analysis

6.13 Market Analysis - Ofcom's approach to defining a market for 'telecoms physical infrastructure' based solely on Openreach's fixed physical infrastructure assets is unsatisfactory, leading to a less than surprising finding of SMP for Openreach on a national basis. The finding does not place enough weight on the differences in competitive conditions prevailing in different geographic areas, new sites, or with respect to overhead/underground infrastructure - and does not fully reflect the broader options available to access seekers (particularly mobile operators) using alternative deployment methods and alternative telco/non-telco infrastructure.

6.14 Other regulatory options - Outside of the SMP framework, Ofcom also could and should focus more attention on the opening up of such options for the industry by reviewing and setting expectations for the ATI regulations (for example, in relation to levels of charges and other T&Cs, and response deadlines) to ensure they are fit for

[42] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/139455/openreach.pdf - please see the response to question 6.2.
[43] For example, at the Ofcom-chaired CEO level PIA meetings – most recently on 11 February 2020.
[44] As we did for both the launch of the WLAMR PIA product on 1 April 2019 and updated for the PIMR PIA product on 1 August 2019.

purpose. This would help Openreach (and other network providers) in scenarios where we have no pre-existing physical infrastructure and hence no market power, such as new build sites and MDUs, including where we are 'locked out' of a site at the build stage by an exclusivity agreement between the serving CP and developer.

PIA Market Assessment

6.15 We welcome Ofcom's new proposed WFTMR regulatory framework and recognise that PIA is an essential element of this. Hence, in that light, we are able to support the majority of Ofcom's PIA proposals. However, as noted in our response to the PIMR[45] and in response to this consultation we do have concerns about the methodology that Ofcom used to arrive at its conclusions on the Physical Infrastructure (PI) market definition and its SMP findings.

6.16 Ofcom's conclusions in the WFTMR regarding PIA rely heavily on its PIMR analysis, and therefore in response to this consultation we refer Ofcom to Section 2 of our response to the PIMR where we also drew upon a report we commissioned from Analysys Mason who reviewed Ofcom's market analysis set out in the PIMR consultation document. The report was supplied as Annex A to our PIMR response.[46]

6.17 This section considers the explanation that Ofcom provides for its conclusions that there is a national market for 'wholesale access to telecoms physical infrastructure for deploying a telecoms network' and that this is a market in which Openreach (and therefore BT) has SMP. As such this section represents Openreach's response to Questions 3.1, 4.1, 4.2 and 5.1 in the consultation document.

Question 3.1: Do you agree with our provisional conclusion on physical infrastructure product market definition? Please set out your reasons and supporting evidence for your response.

6.18 In summary, Openreach does not agree with Ofcom's proposed product market definition. Ofcom did not start from a robust analysis of retail markets; and has not recognised in either its market definition or SMP assessment the use by CPs of other utilities' infrastructure or other build options available to CPs to deploy telecoms networks.

6.19 In particular, Ofcom does not assess or draw out the significant differences between fixed telecoms and mobile[47] telecoms networks, especially in relation to overhead infrastructure, in either its market definition or SMP analysis.

Ofcom has failed to take as a starting point a definition of the retail markets

6.20 Ofcom does not provide a comprehensive analysis of corresponding retail market(s) in the WFTMR consultation (or previously in the PIMR) to justify its views on the need for unrestricted access to Openreach's physical infrastructure except to make reference to its market analysis justifying other wholesale remedies in other markets (such as the WLA and LL Access markets).

6.21 In the case of WLA, Ofcom effectively considers competition on the basis of two sub-national market areas (A2 and A3) not the four sub-national areas used in the PIMR/WFTMR consultations to analyse PI markets, whilst the market review for LL Access is subject to a very detailed geographic analysis. Regarding the latter, Ofcom has not proposed to find BT to have SMP throughout the UK whilst in the WFTMR the PIA remedy is proposed to be

[45] See Section 2 - https://www.ofcom.org.uk/__data/assets/pdf_file/0027/139455/openreach.pdf.
[46] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/139761/Openreach-Analysys-Mason-report.pdf.
[47] We are drawing a particular distinction here between a fixed telecoms network which is used to provide a fixed connection to a designated end-user premises and a 'mobile' network which is used to provide a 'roaming' wireless service.

applied nationwide. This disjoint has come about because Ofcom has not started from, or provided, a comprehensive analysis of corresponding retail market(s).

6.22 Instead, Ofcom implies (although without clearly defining it) a prospective future retail market which will consist of retail services supplied by multi-service networks (MSN), without setting out what these services are (and if different from current services) or why BT has SMP nationwide for these services (but not for current services). Ofcom's speculation on the prospects that a specific form of business model may or may not develop is not a strong or objective basis on which to define a new upstream market and assess market power.

6.23 Ofcom should have started the market definition process by analysing the retail markets that are relevant to the upstream market and assess whether these markets are competitive or not and/or are already regulated. Such retail markets should have been assessed and defined[48] so that the analysis of demand side and supply side substitution effects could be properly conducted. Without this formal foundation, ex-ante regulation might be wrongly imposed in the upstream market where it is not justified because (a) there is no SMP at the retail level in the absence of such regulation or (b) the downstream markets are already regulated and therefore regulation at the upstream level is not necessary and disproportionate. It is wrong in our view for Ofcom to ignore this fundamental step.

The imposition of a UK wide unrestricted PIA remedy negatively affects the competitive leased lines markets[49]

6.24 Ofcom makes only very brief references regarding the impact of unrestricted PIA on competitive leased line markets (such as CLA). Ofcom's main argument appears to be that PIA may lead to lower prices and better services in these competitive markets, and for this reason it concludes that PIA is unlikely to have a large distortive impact on leased line competition in such areas.

6.25 However, in our view this means Ofcom overlooks the wider material impact on Openreach and, in particular, on the sale of our leased lines in competitive markets such as CLA. Openreach currently sells leased lines on a UK wide basis including in the CLA and therefore mandating PIA to competitive parts of the market will necessarily incentivise our CP customers to switch to PIA and no longer demand leased lines from us.

Exclusion of alternative physical infrastructures from the market definition and the SMP assessment

6.26 Ofcom is also of the view that other physical infrastructures are not substitutes for telecoms-specific physical infrastructure and are therefore outside its market definition. The consequence of this conclusion is that such alternative infrastructures are not viewed as constraining Openreach (and BT) in any way, and therefore are not considered as being relevant in the subsequent assessment of SMP.

6.27 In fact, as described by Analysys Mason in Section 3 and Annex C of their Report, many different communications providers (CPs) are using non-telecoms physical infrastructure in the provision of telecoms services throughout

[48] As set out by the European Commission, "Market definition, for the purposes of the Recommendation, is the prerequisite for assessing whether a particular market is characterised by effective competition or should be subject to *ex ante* regulation"… and that, "The starting point is the definition of retail markets over a given time horizon taking into account demand-side and supply-side substitutability from the end-users perspective…". EXPLANATORY NOTE Accompanying the Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation, 9 October 2014, page 7.
https://ec.europa.eu/digital-single-market/en/news/explanatory-note-accompanying-commission-recommendation-relevant-product-and-service-markets

[49] Please also see our fuller discussion of the potential negative impact of multiple concurrent layers of regulation on Openreach (i.e. LL Access, PIA, Dark Fibre Access (DFA) and Dark Fibre inter-exchange access (DFX)) in Section 6 of this response.

Europe. We refer Ofcom to the examples previously cited in the Analysys Mason report of TrueSpeed (UK), Vodafone (Ireland), Open Fibre (Italy) and Telekom Deutschland (Germany).

6.28 Also evidence for the use of non-telecoms infrastructure being used or being developed in this way is contained in the Future Telecoms Infrastructure Review published by the DCMS.[50] Please see the many examples in the review including SSE, Zayo, Gigaclear and Local and Metropolitan councils opening up their infrastructures and coordinating 'Dig once' policies. Additionally, the Analysys Mason report provides further examples of these types of large-scale regional developments (for example in Bristol, Hammersmith and Fulham, Coventry and Aberdeen).[51]

6.29 We also note the reasons given in paragraph 3.15 of the WFTMR Consultation which Ofcom says imply non-telecom infrastructure "is either not viable or involves relatively higher cost and operational complexity." However, in our view, the central question is not whether there may be impediments to use of non-telecoms infrastructure (such as "construction incompatibilities" or health and safety rules) but whether these are barriers which cannot be overcome without incurring unreasonable cost. The evidence is that this is not the case.

6.30 For example, in contrast to all the reasons to the contrary given by Ofcom, sewers have been used for fibre deployment as have electricity networks. Dismissing all alternatives does not recognise what suppliers have been doing already and questions the very purpose of the 2016 UK Access to Infrastructure Regulations (the "ATI Regulations") which aim to promote such alternatives where these are cost effective.

Overhead and Underground Physical Infrastructure

6.31 Importantly, Ofcom's analysis also fails to assess whether there are any significant differences in the characteristics of overhead and underground physical infrastructure (both telecoms and non-telecoms) when considering market definition and market power, and therefore how such factors might legitimately impact the scope of the unrestricted PIA remedy.

6.32 This is particularly relevant as there are clear differences in the possible extent of demand-side and supply-side substitutability when assessing overhead and underground physical infrastructure, and this is especially true when considering the deployment of mobile networks.[52]

6.33 Therefore, we find significant problems with Ofcom's market and SMP analysis, particularly when the findings are used to support 'unrestricted' obligations being placed on Openreach for all its physical infrastructure (both overhead and underground), for use by all technologies (fixed, mobile, and as yet undefined uses) and across all geographies.

6.34 Our experience indicates that CPs are starting to interpret the 'unrestricted' element of the remedy very widely and we therefore have significant concerns regarding the lack of regulatory clarity on the scope of the remedy.[53] This is already triggering some confusion and potential conflict with PIA customers.

[50] Future Telecoms Infrastructure Review, DCMS 2018, para 77.
[51] Analysys Mason Report Section 3.2.
[52] We are using the term 'mobile' here to refer to a network which is used to provide a 'roaming' wireless service.
[53] Please see Ofcom's footnote 120 in WFTMR Volume 2, where the technology/product usage issue is not addressed because Ofcom consider it will not be an issue for the next control period.

6.35 This lack of clarity[54] is particularly relevant to pole access as the 'unrestricted' regulation potentially impacts pole infrastructure more severely that underground infrastructure, because overhead plant can be used for different applications to underground plant and is also more likely to be capacity constrained.[55]

6.36 In this respect, there is a distinct difference between the degree of substitutability of non-telecoms overhead infrastructure for telecoms overhead infrastructure, compared to underground infrastructure when the proposed access is for a non-fixed-telecoms purpose.[56]

6.37 For example, an underground lead-in built for a fixed-telecoms network may be a good option to deliver an underground FTTP connection to a premises both for Openreach and its PIA customers - but the same argument does not apply at all when considering the use of a fixed-telecoms pole to construct a mobile network.

6.38 The list of possible options for placement of mobile equipment and the substitutes available for fixed telecoms overhead infrastructure are vast, and any market analysis should most certainly include an assessment of the existing available mobile physical infrastructure (plus other possible non-telecoms alternatives). In these circumstances it is clear that such mobile/wireless physical infrastructure should not have been excluded from Ofcom's analysis of the market definition or its SMP assessment.

6.39 Our view is that this will become a critical issue very shortly when considering which services (e.g. FTTP or perhaps mobile or another unspecified use) should get higher prioritisation with regard to the limited space available on fixed telecoms overhead infrastructure. Therefore, further regulatory clarity is now required to prevent confusion and customer conflict, and we request that Ofcom makes clear in its final WFTMR statement that:

a) The scope of the PIA remedy does not include pole access for equipment being used to build a mobile network, and therefore that 'PIA Pole Adjustment Services' do not apply to any adjustments required to make space on a pole for mobile equipment.[57]

b) Additionally, that the PIA remedy does not apply to other types of mobile/wireless equipment such as traffic monitoring, pollution monitoring and other similar devices as these are not fixed-telecoms services which require regulated access to a fixed telecoms pole, and in many, if not all cases, constitute a private network and not a public electronic communications network (PECN) or public electronic communications service (PECS).

6.40 For these types of applications, we are not prejudging whether it might be possible for Openreach and service providers to reach suitable access arrangements outside the scope of the PIA product, but the primary purpose of the PIA regulatory obligation needs to be clarified urgently.

[54] Please see paragraphs 4.12 to 4.20 of WFTMR Volume 3 where Ofcom sets out its concern that specifying any restrictions of the use of PIA may lead to 'regulatory failure'. Our view is that the current lack of clarity may in fact increase the risk of failure as CPs attempt to use scarce physical infrastructure resources to support applications which are not aligned to Ofcom's core objectives. Openreach would be pleased to discuss these points in more detail with the Ofcom team following this submission.

[55] Also, Ofcom has not set a financial limit for pole adjustments so Openreach's costs are currently unbounded.

[56] Ofcom largely relies on the qualitative analysis set out in paragraphs 3.53 to 3.62 in the PIMR Final Statement to disregard the inclusion of all non-telecoms infrastructure, but only consider arguments related to underground infrastructure in any meaningful way. The arguments are not valid when considering overhead 'mobile' equipment.

[57] If reasonable limits cannot be placed on these obligations the situation has the potential to become even more complex and costly. For example if mobile (or other non-fixed telecoms equipment) takes up the last usable space on a pole then this is likely to generate a 'knock on' effect and Openreach may need to incur additional costs and use of scarce operational resource to free up space for PIA FTTP customers or even have to build new capacity to deploy its own FTTP network.

6.41 We also note that requests which are outside the scope of the PIA obligation would in any case be subject to Openreach's regulated SoR process. Therefore, for such product requests which were potentially technically feasible and commercially viable the SoR process would be the appropriate route for such developments to be properly assessed. This would enable Openreach and stakeholders to consider other very important and material aspects of the request including the level of demand, equipment specifications, pricing, space considerations, engineering rules, potential interference with fixed telecoms networks, and electromagnetic radiation and health and safety amongst many other aspects. Also, very importantly, prospective delivery timelines and the prioritisation of such product developments with respect to current critical PIA deliveries should be taken to account.[58]

6.42 In summary, we contend that the physical infrastructure market that Ofcom has defined to date has not properly considered the highly distinctive characteristics of overhead mobile equipment and what that implies in terms of market definition and market power findings.[59] Openreach does not have SMP in sites for attaching mobile equipment (if such a market existed) and the regulatory analysis presented in the WFTMR of physical infrastructure markets and the subsequent SMP analysis does not in fact assess such a market in any meaningful way.

6.43 It is our view that providing unrestricted access to physical infrastructure (and any related activities such as network adjustments) is only justified (and in fact required) to address market power in downstream wholesale fixed access markets (and associated retail markets) and that would be consistent with the economic underpinning for Ofcom's intervention and its policy objective of encouraging UK wide fibre network build.[60]

6.44 We recognise that different regulatory arguments and imperatives may be raised when considering fixed wireless access (FWA) as a potential solution to delivery of the broadband universal service obligation (BBUSO) - but even in that case such physical infrastructure access could only be argued as essential for the designated universal service providers (USPs) for serving qualifying premises with FWA. Such access would not need to be a fully unrestricted national obligation.

Question 4.1: Do you agree with our provisional conclusion on physical infrastructure geographic market definition? Please set out your reasons and supporting evidence for your response.

6.45 Ofcom considers that the geographical variations in the presence of telecoms physical infrastructure can be broadly categorised into four areas:

- **Category A:** *BT only areas* - BT's infrastructure passes virtually every premises and there is limited alternative telecoms infrastructure.
- **Category B:** *BT and Virgin media areas* - alternative telecoms infrastructure has been deployed to support MSNs (at present, Virgin Media is the only significant operator with such infrastructure).

[58] We note that the aspects set out above will require extensive stakeholder discussions and substantial product development in any case even if the use of PIA to build mobile networks is considered to be in scope by Ofcom. Product development timescales would be of the order of 12-18 months and would require significant engineering rules and safe working practices to be developed.
[59] Also, Ofcom's modelling of PIA rental prices does not consider use of PIA to build mobile networks which, if in scope, would have a significant impact on future PIA usage and cost recovery profiles.
[60] In our response to Question 4.2 below we propose an amendment to the draft definition of 'Physical Infrastructure Access' to clarify that it only applies to fixed telecommunications networks. Please see Ofcom's Draft legal instrument – WFTMR Volume 5 page 20 - definition (aaa).

- **Category C:** *High Network Reach (HNR) areas (excluding CLA)* - a high presence of alternative telecoms infrastructure has been deployed to supply leased lines ('Category C'); and
- **Category D:** For example, *Central London Area (CLA)* - significantly more alternative telecoms infrastructure has been deployed to supply leased lines than in Category C above.

6.46 We note that Ofcom's analysis of geographic variations remains closely aligned to its PIMR findings, that is, apart from its final conclusion that there is one single national market as opposed to the four sub-national markets set out in the PIMR.

6.47 We have set out in response to Question 3.1 above, our view that Ofcom's definition of the market is flawed, in that it does not recognise in either its market definition or SMP assessments the use by CPs of other utilities' infrastructure, other build options available to CPs to deploy telecoms networks, or the material differences between overhead and underground infrastructure (particularly in relation to mobile networks). These differences are almost certain to be more variable on a regional basis, as illustrated by the examples given in the Analysys Mason report and Future Telecoms Infrastructure Review published by the DCMS.[61]

6.48 Therefore, we agree with Ofcom that geographical variations in the availability of telecoms physical infrastructure (and other infrastructure) do exist. Consequently, this implies that there will be areas where the vast majority of physical infrastructure which is suitable for telecoms use will be operated by Openreach, and other areas (such as the CLA) where potentially a multitude of alternative infrastructures are available.

6.49 Whilst we also understand Ofcom's argument that its use of geographic market analysis as part of its market review process does not necessarily result in the definition of multiple markets,[62] our view is that in this case it is clear that the competitive conditions for physical infrastructure which exist in Category A (limited choice) compared to Category D (CLA) are vastly different and are not homogenous.

6.50 Additionally, it is highly likely that both supply and demand characteristics for physical infrastructure required for telecoms purposes are not homogenous at either the physical infrastructure layer or for downstream services in these geographies. For example, the primary demand in Category A areas may be to provide large scale fibre broadband, and the primary demand in Category D areas may be for high capacity leased lines/optical circuits.

6.51 Therefore, although the proposed remedy from both the PIMR and WFTMR is broadly the same (i.e. a single national PIA remedy) Openreach does not agree with Ofcom's conclusion that competitive conditions are sufficiently homogenous to define a single national market (i.e. the whole of the UK excluding the Hull area).[63] Please also see our further comments on Ofcom's SMP assessment below where we analyse competitive conditions in more detail.

Question 4.2: Do you agree with our provisional conclusion on the application of the three criteria test to the physical infrastructure market? Please set out your reasons and supporting evidence for your response.

6.52 We note that under the existing regulatory framework, Ofcom must take utmost account of the 2014 EC Recommendation and also work in accordance with the principles of competition law before imposing regulation on

[61] Future Telecoms Infrastructure Review, DCMS 2018, para 77
[62] See Footnote 169 WFTMR Volume 2.
[63] We also note for future reference that should significant self-build of network infrastructure (or use of non-telco infrastructure) take place in specific regions of the UK throughout the next control period, then this would constitute strong *de facto* evidence for the next review that Openreach does not hold SMP in physical infrastructure in those areas.

a market which is not listed in the European Commission's 'Recommendation on relevant markets'[64]. Therefore, we recognise why Ofcom has carried out its high-level analysis of the three criteria test.

6.53 However, in line with our views on market definition and SMP, we are not comfortable with Ofcom's conclusions. Ofcom's analysis is based on disregarding a number of important considerations (e.g. non-telecoms physical infrastructure, alternative telecoms infrastructure, geographic market variations and varying degrees of market power). Further, the findings are underpinned with very general assumptions and therefore we do not think the conclusions are as clear cut as Ofcom portrays. We address each of the three criteria in order below:

(i) High and non-transitory barriers to entry:

6.54 Ofcom's analysis does not address the current dynamics in the market. Notwithstanding our wider points on physical infrastructure market definition set out in this section, some of the most challenging and contested elements of building a new fibre network relate to operational activities where Openreach is exposed to the same challenges as any other network provider (i.e. where there are no exclusive high and non-transitory barriers to entry) and where Openreach's costs are not sunk (as Ofcom suggests in paragraph 4.47).

6.55 If this first criteria is a key principle underpinning Ofcom's regulatory logic, then the mandated PIA remedy should be narrower and more restricted in its scope (and if it were then some of our objections raised below may not apply). However, because Ofcom's remedy is very broad and unrestricted, it currently includes many situations where Openreach faces exactly the same challenges as any other investor - if not more so - because of the extensive access obligations that always apply to our network and physical infrastructure investments, for example:

a) *New Build Site physical infrastructure:*

- Where physical infrastructure is constructed on a new site there are no barriers to entry for alternative networks compared to those experienced by Openreach and there is no meaningful basis on which to define Openreach as possessing SMP in physical infrastructure - as CPs are free to liaise with developers and landowners exactly as Openreach can to have physical infrastructure built to suit their requirements.

- In fact, our experience to date suggests that the unilateral reregulation of Openreach and nonreciprocal regulation of alternative CPs creates issues in the way the market operates. This ranges from some developers agreeing exclusivity arrangements with CPs through undisclosed commercial arrangements which prevents Openreach from serving the site; whilst other CPs effectively 'free ride' on Openreach capital investment in new site physical infrastructure by not investing in their own site infrastructure when they are equally able to do that. Some CPs therefore systematically follow Openreach's new site plans and rely on Openreach's unilateral PIA obligation to install their equipment in Openreach's new physical infrastructure and do not engage appropriately with developers. In some cases, this has led to CPs attempting to use the space prior to Openreach having had the opportunity to ensure that the infrastructure has been installed to the required quality standard and is ready for use.[65]

[64] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014H0710

[65] In some cases, certain CPs were gaining access to the site and installing equipment before infrastructure had even been formally handed over or signed off by Openreach and its supplier.

- Further, where the CP has elected not to engage with the developer, then such physical infrastructure is necessarily only designed and built to accommodate one known network. This is despite our PIA ancillary product set having an option for an interested CP to engage in a three-way discussion with Openreach and the site developer to encourage collaboration and holistic dimensioning of the infrastructure capacity. However, we have yet to see such an option to engage taken up by a CP. Such behaviour by CPs can also risk creating a poorer overall proposition for end customers on the site, as the CP may use up limited space without any obligation to serve all end customers on the new build. This may delay Openreach from completing its contractual obligations with the developer to connect all end users and/or even limit our ability to respond in a timely or efficient way to a subsequent USO service request.
- Although, in this response, we have not considered detailed solutions to incentivising better and more efficient behaviour on the part of CPs, we do note for the record that potentially (i) allowing a short period of exclusivity for the new site infrastructure investor and/or (ii) implementing a new site PIA pricing mechanism which more accurately reflects the up-front costs faced by the new site investor may be possible solutions going forward.

b) *Network Extension:*

- Where new ducts, poles and chambers are required to extend the footprint or capacity of existing physical infrastructure the barriers faced by Openreach and alternative operators are not significantly different. We recognise that Ofcom's proposed PIA remedy does not extend to Network Extension but we are reiterating the point in this response because some CPs continue to push the boundary between what constitutes a legitimate Network Adjustment (NA) and a Network Extension (because they have an incentive to do so, as the costs of a NA fall to Openreach).

c) *Network Adjustments (NAs):*

- In most circumstances the barriers faced are the same between Openreach and alternative operators. Some c.55% of network adjustments are now carried out as self-provide orders (SPOs) and this is expected to increase over the next control period. Hence there is no evidence at this time to suggest that there are high and non-transitory barriers to CPs carrying out NAs. In fact, the evidence is increasingly indicating that they seem to have the same type of operational capability and available cash flow to carry out such adjustments as Openreach when deploying new network.

d) *Geographic Markets:*

- As Ofcom's analysis indicates there are substantially different levels of physical infrastructure in different sub-national areas of the UK. Therefore, it is not clear that all areas of the UK face the same high and non-transitory barriers if at all, and this is especially so if the CP's business model is focussed on particular services in specific areas (e.g. business services in the CLA). We also note for future reference that should significant self-build of network infrastructure (or use of non-telco infrastructure) take place in specific regions of the UK throughout the next control period, then this would constitute strong *de facto* evidence that Openreach does not hold SMP in physical infrastructure in those areas.

e) *Alternative Deployment methods:*

- CPs have significant choices in how to deploy networks which depend on geography, technology and the markets they intend to serve (e.g. business, residential, mobile etc.). These could include directly buried cable, micro-trenching, use of alternative infrastructure etc. and hence it is not clear that barriers are universal or apply equally across all technologies, services and geographic areas as Ofcom imply.

(ii) A market structure which does not tend towards effective competition.

6.56 As set out above, Ofcom have not evidenced that there is no prospect of effective competition for all sub-categories of physical infrastructure or geographic markets. In particular, in New Build sites and in areas with the highest alternative network presence (e.g. CLA) there is every chance that such areas could tend towards effective competition given an appropriate regulatory approach and more granular market definition.[66] This would not be overly complex to apply if specific scenarios were clearly defined.

6.57 In particular we would call out the lack of regulatory and legal focus on improving the ATI regulations and in promoting the use of alternative telecoms and non-telecoms infrastructures. This lack of focus plus the heavy regulatory burdens placed on Openreach (both financial and operational) even in areas where there is substantial alternative network presence (e.g. CLA, Virgin Media areas etc.) means this becomes a self-fulling prophecy and prospects of physical infrastructure competition continue to be stifled.

(iii) Insufficiency of competition law.

6.58 We do recognise Ofcom's arguments on some of the weaknesses inherent in competition law when compared to ex ante SMP regulation. However, this in itself is not justification for unrestricted and extensive access obligations. It is clear that less onerous obligations could have been placed on Openreach to provide access without the prescriptive nature of many of the SMP obligations (for example the high level of the financial limit and extent of the network adjustment obligations).

6.59 Additionally, the recent history of regulatory interventions has seen an increased tendency for sectoral regulators to issue very large fines to firms, which can also lead to consequential reputational damage and other commercial impacts. Such actions are often publicly positioned by regulators as being intended to influence the compliance and behaviour of regulated or dominant firms – a strong indication that competition law and its enforcement is seen as having an ex ante influence on firms.

Question 5.1: Do you agree with our provisional finding on SMP and resultant competition concerns in the physical infrastructure market? Please set out your reasons and supporting evidence for your response.

6.60 Openreach does not agree with Ofcom's proposed SMP assessment. The assessment lacks embedding within a framework which encompasses an adequate retail market analysis and amongst other things places undue weight on an alleged need for ubiquity. It also does not sufficiently take into consideration the strong competitive constraints that Virgin Media, other CPs, and the infrastructure deployed by other utilities exercises on Openreach, or other build options available to CPs to deploy telecoms networks. Further it does not assess any differences in

[66] This is even more likely now for new build sites and would not require Openreach PIA, given the recent Government statement mandating 1 Gb/s capable connections to be provided to new build premises: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/872990/New_Build_Developments__HMG_consultation_response.pdf

requirements which may apply between fixed telecoms and mobile[67] telecoms operators, particularly in relation to overhead networks.

General comments on Ofcom's analytical approach to SMP assessments

6.61 In line with its approach in the PIMR, Ofcom considers the competitive conditions in four types of geographic area for Physical Infrastructure services, as follows:

- **Category A:** *BT only areas* - BT's infrastructure passes virtually every premises and there is limited alternative telecoms infrastructure.
- **Category B:** *BT and Virgin media areas* - alternative telecoms infrastructure has been deployed to support MSNs (at present, Virgin Media is the only significant operator with such infrastructure).
- **Category C:** *High Network Reach (HNR) areas (excluding CLA)* - a high presence of alternative telecoms infrastructure has been deployed to supply leased lines ('Category C'); and
- **Category D:** *For example, Central London Area (CLA)* - significantly more alternative telecoms infrastructure has been deployed to supply leased lines than in Category C above.

6.62 Then in a change to its approach, Ofcom concludes that there is a single national geographic market, and instead of conducting three SMP assessments: (i) in BT and Virgin Media areas; (ii) in HNR areas excluding the CLA; and (iii) in the CLA, it carries out a single high level qualitative assessment for the national market, concluding that Openreach has SMP in all geographic markets disregarding any variations in competitive conditions. This enables a closer examination of market power differences in each area to be side stepped. From our viewpoint (and even if we leave aside Ofcom's exclusion of non-telecommunications and mobile infrastructure) Ofcom's approach to its SMP analysis appears too high level.

6.63 In none of its SMP assessments does Ofcom make any mention of other regulation which it imposes, and which constrains BT's market power in the downstream markets e.g. LLU, GEA and LL Access. Under a Modified Greenfield Approach, it is clear from the EC Guidance that an SMP assessment must take account of all specific telecommunications regulation which is in place over the relevant period.[68] Ofcom has failed to do this in the Consultation (as in the PIMR). This demonstrates that Ofcom's assessment is fundamentally flawed because for example, BT cannot have SMP in an upstream service if the downstream service which uses this input is itself subject to strict product and pricing regulation. This leads to double, disproportionate and unnecessary regulation that has distortive effects on the market.

6.64 Further, as discussed above in relation to the product market definitions, Ofcom has not started from an analysis of retail markets as it ought. Had it done so then it would have recognised that where a supplier faces competition in downstream markets from end-to-end suppliers, its control over any upstream inputs cannot be a source of

[67] We are drawing a distinction here between a 'mobile' network which is used to provide a typical 'roaming' wireless service and not one which is used to provide a fixed connection to a designated end-user premises.

[68] The EC Guidance referred to in footnote 8 above states that,

"To this aim, NRAs should take into account existing market conditions as well as expected or foreseeable market developments over the course of the next review period in the absence of regulation based on significant market power; this is known as a Modified Greenfield Approach. On the other hand, the analysis should take into account the effects of other types of (sector-specific) regulation, decisions or legislation applicable to the relevant retail and related wholesale market(s) during the relevant period."

SMP/market power. It obscures, for example, the strength of competition at the retail level imposed on BT by Virgin Media which accounts for about 44% of all broadband connections within its footprint.[69]

6.65 In our view, Ofcom has not made the case that Openreach has SMP in the Category C (HNR) areas nor in additional areas for the very high bandwidth (VHB) segment (which evidence indicates should be assessed separately from the lower bandwidth segment, and indeed constitutes a separate market). Nor has Ofcom substantiated its assertion that SMP which BT may have in certain business markets derives from its control and ownership of physical infrastructure, as opposed to BT having invested earlier and at greater scale than its rivals in telecoms networks to provide business connectivity services. Ofcom's analysis also does not recognise that for there to be a competitive constraint on BT, it is unnecessary for all CPs to be willing to use alternative infrastructure, just that a sufficient proportion can use alternatives to a degree that BT needs to respond (a point which also supports inclusion of alternatives in the market).

SMP assessment in Category B areas – i.e. BT and Virgin Media areas

6.66 In the 'BT and Virgin Media areas', Ofcom states that there are three principal reasons why Virgin Media's physical infrastructure presence does not constrain Openreach's market power being it (i) its lack of ubiquity (ii) non-contiguous postcode locations and (iii) more costly and lower capacity lead-ins.

6.67 Ofcom also states that Virgin Media's presence does not impose a sufficient "indirect constraint" on Openreach in terms of competitive pressure from Virgin Media at the retail level, and in addition, as noted above, Ofcom does not consider that non-telecoms infrastructure is an alternative to Openreach's and Virgin Media's networks and therefore does not exercise sufficient competitive constraints on those networks. We do not believe that Ofcom's assessment is sound and refer Ofcom to the relevant part of our submission to the PIMR consultation[70]; we have also summarised the key points below.

The alleged need for ubiquitous coverage

6.68 Ofcom's view that ubiquitous coverage has a value such that its absence creates a barrier to market entry is not supported by the available evidence – which points to the contrary:

- There is ample evidence that suppliers have been entering telecoms markets for years without perceiving the need to have ubiquitous networks and have, in contrast, usually chosen to target the most profitable customer segments and/or geographic areas. Entry on such a basis has been successful both in the UK and in other countries, and Ofcom has failed to take this important consideration into account.
- Virgin Media has been successful without ubiquity – as demonstrated by its footprint being materially less than 100%. Ubiquity has not been viewed by Virgin Media to be central to its commercial model.
- Suppliers do not need to rely on one physical infrastructure network to address all their customers and often choose a mix of self-build and rental, which demonstrates use of different physical infrastructure does not, in itself, constitute a barrier to entry. Please see the Analysys Mason report for multiple examples.[71]

[69] Virgin Media states it supplies about 20% of all the UK broadband connections. On the basis of the figures set out by Ofcom in Table 3.1 of the Consultation, this is equivalent to approximately 45% of total UK premises.
[70] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/139455/openreach.pdf - please paragraphs 51 to 68 in Openreach's PIMR response.
[71] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/139761/Openreach-Analysys-Mason-report.pdf

- If ubiquity was critical then the network assets of the new infrastructure providers (CityFibre, Gigaclear etc.) would have little (or no) value and such providers would not be able to secure large funding arrangements from the financial markets.[72]

6.69 Also relevant is Analysys Mason's model for network deployment that covers both residential and business connectivity customers in a targeted footprint[73] which concludes that (i) ubiquity (100% coverage network) is not necessary for a CP to benefit from a reasonable payback period for its investments, and (ii) it is beneficial for a CP whose network addresses the residential market to also address the business connectivity market, but the additional benefit, having already constructed a fibre network with wide coverage, will be marginal in most areas.

6.70 In placing so much weight on the importance of ubiquity, Ofcom in effect precludes any role for the ATI Regulations, a position which is inconsistent with the views of the DCMS in its FTIR.[74] Please also see our more detailed comments on the ATI Regulations in response to Question 3.1.

6.71 Ofcom has therefore not established that ubiquitous or near-ubiquitous coverage is required for entry either into business services or entry into business or residual service together. Competition does not require that there is a single ubiquitous physical infrastructure available for CPs to access.

Contiguous postcode analysis

6.72 Ofcom states that those areas where Virgin Media has most extensive coverage, and might therefore offer the strongest alternative to the BT network, are "unlikely to correspond to a desired deployment area and would not provide as much flexibility to expand, relative to the BT infrastructure" and that Virgin Media's business connectivity coverage "is lower than its coverage of all premises (in terms of premises passed)." In effect, these areas are too small to be of interest to network providers, and Virgin Media's coverage is incomplete anyway.

6.73 We strongly question Ofcom's assumption that a very extensive level of Virgin Media coverage is needed for entrants to have a business case. Virgin Media's own level of average coverage demonstrates that coverage does not need to be 90% or more. Further, it is also the case that even small areas can be attractive to competitors as demonstrated, for example, by Hyperoptic and by suppliers who specifically target high value business sites.

Differences in lead-in costs

6.74 As well as Virgin Media's lower network coverage than BT, Ofcom also points to differences in lead-in costs between BT and Virgin Media as a justification for unrestricted PIA, and that lead-ins from Virgin Media's network would be more expensive for third parties than using Openreach's lead-ins.

6.75 However we refer Ofcom to Analysys Mason's report[75] where they present evidence that (i) the Virgin Media network is usually built much closer to the customer premises, (ii) Virgin Media's lead-ins are not as expensive as Ofcom assume, (iii) such a theorised disadvantage would have impeded Virgin Media's own market entry, but this

[72] Please see for example a press release issued by CityFibre in which it informed the market that it has successfully secured £2.5 billion to expand its fibre network.
https://www.cityfibre.com/news/cityfibre-announces-2-5bn-investment-plan-expand-full-fibre-network-unlock-uks-next-generation-broadband/
[73] Analysys Mason Report, Section 2.1.
[74] Future Telecoms Infrastructure Review, DCMS 2018, page 6 - "DPA can also be complemented by access to passive infrastructure owned by other utilities, where appropriate. Assets from utilities such as power, gas, water, and local authorities should be easier to access, and available for both fixed and mobile use. This not only includes multi-utility ducts and poles, but also potentially pipes in the case of water, sewers and gas. There are existing provisions for this, such as the Communications (Access to Infrastructure) Regulations 2016, but they have had limited success in the UK to date. The Government will carry out a review of these Regulations in 2019 to assess if there are improvements that could be made to further boost investment in infrastructure. Ofcom should also work collaboratively with other regulators to ensure that these opportunities are explored, and barriers addressed."
[75] Analysys Mason Report pages 12-14

has not been the case rather Virgin Media has been extending its footprint significantly all without the need for uDPA and (iv) other utilities generally have ducts, pipes, poles or other facilities that are connected to the customers' premises and can be accessed under the ATI Regulations.

6.76 Furthermore, for many business sites, lead-in cost differences are likely to be small when compared with the value and term of the business contract.

Proportionality

6.77 Differences between BT's and Virgin Media's network characteristics are not such as to justify such radically different regulatory treatment and as a result Ofcom's proposals lack proportionality. Openreach has on average about 11 out of 20 broadband connections in the Virgin Media footprint but has highly prescriptive regulation at multiple points through its value chain; whilst Virgin Media with about 9 out of 20 broadband connections has no regulatory obligations imposed on it.

6.78 Additionally, there are geographies in which Virgin Media has duct and Openreach does not. We believe altnets, and indeed Openreach, might value access to such infrastructure in these areas and Ofcom has not tried to address the issue at all in this consultation.

SMP assessment in Category C areas - High Network Reach (HNR) areas

6.79 We disagree that Openreach has SMP in these areas simply because its network is in place. Whilst competitors may sometimes need to build some limited access infrastructure, this does not mean that Openreach derives market power from its physical infrastructure without a (robust) finding that there would otherwise be SMP in a relevant downstream market.

6.80 Second, as Analysys Mason show in Section 4 and in Annex C of their report, there are many examples of networks that are combined and the argument that ubiquity of PIA is a necessary precondition for competition in business services is clearly unfounded.

SMP assessment in Category D areas - e.g. Central London Area (CLA)

6.81 For business connectivity services in the CLA, Ofcom has already recognised that the market is competitive and BT does not have SMP. Nevertheless, in the WFTMR consultation Ofcom is of the view that there is a barrier to competition including in the CLA because they are assessing BT's position upstream in respect of a wider range of access seekers (than those serving business customers only), including those deploying multi-service networks.

6.82 Ofcom has in effect not made any assessment of actual SMP but simply asserted that there is a need for unrestricted PIA for a supplier "deploying multi-service networks". Such a sweeping approach makes any geographical segmentation of the UK, as presented in the WFTMR, irrelevant. Even where there are multiple networks already providing business services Ofcom still deem that there is a need for PIA solely for business services. Openreach believes that upstream remedies ought to be confined to those situations where there is found to be a lack of competition i.e. where Ofcom has found SMP in a defined market.

Conclusion

6.83 We have significant concerns on the methodology adopted and the analysis carried out by Ofcom to support its conclusions with regard to market definition and its SMP assessments. In particular we find that:

a) Ofcom's approach to defining a market for 'telecoms physical infrastructure' based solely on Openreach physical assets is unsatisfactory, leading to a less than surprising finding of SMP for Openreach on a national basis.

b) In our view, such a finding does not fully reflect the broader options available to access seekers using alternative deployment methods and alternative telecoms/non-telecoms infrastructure (as evidenced by the success of Virgin Media and many other international operators).

c) The consolidation of sub-national markets with clearly heterogeneous competitive conditions into a single national market means that the material differences in market power between areas has not been given sufficient weight in Ofcom's analysis and conclusions.

d) The exclusion of 'mobile' physical infrastructure from the market and SMP analysis is fundamentally flawed if Ofcom view unrestricted PIA as a remedy for mobile operators.

e) Outside of the SMP framework, Ofcom also could and should have focused more attention on opening up such options for the industry by reviewing and setting expectations for the ATI regulations (for example, in relation to levels of charges and other T&Cs, and response deadlines) to ensure they are fit for purpose. This would help Openreach (and other network providers) in scenarios where we have no pre-existing physical infrastructure and hence no market power, such as new build sites and MDUs - and *in extremis* where we are 'locked out' of a site at the build stage by an exclusivity agreement between the serving CP and developer.

6.84 Although we have set out a number of significant concerns above, we are supportive of a proportionate and practical PIA remedy, and our proactive engagement with stakeholders to successfully launch both WLAMR and PIMR variants of the PIA product during a short window in 2019 is strong evidence of our commitment. We will also continue to positively support the development and evolution of the product going forward. However, as we set out in more detail later in this response, we do need:

a) Ofcom to ensure that forward looking PIA rental prices reflect best estimates of our cost base and an appropriate share of the end-user value derived from the use of our physical infrastructure assets so that physical infrastructure cost recovery is shared in a sustainable way, and

b) Ofcom to support Openreach in the operation of appropriate financial and operational controls (such as network adjustment validation) to protect our physical infrastructure assets and ensure scarce resources (both cash and our personnel) are used in an efficient and legitimate way by PIA customers.

6.85 Both of these aspects are critical to us protecting Openreach operationally and financially throughout the next control period and beyond, and consequently the long-term interests of our PIA and end-user customers.

PIA Remedies

6.86 This section considers the general and specific remedies proposed for PIA in Volume 3 of Ofcom's WFTMR consultation, and covers our responses to Questions 3.1, 4.1 and 7.1. The proposed remedies remain closely aligned to those mandated in the PIMR for PIA with very few changes proposed to the PIA product specification.

6.87 Our comments in this section are also informed by the wider WFTMR framework and approach that Ofcom is proposing for regulation across all Openreach products and services. In the light of this, we are able to support the majority of the PIA related proposals made by Ofcom. However, we do make detailed comments on Ofcom's pricing proposals in The PIA charges and price controls section below in response to Questions 3.1, 5.1 and 5.2.

6.88 Our other concerns on PIA specific remedies covered in Volume 3 (Section 4) of the consultation relating to PIA product specific requirements for the Reference Offer including Network Adjustments and Ancillary services are covered under our response to Question 4.1 below.

Question 3.1: Do you agree with our proposed general remedies? Please set out your reasons and supporting evidence for your response.

General Remedies

6.89 We support Ofcom's high-level objectives set out in the WFTMR consultation and are therefore supportive of the range of general remedies proposed by Ofcom. However, we do have concerns which remain relevant to the longer-term position of the PIA remedy depending on demand, customer behaviour and future patterns of usage.

6.90 Our main comments relate to No Undue Discrimination (NUD) and the Internal Reference Offer (IRO), and we also comment on Ofcom's approach to the ATI Regulations as this is also referenced in Volume 3 Section 3 of the consultation.

Requirement to provide network access on reasonable request

6.91 We agree that this is a reasonable remedy to apply to Openreach's physical infrastructure. However, we have points to make on Ofcom's approach to, and our experience of the ATI Regulations (below). We also make further points related to the use of poles in response to Questions 4.1 and 5.1 below.

ATI Regulations

6.92 As Ofcom notes in paragraph 3.7, the ATI Regulations already provide for a telecoms provider to access Openreach's physical infrastructure on fair and reasonable terms - and impose obligations on CPs and other infrastructure providers which could enable viable access to their physical infrastructure subject to fair and reasonable terms and charges.

6.93 As we set out in our response to both the WLA and PI market reviews, we consider that Ofcom has given insufficient weight to the relevance of the ATI Regulations in the past and continues to do so in the WFTMR consultation. Ofcom takes the approach that the ATI Regulations will not address Ofcom's competition concerns, and do not address and resolve any usability issues. Further Ofcom do not explore in any depth how the dispute resolution process enshrined in the ATI Regulations and under Ofcom's control might be used to make the Regulations more effective.

6.94 As we noted in The PIA Market Assessment section, the ATI Regulations recognise that communications networks can utilise a wide variety of civil infrastructures (i.e. mix and match) to build fibre networks and that Openreach is not the sole supplier of suitable infrastructure. For example, electricity distribution network companies (DNOs) own and operate large scale national pole infrastructures. Also, many companies with large civil engineering

infrastructures, such as SSE have to date based communication market entry on utility infrastructure. In short, Openreach's infrastructure is not the only option for CPs.

6.95 Therefore, Ofcom's WFTMR proposals risk continuing the distortion of the market for access to physical infrastructure. In this respect, Ofcom's proposals and very favourable rules on network adjustment cost recovery for PIA product customers means Openreach is very likely to be chosen as the preferred physical infrastructure access provider and other owners of ducts and poles may be foreclosed from the provision of access to physical infrastructure.

6.96 Consequently, the continued emphasis on PIA could also result in an unnecessary duplication of assets and increase in Openreach costs as PIA access seekers are most likely to require Openreach to provide capacity relief or adjust its existing infrastructure knowing that Openreach will be mandated to fund the cost rather than seeking to use any spare capacity available in ducts or on poles of other utility/communications providers, essentially depriving the ATI Regulations of any concrete application and effectively confining them to the statute books.

6.97 The PIA remedy should not 'crowd out' the use of such infrastructures and require the unnecessary duplication of physical networks which adds to overall deployment costs for fibre and for which customers will ultimately need to pay. There is also the potential consequence that unrestricted PIA on attractive terms will effectively preclude use of other infrastructure and that this will be wrongly interpreted in future reviews as providing evidence of no substitutability between physical networks.

6.98 The ATI Regulations clearly show the potential use of 'mix and match' deployment options, which added to a degree of self-build of network segments could lead to product differentiation such as physical resilient point-to-point (PTP) connectivity services to large businesses, as highlighted by CityFibre.[76] It is wrong to argue, as Ofcom does in effect, that because supply side substitution can involve some extra cost then all such options should be "per se" disregarded. In our view, Ofcom have too readily dismissed the potential for its policy objectives to be supported, at least in part, by the ATI Regulations.

6.99 Finally, we note that Ofcom's PIA proposals provide for no explicit safeguards for Openreach in the way that the ATI Regulations do. Moreover, because other network providers will be able to refuse access to Openreach by relying on the safeguards enshrined in the ATI Regulations, Ofcom's proposals create a material risk of distorting competition and may already be doing do.[77] Therefore, we request that Ofcom also considers how best its PIA proposals could reflect the safeguards enshrined in the ATI Regulations.[78]

No Undue Discrimination (NUD)

6.100 We agree with Ofcom's conclusion and reasoning that Openreach should not be required to consume the PIA product on an equivalence of input (EOI) basis. To go beyond this pragmatic approach, as Ofcom notes in paragraph 3.40, would increase costs and generate operational inefficiencies through additional internal hand-offs within Openreach and would likely require costly new systems and processes to be developed. As Ofcom

[76] Analysys Mason Report page 23

[77] For example, we have made little progress to date in agreeing physical infrastructure access with Virgin Media using the ATI Regs as they are currently implemented.

[78] For example, Regulation 4(5) and 6(3)) when it comes to accepting or rejecting a request for access to information and a request for network access. With respect to Section 6(3) of the ATI Regulations, an access provider can refuse access where inter alia, the provision of access raises safety or public health concerns; could compromise the security or integrity of the network; may cause technical difficulties because the proposed access does not comply with recognised standards; or may interfere with existing technologies.

acknowledges, such an obligation could adversely affect both existing services (e.g. LLU, WLR, GEA, Ethernet etc.) as well as Openreach's future ultrafast investment.

6.101 Diverting scarce and skilled Openreach resources (e.g. designers and developers) in this way to re-engineer existing legacy processes and systems would directly impact our ability to deliver on the PIA systems development workstack and the priorities of PIA customers (such as the new API development) in addition to impeding our ability to deliver the benefits of ultrafast technology and innovation to the UK and potentially materially impacting service quality across the board.

6.102 We also fully support Ofcom's previous and more detailed analysis of the issues associated with setting a specific EOI obligation on a sub-set of Openreach activities (namely ultrafast networks).[79] The risks of increased costs, increased complexity, and loss of efficiency in delivering new investment to the UK are multifarious and would not support Ofcom's strategic focus.

6.103 We also recognise and support Ofcom's previous arguments on the difficulties of introducing a second form of 'functional separation' within Openreach.[80] This would be an unnecessary and disproportionate action and introduce an extremely challenging layer of additional regulation given the already significant changes which have taken place with regard to Openreach's legal separation from BT Group.

6.104 The operational reality is that Openreach is not in the same position as an infrastructure investor making a discretionary investment in a new Fibre to the Premise (FTTP) or multi-functional network. Openreach needs to rely on its physical infrastructure to meet all its existing obligations as well as being able to compete commercially with operators that have their own networks and delivery platforms (e.g. TV, cable and wireless).

6.105 Therefore, as Ofcom has acknowledged in its previous PIA related consultations,[81] Openreach's requirements of its own physical infrastructure are necessarily different and more demanding than those of a typical PIA product customer which can freely select where it chooses to use (or not use) Openreach physical infrastructure.

6.106 To date we believe Ofcom's pragmatic approach has worked well. We have worked proactively and openly with stakeholders to be as transparent as possible, and it is of utmost importance that the many commercial, regulatory and legal pressures (including price controls, quality of service and USO regulation) already imposed on Openreach across all its networks (copper, fibre and Ethernet) continue to be borne in mind when reaching a reasonable basis on which to assess our compliance with the NUD obligation.

6.107 We also believe the approach to non-discrimination adopted by Ofcom has been, and will continue to be, beneficial for PIA customers as well as Openreach, as PIA customers have different needs and priorities to Openreach. For example, we were able to implement a new and specifically tailored system for the PIA product at the time of the WLA MR (i.e. a different system to our internal legacy system PIPeR) to proactively enhance the PIA product and enable PIA customers to undertake much more efficient consumption of the PIA product via the Digital Maps

[79] See Ofcom's WLA and PI market reviews.
Ofcom WLA consultation published 6 December 2016: https://www.ofcom.org.uk/__data/assets/pdf_file/0029/98246/Openreach.pdf
Ofcom WLA consultation published 20 April 2017: https://www.ofcom.org.uk/__data/assets/pdf_file/0017/104714/Openreach.pdf
Ofcom WLA consultation published 1 August 2017: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/107195/Openreach.pdf
[80] For example, see paragraph 5.35.1 Ofcom's consultation 'WLA Market Review – Consultation on Duct and Pole Access remedies' published 20 April 2017.
[81] For example, please see Ofcom's explanation in paragraphs 5.28-5.29 of its 'WLA Market Review – Consultation on Duct and Pole Access remedies' published 20 April 2017.

system. PIA customers were able to plan and record network deployments in a comparable manner to Openreach but using a much more flexible and adaptable system.

6.108 In addition, there are already a significant number of other developments underway which are being progressed with PIA customers and the OTA through the Passives Industry Working Group (PIWG), and these PIA systems developments can only be this agile and reactive to PIA customers' needs because they do not impact Openreach's legacy PIPeR system. And we are now looking to reflect PIA customers emerging requirements for large scale use, by development of new B2B functionality enabling API access to Openreach systems which allows bulk data download, upload and edit, in addition to the many 'Day 2' product and system developments already delivered in October 2019.

6.109 These systems developments are an excellent example of the flexibility (and proportionate nature) of the NUD approach compared to an inflexible EOI obligation. Openreach has been able to work with its PIA customers and the OTA, plus openly share its thinking and progress with Ofcom[82] to develop a system for its customers tailored to access the key physical infrastructure data they require for plan and build.

6.110 Looking forward, it is not easy to identify at this time which new platforms or processes are likely to be designed and implemented from the outset in a fully non-discriminatory way (paragraph 3.73) as even for a relatively recent development such as the PIA Digital Maps system the requirements and priorities of PIA customers were different to those of Openreach.[83] However in line with Ofcom's guidance, we are committed to reviewing all future platform and process developments as they occur and where appropriate ensuring non-discrimination on a forward looking basis. In fact, we have already considered and addressed some initial developments in this way, for example the new reactive pole testing proposals and our longer-term approach to the replacement system for PIPeR amongst others.

6.111 We also strongly support Ofcom's approach to compliance as set out in paragraphs 3.77 to 3.79 and A12.27 to A12.31. As Ofcom is aware, we are committed to working openly with Ofcom on all aspects of compliance including NUD KPIs and other performance metrics requested by Ofcom and our PIA customers. Openreach and industry have already agreed a wide-ranging set of KPIs which are voluntarily reported to all parties (including Ofcom) on a monthly/quarterly basis as required. The two categories of KPIs are:

- Operational (also referred to as service performance) KPIs, which measure various aspects of the PIA product's performance, and each CP's use of PIA;
- No Undue Discrimination (NUD) KPIs, which compare PIA metrics to equivalent Openreach 'own-use' products (e.g. Fibre Cities/Towns programme and/or Ethernet operations).

6.112 An example of the current level of performance is shown in Table 6.1 below. Current performance indicates that there is no indication of discrimination at this time, and we will continue to publish these NUD KPIs on a quarterly basis going forward.

[82] Including at the CEO level meetings chaired by Ofcom – for example at 11 February 2020.
[83] As an SMP provider of a full range of telecoms services throughout the UK Openreach requires significantly more detailed and national scale inventory information available for all technologies and at all layers of the network architecture (both physical and active), whereas a PIA customer is looking for specific physical layer information often in a specific geographic area to link into its own infrastructure inventory.

Table 6.1: Network Adjustment NUD KPIs Q4 (Jan-20 to Mar-20)

Network Adjustment NUD KPI	PIA	Openreach Comparator
Mean Time to Provide (working days)	28.9	53.1
Time to Verify (working days)	1.2	10.5
Performance vs CCD%	88.5%	64.8%
NA Invalid %	22.4%	0.5% - 3.4%

Source: 2019-20 Q4 Openreach PIA Comparator Report.

6.113 Openreach has worked extensively with stakeholders to produce the current set of KPIs, and we are committed to continuing to work with stakeholders to improve and enhance these reports. To date, PIA performance is at a very high level[84] both for operational and NUD KPIs, and therefore there is no obvious need for any intervention (as illustrated above). Additionally, Openreach's continued commitment to openness and transparency will enable Ofcom and industry to continue to monitor Openreach's progress against the NUD KPIs.[85] And we are also open to refining and adding to the substance and detail of the Internal Reference Offer (IRO) which was published on 1 April 2019 and updated on 1 August 2019 to incorporate the PIMR related changes.

6.114 Given our understanding that the primary policy objective underpinning the proposals for the WFTMR PIA product is still to support widespread fibre investment in the UK (both residential and business) we intend to continue to look to Openreach's 'Fibre First' towns and cities programmes and Ethernet services (where appropriate) to be the primary benchmarks for us to assess the NUD obligation.

6.115 We also note that there is an important line to be drawn between (i) access to the physical infrastructure layer of Openreach's network and (ii) Openreach's own innovation in active network plan and build techniques. Openreach needs to be able to maintain the incentives to innovate and differentiate in the plan and build of active networks, without having to make these available to PIA customers. We drew out some of these distinctions in a meeting between Ofcom and Openreach on 8 January 2020 and also followed up with a presentation at Ofcom's CEO session on 11 February 2020.

6.116 If we are unable to maintain these important distinctions, there is a tangible risk that the NUD obligations will distort real network competition and fail to deliver long term and sustainable benefits. Openreach already faces significant commercial and technological pressures at this time from competing networks and platforms (namely cable, mobile and satellite) and we must be able to respond quickly, effectively and legitimately to such changes in technology and the market.

Internal Reference Offer (IRO)

6.117 We support Ofcom's proposal for Openreach to produce an Internal Reference Offer (IRO).[86] The WFTMR proposes that Openreach should not be required to purchase its own PIA product on an EoI basis, as this could increase

[84] It is recognised that the existing high levels of performance will normalise to some degree in-line with overall Openreach levels when higher PIA demand materialises, ONSA contractual arrangements are rolled out and Openreach resourcing levels are matched and optimised for the medium to long term.
[85] However, it should be noted that the current PIA volumes are significantly below the future anticipated demand for the product, and therefore it is essential that large scale multi-CP operational experience of the product is gained prior to drawing long term conclusions from KPIs.
[86] See WFTMR Volume 5: Draft Condition 7.9.

costs and require new systems and processes to be implemented within Openreach, as well as potentially impacting Openreach's ability to invest in new fibre networks. Instead, Ofcom proposes a 'No Undue Discrimination' obligation for PIA. Therefore, we fully understand the need to support such regulation by increasing transparency of Openreach's internal operations and enabling comparison with the terms and conditions of our PIA product.

6.118 We did this for both the launch of the WLAMR PIA product on 1 April 2019 and the updated PIMR PIA product on 1 August 2019. Therefore, we fully expect to have to do this for any changes introduced by the WFTMR and as appropriate during the next control period.

6.119 The document represents a comparison of PIA with those systems and processes that we apply where we use existing physical infrastructure. In this context, we have looked to Openreach's Fibre First towns and cities FTTP programmes as the primary benchmark as the key policy driver behind the PIA remedy was to support, where viable, further third party FTTP investment in the UK.

6.120 However, as we move forward, we will look to document comparisons with Ethernet services where appropriate. Additionally, we aim to add further transparency by documenting recent developments associated with our NUD KPIs. In any case, the IRO will be subject to further development and refinement on an ongoing basis, and regular updates produced, as and when changes occur to the PIA product or Openreach's internal use of physical infrastructure.

6.121 Finally, we note that the IRO exercise would be very straightforward if a downstream part of BT outside Openreach purchased the PIA product, as it would in all likelihood be sold on an EoI basis (and only trivial differences would need to be identified). However, because the NUD obligation reflects a virtual internal boundary within Openreach, then the IRO exercise is necessarily much more difficult (and subjective) as there is no internal network access PIA product purchased by Openreach from itself. Additionally, and as Ofcom has previously acknowledged, Openreach's legacy systems and processes do not recognise such a virtual internal boundary within Openreach.

6.122 Further, a comparative task like the IRO becomes even more challenging if there is no recognition of the huge complexity and profusion of Openreach's internal systems, processes and operations across all its different technologies (e.g. copper, broadband, business connectivity etc.). This is further compounded by the variation in the way these technologies are deployed (e.g. pre-planned roll outs, on demand services etc.). Therefore, we do look to our stakeholders to be pragmatic and help us prioritise which operational activities and technologies have the greatest relevance to the PIA IRO and we will look to add a greater focus on those elements going forward.

Other General Remedies applying to PIA

6.123 We support Ofcom's proposed General remedies relating to new network access, publication of a Reference Offer, notification of changes to charges, terms and conditions, notification of technical information, and quality of service (QoS).

6.124 We have set out more detailed comments regarding QoS and PIA in response to Question 7.1 below.

Question 4.1: Do you agree with our proposed specific PIA remedies? Please set out your reasons and supporting evidence for your response.

6.125 We support Ofcom's high-level objectives set out in the WFTMR consultation and are therefore supportive of the range of specific remedies proposed by Ofcom. However, we do have concerns which remain relevant to the longer-term position of the PIA remedy depending on demand, customer behaviour and future patterns of usage.

6.126 Our main comments relate to the conditions covering the unrestricted PIA product, Network Adjustments, Financial Limits, and PIA specific requirements for the Reference Offer. We also comment briefly on a related topic raised in Annex 11 of the consultation 'Potential adverse effects of the physical infrastructure access remedy'.

Specific access obligation to provide PIA including network adjustments

6.127 Please see our response on market definition and the assessment of significant market power in The PIA Market Assessment section of this response. We accept the underlying logic of Ofcom's WFTMR PIA product proposals, and the regulatory function of a PIA remedy, but we still have significant concerns whether the market and SMP analysis presented provides sufficient and robust evidence to underpin such a geographically, technologically and product market wide unrestricted remedy.

6.128 In light of our experience of how CPs are interpreting the 'unrestricted' nature of the remedy we also have concerns regarding the approach that Ofcom has adopted regarding usage restrictions. This is already triggering some confusion and potential conflict with PIA customers.

6.129 This lack of clarity is particularly relevant to pole access, as the 'unrestricted' regulation potentially impacts pole infrastructure more severely than underground infrastructure, because overhead plant has different prospective applications and potential for product/technology substitution but is also more likely to be capacity constrained.

6.130 This is also important with respect to the finding of SMP on all Openreach physical infrastructure. There is a distinct difference between the substitutability of overhead non-telecoms infrastructure for telecoms infrastructure, compared to the substitutability of underground infrastructure. This is critical when considering which technologies (e.g. FTTP or mobile) should get higher prioritisation with regard to space on fixed telecoms infrastructure.

6.131 For example, an underground lead-in build for a fixed telecoms network may be an efficient option to deliver an FTTP connection to a premises (for Openreach or a PIA customer), but the same argument does not apply at all when considering the use of a fixed telecoms pole used to construct a mobile network.[87] The list of possible substitutes for the fixed overhead infrastructure is vast, and should most certainly include an assessment of the availability and extent of existing mobile/wireless infrastructure – and such infrastructure should not be excluded from the analysis of the market definition or the SMP assessment as Ofcom have done.

6.132 Therefore, although we recognise that future applications are uncertain, as Ofcom notes in paragraph 4.15, further regulatory clarity is now required to prevent confusion and customer conflict, and we request that Ofcom makes clear in its final WFTMR statement that:

[87] We are drawing a distinction here between a 'mobile' network which is used to provide a typical roaming wireless service and not one which is used to provide a fixed connection to a designated end-user premises.

a) The scope of the PIA remedy does not include pole access for equipment being used to build a mobile network, and therefore that 'PIA Pole Adjustment Services' do not apply to any adjustments required to make space on a pole for mobile equipment.[88]

b) Additionally, that the PIA remedy does not apply to other types of mobile/wireless equipment such as traffic monitoring, pollution monitoring and other similar devices as these are not fixed-telecoms services which require regulated access to a fixed telecoms pole, and in many, if not all cases, constitute a private network and not a public electronic communications network (PECN) or public electronic communications service (PECS).

6.133 For these types of applications, we are not prejudging whether it might be possible for Openreach and service providers to reach suitable access arrangements outside the scope of the PIA product, but the primary purpose of the PIA regulatory obligation needs to be clarified urgently.

6.134 More broadly, apart from our particularly critical concerns regarding poles, it is our view that providing unrestricted access to physical infrastructure (and any related activities such as network adjustments) is only justified (and in fact required) to address market power in downstream wholesale fixed access markets (and associated retail markets) and that would be consistent with the economic underpinning for Ofcom's intervention and its policy objective of encouraging UK wide fibre network build. Therefore, we have proposed an amendment (in red) to Ofcom's draft legal definition of 'Physical Infrastructure Access' to make this clear (see definition (aaa) on page 20 of WFTMR Volume 5).

> *"Physical Infrastructure Access" means network access comprising predominantly of the provision of space, anchorage, attachment facilities and/or such other facilities as may be reasonably necessary to permit a Third Party to occupy parts of the Dominant Provider's Physical Infrastructure sufficient to facilitate the establishment, installation, operation and maintenance of [solely a fixed telecommunications] electronic communications network of a Third Party at that location;*

Network Adjustments

6.135 We set out our position in detail on Network Adjustments in response to the WLA and PI market reviews.[89] Our view was that Openreach should only be required to bear the upfront costs of Network Adjustments where there are clear and demonstrable benefits to the Openreach infrastructure and its customers and which are subject to appropriate approval processes and strict financial controls.

6.136 We recognise that Ofcom have taken on board many of our concerns and placed a number of limitations on the obligations in order to reduce the risks to Openreach and its non-PIA customers, and that these have now been carried over into the WFTMR consultation. We strongly support this. This means that:

- A valid 'PIA Adjustment Service' order would need to be necessary, feasible and efficient (paragraph A12.6).

[88] If reasonable limits cannot be placed on these obligations the situation has the potential to become even more complex and costly. For example if mobile (or other non-fixed telecoms equipment) takes up the last usable space on a pole then this is likely to generate a 'knock on' effect and Openreach may need to incur additional costs and use of scarce operational resource to free up space for PIA FTTP customers or even have to build new capacity to deploy its own FTTP network.

[89] See Ofcom's WLA and PI market reviews.
Ofcom WLA consultation published 6 December 2016: https://www.ofcom.org.uk/__data/assets/pdf_file/0029/98246/Openreach.pdf
Ofcom WLA consultation published 20 April 2017: https://www.ofcom.org.uk/__data/assets/pdf_file/0017/104714/Openreach.pdf
Ofcom WLA consultation published 1 August 2017: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/107195/Openreach.pdf

- It would also need to be within Openreach's existing physical infrastructure footprint, and a permanent adjustment (paragraph A12.8).
- Such adjustments should not be expected to *'resemble the construction of new parallel physical infrastructure'* (paragraph A12.8), for example large amounts of new capacity or long lengths or new poles.
- The important distinction between CP network build/installation activities and physical infrastructure network adjustments is also maintained.[90]
- Financial limits should continue to be applied.
- Openreach should decide the most efficient way of undertaking network adjustments (paragraphs A12.22-A12.24), and
- The obligations to undertake pole adjustments also remain limited to those which are defective and unusable or at maximum dropwire capacity.

6.137 Therefore, given that the WFTMR proposals incorporate these network adjustment principles we are able to support the WFTMR network adjustment remedy in broad terms.[91]

6.138 However, many of the operational and financial concerns we have raised previously still remain. Although we have now established highly efficient controls which are performing well for PIA[92] our experience of how some CPs approach the network adjustment process have not yet fully allayed our concerns. The majority of PIA customers fully understand our need to maintain appropriate controls and work with us to implement and operate them, but some do not, and attempt to undermine reasonable controls that they themselves would be legally obligated to apply in their own businesses. The situation has moved on considerably, but key concerns still remain:

a) *PIA customers need to have incentives to build efficiently* – A key concern for Openreach is that the network adjustment obligation and existing high level of the financial limit means that PIA customers are not subject to the same incentives as Openreach when it comes to minimising civil engineering costs.[93] Network adjustments should not be a 'digger's charter', and PIA customers must proactively drive down the incidence of unnecessary civils/skilled engineering jobs that Openreach has to carry out and pay for, in the same way that Openreach does for its own programmes.

b) *The Network Adjustment validation process is key* – PIA customers need to take their share of the responsibility to minimise network adjustment requests, and the extent of validation that we need to do. On our part, our processes need to be efficient/timely in approving valid adjustments, but also strict enough to prevent invalid or fraudulent orders. We believe our current KPIs are indicative of our commitment to do that (please see Table 6.1 above). We are also keen to continue working with customers and the OTA to further develop and roll-out the 'Path to Collaboration' framework to streamline the validation process.

c) *Accurate and detailed forecasting is essential* – We will not be able to resource for large PIA customer *projects* by geography unless customers commit and provide reasonable forecasts with sufficient lead-times

[90] Cable installation tasks being classified as temporary adjustments and therefore the responsibility of the PIA customer in terms of operations and costs.
[91] We consider that further limitations or changes may be required in the longer term, for example the points we make on financial limits and application to leased line only PIA network adjustments under questions 6.1 and 6.2 below.
[92] Please see the comparative NUD KPIs shown in Table 1 in response to Question 3.1.
[93] Hence there is still significant time and cost expended in dealing with 'fringe cases' where CPs are incentivised to try and characterise jobs as network adjustments rather than capacity related - because they are unwilling to incur any costs.

and report on what they have actually built to allow us to compare and update our records. We do this ourselves when carrying out similar scale or regionally focussed projects.

d) *Potential effect on the availability of civil/skilled engineering resource* – Linked to the forecasting point above if customers provide inaccurate forecasts in total and by geography that will mean inaccurate resource provision in total and by geography by Openreach and its civils partners. Needless to say, the civils and skilled engineering resource available to Openreach will also depend on the overall demand for, and supply of, civils/skilled resource in the UK. This is particularly critical in relation to the availability of overhead skilled resource, and more broadly has been materiality impacted by both 'Brexit' related developments and the Covid-19 crisis. It is therefore vital that there is an element of openness and transparency from CPs to ensure orders are placed in such a way as to avoid and limit unnecessary and inefficient costs.

e) *The capacity of Openreach's physical infrastructure*:

   (i) Openreach ducts, poles and chambers are not designed or built to house multiple CPs' full fibre networks. Beyond a certain level of demand the existing physical infrastructure will *not* be able to be adjusted to accommodate further CP equipment, and it is likely that new parallel infrastructure will be required. Investors and stakeholders need to recognise and budget for this in their investment plans.

   (ii) Conflicts over space availability are also almost certain to occur (particularly in relation to poles) and Openreach will need Ofcom's support to prioritise based on the key policy aims of PIA (e.g. FTTP vs mobile or other as yet unspecified applications) and other factors such as order priority (e.g. first come, first served) and/or whether equipment is actively being used to serve end-customers rather than as a 'land grab' of a scarce resource.

f) *Efficient overhead final drop processes*:

   (i) There is still significant work to do as an industry on determining best practice to enable multiple CP overhead drops. For example, it is still not clear whether complete removal of copper connectivity on fully loaded poles is the most efficient way forward, and what this could mean for copper regulation and how it would impact on CPs and end-customers (i.e. new copper connections would be more costly if Openreach copper is removed by a fibre provider).

   (ii) There are also new and innovative solutions which may offer CPs and Openreach more efficient options for utilisation of space (such as 'back to back' pole brackets which could be adopted). We look to Ofcom to support Openreach in agreeing pragmatic processes which do not generate disproportionate costs for Openreach, or adversely impact our ability to meet our existing obligations and invest in new networks.

6.139 In our view, there remains a lack of realism in some parts of the industry that they need to take the overall level of civils/skilled engineering work they generate as seriously as Openreach does. Openreach needs at a minimum to have a reasonable financial limit for ducts and poles, and strong financial and budgetary controls and authority over any costs incurred (per job and in total). It should be expected that we will not accept requests or pay for invalid network amendments including those which we reasonably believe are not efficient or in the circumstances feasible. Neither should we be expected to pay for adjustments which have not been completed, or not completed in adherence with the appropriate engineering standards. We look to Ofcom to support us on this through the next

control period and beyond, so that we are able to protect Openreach operationally and financially (and the interests of all its customers and end-users).

6.140 We consider that the more civil engineering tasks (including network adjustment type activities) that CPs are able to carry out and fund for themselves, and are incentivised to carry out, the better the outcome for both Openreach and CPs. We note that Ofcom also considered this as potentially the most effective means of deployment in the WLA market review[94] and that it was particularly relevant where civil engineering tasks were time critical. Such an operational model would not require a Network Adjustment order (for a Self-Provide or Openreach provided adjustment) and would also remove the need for an Openreach validation because CPs are funding the work themselves, and therefore CPs can carry out the work to their own schedule. Recent experience suggests that CPs do have both the operational capability and cash flow to work like this, should they choose to do so, given their increasing ability to carry out Self-Provide Orders (SPOs).

Additional cost and resource requirements imposed on Openreach

6.141 We disagree strongly with the Ofcom analysis in Annex 11 and Volume 3 paragraphs 4.21 to 4.31. For any large-scale project, a PIA customer would need to do much more than just provide a simple forecast to Openreach. To enable large civils/skilled engineering activity to be supported, resources would need to be agreed, prioritised and planned jointly in advance with Openreach and its suppliers; that is unless the majority of the responsibility for carrying out and funding such works lay with the individual CP.

6.142 Both Openreach and civils contractors could face potential challenges of resource recruitment, training and allocation, plus sufficient funding would need to be in place for the designated deployment period. Even relatively small projects may have specific and unique requirements for a geographic area and resources may need to be obtained and/or reassigned depending on the nature of the project. Civil engineering partners would also need to carry out similar analysis and planning exercises, and any SLAs/SLGs required on build completion would need to be properly backed off with contractors, with one of the inevitable consequences being higher prices. For large scale projects, there would also need to be reasonable financial and contractual commitments by PIA customers to occupy the infrastructure.

6.143 Ofcom suggests that 'any adverse impacts' on Openreach are justified by significant benefits to consumers in the long run from greater network competition. We do not agree, particularly if PIA customers are not appropriately incentivised to control the civils/skilled engineering burden they place on Openreach. There may be many potential negative impacts on other Openreach services, on the civils supply chain, as well as on Openreach's own personnel. It is not reasonable to take the view that the PIA network adjustment obligations are unconstrained, particularly as PIA creates more complex and costly operational issues to resolve including third party damage and when planning network re-arrangements (for example for major civils projects such as 'High Speed 2'. All potential PIA impacts need to be agreed in the context of Openreach's overall resource capabilities and its other obligations and responsibilities.

6.144 We would encourage more PIA customers to do their own civils work rather than seeking this as an input from Openreach. Openreach faces its own challenges with network deployments requiring civils, as there are so many local factors that are not under Openreach control or under the direct control of our contractors. These include

[94] For example, see Ofcom's comments in paragraphs 6.134 to 6.138 of its 'WLA Market Review – Consultation on Duct and Pole Access remedies' published 20 April 2017

such aspects as natural geography, obtaining wayleaves, street works regulations, and adverse weather to name just a few.

6.145 If there are elements of our processes which could be improved and over which Openreach has control we would be more than happy to work with PIA customers and Ofcom to improve performance on these aspects.

Breaking in and out of Openreach's Physical Infrastructure

6.146 We fully agree with Ofcom's conclusions on this point. PIA customers are likely to deploy hybrid networks (i.e. Openreach plus one or more other infrastructures) using a mixture of Openreach's physical infrastructure and their own infrastructure. Therefore, to make effective use of Openreach's infrastructure, they will need to be able to break in and out of our infrastructure to connect with their own. In addition, the ability of PIA customers to overcome unusable sections of physical infrastructure depends on the ability to do this at appropriate points.

6.147 This industry requirement is provided for by the proposed obligation on Openreach to provide necessary ancillary services, but it is not a Network Adjustment. By definition it is outside Openreach's physical infrastructure footprint and is not required for the purpose of making Openreach's existing infrastructure ready for use, but rather to enable a PIA customer to deploy network into a hybrid physical infrastructure.

Specific requirement to provide PIA ancillary services

6.148 We support Ofcom's proposal for Openreach to provide the PIA ancillary services listed in the draft legal instrument. However, we may need Ofcom support to push back against CPs attempting to overly extend the scope of Openreach's obligations to provide ancillary services – for example by claiming that access to legal agreements such as wayleaves[95] should be construed as constituting a PIA Ancillary Service.

6.149 Please also see our comments on PIA Ancillary products in response to Question 5.1 where we discuss a potential and more flexible approach amending the legal instrument related to PIA Ancillary pricing (Annex to Condition 12A).

Question 7.1: Do you agree with our proposed approach to QoS? Please set out your reasons and supporting evidence for your response.

Physical Infrastructure Access (PIA): QoS standards and Key Performance Indicators (KPIs)

6.150 Please refer to our 'Quality of Service (QoS)' response in Section 8 of this document. Our comments on Ofcom's proposals for PIA are set out in the section headed 'Quality of Service in the Physical Infrastructure Access market'.

[95] In particular, a 'wayleave' is a private contract between a landowner and the holder of the wayleave which grants a right of way to the holder for a specific purpose, generally in return for a fee. Wayleaves are primarily governed by contract, privacy and property law to give due consideration to the rights of landowners, therefore we understand the subject to be outside the scope of SMP regulation and WFTMR access obligations. We are already providing certain specific information to PIA customers related to wayleaves obtained after December 2017 and would be pleased to continue to provide such information where we have the landowners consent and in line with the applicable law and privacy regulations. We also note for the record that certain PIA CPs do not seem to recognise the importance of dealing with landowners in an appropriate way, and that they are required to seek the landowners permission before they enter and work on private land and that in some way PIA entitles them to access private land. We would urge Ofcom to clarify the position and emphasise the importance of PIA CPs working with landowners to explain what they are doing and why and obtain the necessary permissions before they enter their land. In some extreme cases CPs have also falsely claimed that Openreach granted them permission to enter third party property - which we are not entitled to do.

PIA charges and price controls

6.151 This section considers the pricing remedies proposed for PIA in Volume 4 of Ofcom's WFTMR consultation, and covers our responses to Questions 3.1, 5.1, 5.2, 6.1 and 6.2. The proposed remedies are closely aligned to those mandated in the PIMR for the PIA product and Ofcom also proposes to introduce a new 'PIA simplified underground lead-in service'.

6.152 Our acceptance of the pricing approach proposed for the interim period between the introduction of the PIMR control in August 2019 and the new WFTMR control due in April 2021 was based on the understanding that relatively low incremental volumes were anticipated for the interim period, despite the move from a 'mixed usage' to an 'unrestricted' product scope. To date this assumption has proved to be broadly correct. However, we now see potential concerns ahead should significant demand materialise or patterns of usage change significantly.

6.153 In particular, now that Ofcom has revised its costing approach (and also proposed substantially lower PIA pole rental prices and cost forecasts) it is very important that the appropriate cost base and long-term sustainability of the current approach to PIA pricing is addressed in more detail.

6.154 Our comments in this section are also informed by the wider WFTMR framework and approach that Ofcom is proposing for regulation across all Openreach products and services. In the light of this, we are able to support the majority of Ofcom's PIA related proposals. However, the significant changes proposed to some PIA rental prices and the charge control for the period April 2021 to March 2026,[96] means we do have concerns about the appropriate cost base and long-term sustainability of the current approach to PIA pricing.

6.155 Our comments below under the relevant questions address our concerns on the PIA charge control, long term sustainability of PIA pricing, the level of the Financial Limit, removal of cable coil and in-line splice hosting charges, the new simplified underground lead-in product, and PIA ancillaries (both pricing and product specification).

Question 3.1: Do you agree with our proposals in relation to charge control design and implementation? Please set out your reasons and supporting evidence for your response.

6.156 We agree with Ofcom's proposals for a charge control on the rental prices of the PIA product (covering duct, poles and chamber access). We also agree that a 5-year term is appropriate in line with the overriding structure of the WFTMR.[97] We also welcome Ofcom updating its cost estimates for Openreach's physical infrastructure, although as noted above, we have significant concerns whether the costs used fully reflect the forward-looking view, and note the need to update estimates based on the latest RFS data as a starting point

Underground Infrastructure

6.157 We support Ofcom's approach to updating its estimates of costs for Openreach's duct and chamber infrastructure and reflecting the change in approach to allocating costs to different duct services based on more up-to-date data. The application of the new methodology to post-2018 assets is also a reasonable approach as it phases in the change in cost allocation over a more appropriate time period (i.e. the time taken to replace all duct assets) hence

[96] As previously noted in our response to the PIMR - for example see paragraphs 21 to 24 - https://www.ofcom.org.uk/__data/assets/pdf_file/0027/139455/openreach.pdf

[97] We note for the record that some CPs are pressing for much longer-term licences (e.g. 10 - 20 years or even IRUs which Openreach would be unable to terminate). Clearly such arrangements are not consistent with a 5-year market review and control period.

smoothing the path of prices and only generating a modest difference between price and costs for all services. In this respect, we also support Ofcom's proposed use of a glide path to cost in the final year of the charge control.

6.158 We do make further, more detailed points about duct and chamber costs in our response to Question 5.1 below, where we note our view of the longer-term cost profile and potential changes to Openreach's fibre investment plans which could significantly impact the value of Openreach's physical infrastructure asset base.

Overhead Infrastructure

6.159 With regard to poles, we acknowledge that Ofcom have recalculated the costs of providing access to Openreach's pole infrastructure, and that we have worked very openly with Ofcom to help analyse and disaggregate pole related costs.[98] This in turn has enabled Ofcom to base its analysis on better and more granular cost information for providing access to poles and also in identifying certain cost items that are not appropriate to pole access.

6.160 However, as we set out in more detail in response to Question 5.1 below, we believe the analysis has not resulted in the correct level of costs being attributed to our pole assets due to a combination of factors, but primarily the use of the 2017/18 base year which we believe is unrepresentative of the overall level of pole costs, and the continuously evolving cost base for pole assets in the longer term. These trends need to be captured and better represented in the PIA starting charge and charge control models.[99]

6.161 We therefore propose that Ofcom should incorporate the latest cost information provided by Openreach into its PIA pricing model and also reconsider whether such a large starting charge adjustment remains appropriate. For our part we are aligned with Ofcom on recognising the benefits of pricing predictability, both on poles and more generally for PIA services, but we consider that on balance price predictability would now be better served by a more moderate price adjustment throughout the next control period in line with the approach we propose in our 'WFTMR Pricing Remedies' response in Section 9 of this document. Our comments on the PIA Rental Charge Control are set out in Section 2.

6.162 Given the level of uncertainty that still remains on take-up and how poles will eventually be used operationally by PIA customers (including specifications and standards of equipment), a gradual change would better serve the market and provide greater predictability of costs.

6.163 We also make points about longer term sustainability of pricing in response to Question 5.1 below

Question 5.1: Do you agree with our proposals relating to calculating PIA rental charges? Please set out your reasons and supporting evidence for your response.

6.164 In WFTMR Volume 4 Chapter 5, Ofcom sets out its proposals for regulating a range of PIA prices. These include:

- PIA rental prices,
- PIA ancillary services,

[98] As Ofcom acknowledge in WFTMR Volume 4 paragraph 5.17.

[99] For example, costs such as maintenance (e.g. testing and renewal), damage, and diversionary works need to be covered adequately. Additionally, we should recognise that as PIA usage scales then Openreach's costs of maintaining PI (not just enabling it) will also increase, creating additional costs for Openreach that we would not ordinarily incur (e.g. in the event of replacing a pole with non-Openreach kit installed we necessarily incur additional co-ordination costs and/ or delay whilst we organise communication and cooperative works with the owner of the CP network.

- Network Adjustment charges,
- Cable coil and in-line splice hosting charges and
- The introduction and pricing of a 'new simplified PIA lead-in service'.

6.165 We consider each of these aspects in response to this question, except for comments related to the new simplified PIA lead-in service which are covered in our response to question 5.2 below.

PIA Rental Prices and Charge Control

Overview

6.166 In WFTMR Volume 4 Chapter 5, Ofcom proposes to regulate the maximum individual rental prices for PIA services using a series of starting charges and ongoing CPI-X% controls. Ofcom is of the view that the maximum charges established and the associated controls will enable Openreach the opportunity to recover its efficiently incurred costs and ensure a level playing field exists between Openreach and competitors using the PIA product for the period April 2021 to March 2026.

6.167 As of today, the costs of our physical infrastructure (PI) assets are almost entirely recovered from our provision of active services.[100] The costs of physical infrastructure assets are attributed to services within our regulatory accounts and, where active services are charge controlled, these attributed costs will be included within Ofcom's modelling of the forecast costs of supply of those services. Where active services are not charge controlled – for instance, in effectively competitive markets – prices will still need to be set at levels that support full recovery of physical infrastructure costs.

6.168 We currently have a fairly detailed rental pricing structure in place for PIA services with, for instance, different per metre prices for different duct types (lead-ins, single-bore, dual-bore and multi-bore), entry to junction boxes and manholes and various prices for using Openreach poles. Price levels have been set by reference to derived unit costs[101] based around a combination of current utilisation of assets in support of Openreach active services and assumptions about how use of different physical infrastructure assets (i.e. ducts, pole and chambers) might be shared in the future.

6.169 We understand Ofcom's intention is to set a range of controlled rental prices that, if paid by all users of the passive physical infrastructure (including Openreach), would be expected to recover the efficiently incurred costs of granting access to the relevant assets and making them available for use – i.e. if considered on a stand-alone basis, the passive PI part of the Openreach business would earn a fair return on those physical assets and support ongoing investment in the assets such that the PI layer of the network is capable of being maintained and meeting Openreach and PIA customer demand. This seems a relatively uncontroversial conclusion and one that both Openreach and Ofcom should be able to agree on.

6.170 However, the extent to which the rental price controls proposed will fully support cost recovery for our PI assets is sensitive to:

[100] Although use of PIA is growing very rapidly, at the time of this consultation the use still represents a small proportion of Openreach's own use (~ 1%).
[101] Including a return on asset values, depreciation, maintenance costs and attribution of overheads.

a) The number of network investors actually sharing the different types of PIA services: e.g. how many network providers will seek to access our multi-bore ducts when building their new networks; and

b) The volume of each PIA service they purchase – e.g. metres of duct, number of 25mm sub ducts in each duct type, pole attachments, space utilisation and size of equipment in chambers etc. required to support the provision of their active services over the networks they build.

6.171 Therefore, there are various dynamics that may play out over time in terms of the use of our PI network and the nature and pace of alternative network build – for example the extent to which PIA customers deploy multi-functional full fibre network builds at scale versus more targeted use of 'unrestricted' PIA to provide high value business connectivity services (or many other business models). Furthermore, our own use of the physical infrastructure will change over time as we replace copper connections with full fibre. Many scenarios are possible.

6.172 If actual consumption of our PIA services from own use and new network providers is lower than that required to support cost recovery at the passive physical infrastructure level – i.e. lower than the data used on occupancy and assumed number of networks sharing assets in calculating the forward looking PIA rental prices – then we may face a cost recovery problem.

6.173 For overall cost recovery we would need to attempt to make up the shortfall from revenues from our active services, and this could create an unlevel competitive playing field as the Openreach active network would effectively be paying (i.e. imputing such costs into its business cases) higher charges than PIA customers sharing our physical infrastructure assets. Given that network providers using PIA will be aiming to gain a significant share of active revenues and placing downward pressure on active prices, this may then become unsustainable – i.e. we will be unable to maintain active prices at levels that can support the revenues needed to make up any shortfall in cost recovery at the passive PI level.

6.174 Therefore, given these uncertainties, the approach to controlling the maximum PIA prices in the WFTMR raises significant concerns about how a reasonable opportunity to recover PI costs can be supported. Openreach cannot be in a position where we have to provide access to our PI on terms that will not support cost recovery on long lived assets.

6.175 Although PIA volumes are now growing rapidly, they are still likely to be at relatively modest levels in the short term. As such, the materiality of 'errors' in the assumptions used to set maximum prices and leading to risk of under-recovery will increase over time.[102] Consequently, we are concerned that the price structure and price levels in place today may not be fully robust in the longer term i.e. in the next 5 year control period from April 2021 to March 2026, and beyond.

6.176 While Ofcom signals the need to provide longer term certainty to potential network investors as they consider where and how to use our physical infrastructure which we support, we also note that long term cost recovery is critical to Openreach and very sensitive to the way the factors highlighted above play out over the next decade and beyond. Therefore, it is critical that a more robust and broader review of PIA rental pricing is concluded before the new charge control comes into force in 2021.

[102] However, we do also note for the record that CPs do not start paying rental to Openreach until they go through the 'Build Complete' process for their project. This does not incentivise timely reporting by CPs and means that there can be a substantial time lag between CPs occupying Openreach's infrastructure and paying for it (which could typically be a 12 to 18-month period).

6.177 At a minimum this needs to fully reassess and take account of Openreach's forecast costs and usage assumptions for the control period, as regulated prices should always be set on a reasonable expectation that they would support efficient cost recovery during the period under review.

6.178 But the WFTMR pricing review should also consider the risks to Openreach cost recovery given major uncertainty about how the market will develop, the number of competing CPs, the shifts in market share, end-customer demand changes (to name just a few). Ofcom should assess options for eliminating or mitigating such risks through the design of the rental pricing controls and/or the way they are applied.

6.179 In the long run, full cost recovery on our physical infrastructure assets will be threatened if the share of PI usage costs paid by individual network operators which utilise Openreach's PI assets is able to diverge and become entirely disproportionate from the share of total value those operators derive from the assets.

6.180 This is not a simple problem to resolve, but further consideration of how a PIA rental pricing approach could be developed, which at least in part reflects the share of active market value gained by network providers sharing the assets is required. However, we recognise that this would also have to be tempered to some degree by the relative utilisation of Openreach PI by the PIA customer compared to Openreach own use.

6.181 In its Final Statement on the WFTMR, Ofcom should be clear about its position on these issues and set out clear principles for how it will approach the longer-term cost recovery issue. Specifically, we would like to see statements confirming that any price levels/structures for PIA rental pricing set beyond 2021 will always be designed to (a) provide a fair opportunity for Openreach to recover efficient costs of maintaining a set on physical infrastructure assets that can be shared by network providers and (b) ensure a level playing field for the provision of all active services between network providers.

6.182 Ofcom should be clear that this would require:

a) Agreement about the starting value of PIA assets in place today and the allocation of asset values between the different elements sold.

b) A reasonable forecast of additional investments required to support shared access over the period of each subsequent pricing review. This would at minimum include network adjustment and productisation costs. Given the level of uncertainty, Ofcom could consider explicit triggers to ensure that Openreach is not left materially exposed to forecast errors on these amounts given the current lack of robust forecasts from PIA customers.

c) A commitment to ensuring prices are set in way that shares cost recovery fairly across users of the assets and acknowledgement that, in the longer-term, the level of contribution made by each network sharing the assets reflects, at least in part, a fair share of value of active services that those networks are deriving from their use of Openreach PI assets.

Detailed comments on Ofcom's Proposed Charge Control Methodology and Calculations

6.183 Please refer to our response to Question 5.1 in Section 9 of this document (Pricing Remedies) for our detailed comments on the PIA rental charge control.

Removal of cable coil and in-line splice hosting charges

6.184 Ofcom sets out its proposals to remove 'cable coil and in-line splice hosting' rental charges in paragraphs 5.39 to 5.44 of Section 5, and summarises the reasoning behind its proposals as follows:

- The cable coil and in-line splice hosting charges are assumed to contribute little to the recovery of footway box costs.
- The charges add to the complexity of the PIA product without making a material contribution to cost recovery.
- The charges are based on a number of working assumptions which are difficult to verify.
- Although the charges may incentivise CPs to make efficient use of space inside footway boxes, Ofcom considers Openreach can control this by the use of engineering rules (as yet unspecified).
- Openreach could include a provision in its Reference Offer that requires CPs to remove unused equipment if required.

6.185 However, PIA customer's use of the hosting products and our systems capabilities have evolved very rapidly, and our view is that setting the charges to zero is not the best way to respond to the challenges set out above.[103] Therefore, we strongly disagree with Ofcom's proposals as they currently stand, and in particular with respect to the 'Customer Apparatus In-line Splice hosting and Distribution joints' product. We set out our reasoning below.

Overview of the products

6.186 There are eight Openreach product variants affected by Ofcom's proposals which are:

a) Customer Apparatus In-line Splice hosting and Distribution joints (2 variants – per joint box or manhole hosting)

b) Customer Apparatus Cable Coil Hosting (6 variants - small, medium and large - per joint box or manhole hosting)

6.187 These products are currently used to charge PIA customers rental to host equipment and/or facilities placed in Openreach's underground physical infrastructure - namely cable coils, in-line splice joints and distribution joints placed in manholes and joint boxes.

Our concerns with the proposals

6.188 PIA customers are now purchasing a far greater volume of these products (particularly 'Customer Apparatus In-line Splice hosting and Distribution joints') whilst also recording the volumes more comprehensively in our inventory systems. Our most recent estimate indicates that billed annual rentals for 2019/20 are expected to be of the order of £[✂], the vast majority being due to 'Customer Apparatus In-line Splice hosting and Distribution joints' i.e. product (i) above.[104]

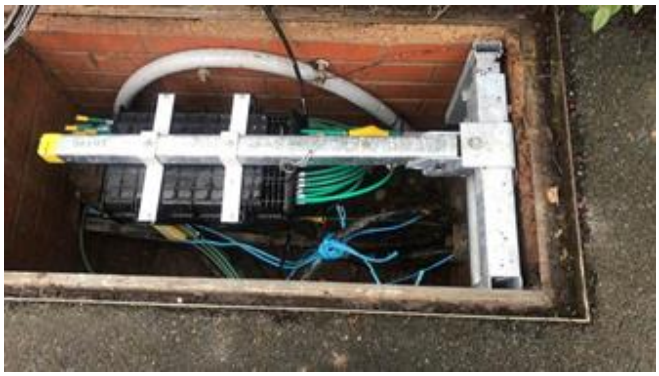
[103] Ofcom did not discuss this proposal with us prior to the publication of the consultation which would have enabled us to share some of this information at an earlier stage.

[104] The six 'Cable Coil Hosting' products recorded by PIA customers accounted for less than £[✂] p.a.

6.189 We expect demand for this product to continue and volumes to rise as PIA customer network build increases. Also as CP and Openreach ordering, inventory and billing systems mature (for example with the planned API and bulk data functionality) the CPs' capability of accurately recording where its equipment locations is expected to continue to become simpler and more comprehensive over time.[105] Therefore it seems both a logical and reasonable basis for a direct cost recovery rental charge. Additionally, even if the charges were set to zero, which we disagree with, CPs would still need to record the location and type of equipment placed in our physical infrastructure, for planning, security, and operational reasons, so there is likely to be little operational benefit gained by CPs from removing the charges.

6.190 We also think the proposal as it stands is too blunt given the possible extremely large differences in equipment size and consequential occupancy of Openreach's infrastructure. Please see the Figure 6.1 below which shows an optical distribution joint in a joint box:

Figure 6.1 – Optical Distribution Joint



Source: Openreach

6.191 All CP kit (coils, in-line splice and distribution joints) will vary in size or specification, but it is clear that certain items will have a much larger occupancy than others, and in some cases constitute the predominant or even entire usage of the physical asset. Therefore, any action, such as the removal of hosting charges which could give rise to inefficient cable designs being deployed, with consequently more distribution/in-line splice joints occupying large volumes of space for which no rental charges are paid (i.e. a 'free' facility) is deeply concerning.

6.192 Therefore, it is essential that the PIA rental charging (and cost recovery mechanism) recognises this usage in a direct way to incentivise the efficient use of space and good engineering practice. This becomes even more important in the light of Openreach's network adjustment obligations where 'free' use of key assets and scarce resources such as these could lead to direct cash costs for Openreach to repair infrastructure and increase capacity and very likely lead to increased overall PI costs and operational conflicts.[106]

6.193 Our view is that a reasonable charging system for equipment/facility hosting is the minimum required to incentivise the right behaviours in deploying efficient network cable designs (plus enhanced engineering rules as Ofcom suggest). We also note Ofcom's comment that Openreach could include a provision in its Reference Offer that requires CPs to remove unused equipment if required and we welcome and support such advice. However, to date

[105] However, it will still be important that CPs focus on recording locations comprehensively and correct any differences in location between their initial NoI and the actual and final Build Complete location.

[106] There are already examples where our costs have been driven up by potential CP usage. We have already had to change our joint box dimensioning policy to ensure we can prospectively cater for PIA customers splitter/distribution joints on New Sites) therefore incurring more costs deploying larger sizes of joint box, rather than risk incurring subsequent network adjustments (by having to demolish and rebuild joint boxes to increase space capacity).

we have not found stakeholders to be supportive of contractual measures which give Openreach the ability to trigger such corrective actions and therefore cannot foresee such measures being effective on a stand-alone basis at this time.

Potential Next Steps

6.194 We recognise that a degree of PIA rental price simplification may be useful if implemented carefully, and also that there are challenges in calculating the appropriate cost allocation for these products, but these issues are not insurmountable to overcome.

6.195 At this point, our major concern would be the inability to charge for Distribution Joints, and therefore our priority is for that to be corrected. The solution would also need to examine the various sizes of equipment which could be deployed as some kit with installed with the required fixings (such as the MOBRA arm illustrated in Figure 6.1 above) may occupy the entire space. However, there may also be ways of simplifying the other hosting charges without removing them altogether. For example, the six variants for 'Cable Coil Hosting' do not currently raise significant revenue, and therefore it may be reasonable to simplify them into less variants (or perhaps a single charge) as long as CPs continue to record the location and usage data in Openreach's inventory systems. As demand grows, this data would enable a more informed decision to be made for the following WFTMR control period (i.e. from 2026).

6.196 Therefore, we would like to discuss possible options and solutions further with Ofcom prior to a final decision being made on the PIA charge control. In preparation we will continue to review possible data sources (e.g. CP and Openreach volumes) and cost allocation methodologies which may be of assistance in developing a more aggregated and focussed range of cost-based hosting charges. We would look to share those with Ofcom at the earliest possible opportunity.

PIA Ancillaries

Introductory Comments

6.197 Before addressing the main body of the PIA Ancillary discussion in Volume 4 Section 5 of the WFTMR consultation we set out some specific comments regarding the relevant section of the draft legal instrument (Volume 5 Condition 12A).

6.198 Ofcom sets out in the Annex to Condition 12A (parts 1 and 2) two lists of what are considered to be the relevant products and/or services which constitute 'PIA Adjustment Services' and 'PIA Pole Adjustment Services'. Additionally, Ofcom proposes a change control mechanism which applies to both lists. This states:

> *'For the purposes of Condition 12A, the expression [PIA Adjustment Services/PIA Pole Adjustment Services] shall be construed as including the following products and/or services subject to such changes as Ofcom may direct following any proposal by the Dominant Provider to introduce a new product and/or service or to substitute one or more of these products or services for another'"*

6.199 As we explained in the meeting between Openreach and Ofcom on 5 March 2020 the PIA product rapidly evolving to meet CPs needs as are Openreach's own operations and our contracts with our civil engineering partners (i.e. the new Openreach Network Services Agreement (ONSA)).

6.200 This means that there is likely to be a constant and ongoing need to add, remove and substitute for services currently listed in the Annex, and as discussed at the meeting the practicalities of Openreach making multiple proposals and Ofcom having to direct each change (potentially based on a series of consultations) would likely be complex and resource intensive for all stakeholders, and not be beneficial for CPs and/or Openreach.

6.201 The current range of services is already supplied by Openreach, and any proposed changes to the list would be made by Openreach in the light of feedback from PIA customers and the OTA via the industry group and multi-lateral/bi-lateral meetings as required.

6.202 We therefore request, as discussed at the meeting of 5 March 2020 that Ofcom consider whether a more flexible, timely and less resource intensive approach could be adopted. In broad outline such an approach could be based on:

a) Openreach being required to offer a range of 'PIA Adjustment Services' which are necessary for it to fulfil its Network Adjustment obligations.

b) Openreach being required to follow standard notification rules when introducing a new service, withdrawing a service or changing a service.

c) Ofcom would also reserve such powers as necessary to direct Openreach to provide a service if it considered such a service was required and Openreach was not offering it.

6.203 Our view is that a more flexible approach based on the above (or similar principles) would be beneficial to all stakeholders, and we would be pleased to discuss further with Ofcom prior to the final WFTMR being published.

PIA Ancillary Products - Further Comments

6.204 In broad terms we agree with Ofcom's broad proposal for the pricing of PIA Ancillaries in that they should be regulated by Condition 6 'Basis of Charges'. This is a reasonable approach in our view and we support it (leaving to one side the points we make later on the treatment of network adjustment and productisation costs). We also agree with adopting the same approach on 'new ancillaries' which differs to Ofcom's approach on other products (fair and reasonable basis) but which we do not consider as being unreasonable for operational and civils activities related to PIA.

6.205 We address each of the areas raised by Ofcom in the consultation in the following sections:

a) Ancillary activities relevant to network adjustments (including our views on the financial limit).

b) Productisation Costs and Order Processing activities.

c) Other Ancillary activities.

Ancillary activities relevant to network adjustments

6.206 We have previously set out our position on the recovery of Network Adjustments costs for the PIA product in response to both the WLAMR[107] and PIMR[108] consultations. Broadly, we agree that Openreach should bear the upfront costs of Network Adjustments (up to an appropriately set financial limit) where they are permanent, necessary, feasible and efficient, and have clear and demonstrable benefits to the Openreach infrastructure and its

[107] See Question 7.2 in the Openreach response to the April 2017 PIA consultation.
[108] See Question 6.1 in the Openreach response to the PIMR consultation.

customers, and which are subject to appropriate approval processes and financial controls. Also, that Network Adjustments should only qualify for Openreach funding within the parameters and controls set out by Ofcom (see Annex 12 Volume 5 WFTMR).

6.207 We also agree that it is reasonable to construct a cost recovery framework whereby qualifying Network Adjustment costs (i.e. those that are potentially beneficial to the Openreach infrastructure and its customers) are pooled and shared across all users of the infrastructure in an appropriate way.

6.208 However, we do not agree, as Ofcom suggests in paragraph 5.83, that Openreach is guaranteed to recover such costs from SMP markets, even when CPs investments fail. Physical infrastructure asset lives are typically of the order of 25 to 40 years and the nature of telecoms markets and technology is highly volatile. Hence the assumption that any business will have enduring market power over that period is highly questionable, and therefore there is no certainty in any real sense that network adjustment cash costs will ever be recovered in the long term. Even if this was the case, failed businesses might use up short/medium term civil/skilled engineering resource and generate excess cash costs for Openreach and its customers, and these represent real opportunity costs from an Openreach and customer perspective.

6.209 Linked to the above, we also note Ofcom's comments in paragraph 5.85 that its network adjustment cost recovery proposals are intended to ensure 'a level playing field between telecoms providers using PIA services and Openreach'. As we have noted in previous consultations, we do not agree that the proposals achieve this. It is standard commercial practice that the key test for any potential investor is a detailed consideration of its discounted cash flows (DCF); and Ofcom's approach conflates cost accounting practice with DCF analysis. Openreach cannot just 'account away' its up-front cash costs. Businesses make investment decisions based on cash flows, and the network adjustment cost recovery proposals do not recognise this fundamental principle. Our views on this issue have been covered extensively in our previous WLAMR and PIMR submissions.[109]

Setting the PIA Network Adjustment Financial Limit

6.210 We have previously set out our position on the level of the financial limit for Network Adjustments costs in our responses to the WLAMR and PIMR consultations.[110] We strongly support Ofcom's proposal in the WFTMR to maintain a financial limit for certain Network Adjustments. However, we remain concerned that the existing financial limit of £4,750 per kilometre is set too high.

6.211 These concerns remain applicable for the WFTMR control period. We refer Ofcom to our previous analysis.[111] In summary the method by which Ofcom initially calculated the financial limit raised the following concerns:

a) The baseline costs for the financial limit appeared to be built up from an inappropriate and excessive list of network adjustment activities.

b) The estimated costs generated were then uplifted further by taking the baseline costs and adding a mark-up to cover cost variations, and then rounding up, which further exacerbated the overstatement.

[109] Ofcom WLA consultation published 6 December 2016: https://www.ofcom.org.uk/__data/assets/pdf_file/0029/98246/Openreach.pdf
Ofcom WLA consultation published 20 April 2017: https://www.ofcom.org.uk/__data/assets/pdf_file/0017/104714/Openreach.pdf
Ofcom WLA consultation published 1 August 2017: https://www.ofcom.org.uk/__data/assets/pdf_file/0023/107195/Openreach.pdf
[110] See Ofcom's WLA and PI market reviews.
[111] See Openreach's previous responses.

6.212 This led us to have further concerns on how the limit was intended to achieve its objective and therefore how it should be applied:

a) In our view, although we understand Ofcom's argument that the financial limit needs to include a mark-up to cover a reasonable range of costs above the average (e.g. to take account of regional cost variations) the logic is not fully followed through.

b) This is because, if the financial limit represents the upper bound of reasonable Network Adjustment expenditure per kilometre that Openreach is required to fund, then applying Ofcom's logic means that the 'average' Network Adjustment expenditure per kilometre must be less than the financial limit. That is, there needs to be an incentive for CPs to adopt the normal business practice of driving down costs to an efficient level, towards the typical or average level, and a disincentive to driving up average Network Adjustment costs towards the financial limit.[112]

c) Further, the financial limit in itself does nothing to prevent unnecessary Network Adjustment requests. Even with the application of a financial limit, strong contractual and procedural controls need to be put in place as part of the PIA Reference Offer so that unnecessary and invalid network adjustments are not ordered or progressed in the first place.[113]

6.213 We also note for the record that we strongly agreed with Ofcom's stated objectives when it set the financial limit in the August 2017 WLA consultation, which were:

a) to ensure greater certainty of upfront costs and possible negative impacts on Openreach and consumers; and

b) to expose access seekers to costs on more expensive routes so that they will have an incentive to look for alternative approaches to optimise their deployments.

6.214 We also note that at the time Ofcom itself stated the limitations of its original financial limit analysis in the August 2017 WLA consultation (paragraph 4.15) noting *'it is not possible to estimate the incidence of all network adjustments with any degree of precision'*. This statement further supports our concern, especially taking into account our recent operational experience i.e. that the current financial limit is at risk of not achieving what it was intended to do.

6.215 Put simply, our concern is that by setting an artificially high limit, significantly above average costs, Ofcom is not setting the correct incentive for PIA customers to maintain their own cost controls on network adjustments and operate efficiently. Ofcom's second objective above is undermined as CPs never have to face excess costs or take responsibility for the costs they generate. Ultimately, this means that Openreach's non-PIA customers will be required to cross-subsidise high cost PIA users and a proportion of Openreach's cash flow comes under the control of external parties with no suitable incentives to drive down costs.

6.216 As we set out in our responses to earlier consultations, we consider that the current financial limit is not rigorous enough to incentivise the correct customer behaviours and this has now been demonstrated by a year of

[112] For financial and cost control purposes, it would seem reasonable that the 'average' limit would need to be based on something less than the Ofcom 'financial limit' as Ofcom's stated intention is that the limit should allow for a typical or normal range of network activities.

[113] This is the major reason Openreach needs to validate Network Adjustment (NA) orders. For example, even if the financial limit includes an allowance for the cost of repairing a duct, that does not mean that any individual order is a valid NA as suitable alternative routings may be available or the PIA customer may be able to deploy by an alternative method.

operational experience since Network Adjustments (NA) were first launched in April 2019. As of the end of March 2020 the cumulative level of invalid NA orders from April 2019 was 28% - i.e. circa one in four NA orders that Openreach would have been expected to fund was not necessary.[114]

6.217 This is clear evidence of a lack of financial and operational control on the part of some PIA customers, and therefore we request that Ofcom consider resetting what is an excessively high limit to one in line with operational data. It would be far less damaging to all involved to set a reasonable starting point, and if necessary, to correct upwards over time, than have to resource for excessive numbers of invalid NA orders,[115] and try to redress out of control costs and unnecessary civils works in retrospect.

6.218 We also note for the record that we have tested the overall reasonableness of the financial limit in three different ways:

a) Firstly, as part of our response to the WLAMR consultation when the original financial limit was proposed we reviewed and adjusted Ofcom's calculations and methodology to include a more realistic assessment of the likely level of Network Adjustments and reached a figure of £1,400 per kilometre.[116]

b) Secondly, and most revealingly, we have now received close to 2000 relevant underground NA orders since April 2019 on which to base a revised estimate of reasonable PIA customer NA costs, and this is reporting significantly less than [≫] underground NA per kilometre on average i.e. this would be much more indicative and in line with Financial Limit of the order of £[≫] per kilometre (depending on detailed assumptions) than £4,750.[117]

c) Thirdly, we have also analysed Openreach's own use of similar Network Adjustments to those controlled by the Financial Limit and these average of the order of £[≫] per kilometre across all exchange areas, with 80% of exchange areas estimated at circa £[≫] or less per kilometre.

6.219 All of these approaches indicate that a significantly lower financial limit can be set to meet Ofcom's objectives, and that there is little chance of regulatory failure through setting too low a limit. A significantly lower limit than the current £4,750/km would not impact on CPs ability to have reasonable levels of NAs funded by Openreach but would help incentivise them to budget correctly and only request valid orders. It would also reduce Openreach's financial risk and exposure to be more in line with what Openreach itself and the majority of PIA customers' experience. The launch of Openreach's NoI 'Projects' functionality further enhances the CPs ability to work within a more reasonable financial limit as CPs can now link related individual orders (i.e. multiple NoIs) to form a 'Project' and achieve greater averaging of costs across much larger deployments (similar to an Openreach exchange area).

6.220 We also note for completeness that if speed of delivery of any specific NA order is critical then a PIA customer is able to carry out and pay for its own adjustments (in line with the appropriate product and engineering standards).

[114] We have made estimates of the extra expenditure that would have been incurred on unnecessary network adjustments during 2019/20 had we not implemented and operated our validation controls and this runs to hundreds of thousands of pounds (depending on the associated assumptions). This would have had to be funded by Openreach and recovered across its non-PIA customers. We would be pleased to discuss this analysis with Ofcom in more detail after this submission if helpful.

[115] Although we do recognise that the financial limit is not the only cause of invalid NA orders which may also be influenced by CPs operational processes, engineer training and experience, amongst other factors.

[116] Which we set out in detail in our response to Ofcom's August 2017 PIA consultation (Question 4.1).

[117] Note that this was based on costs incurred by Openreach and not network adjustment work undertaken directly by PIA customers and not billed to Openreach.

PIA Pole Adjustments

6.221 We request that Ofcom gives further consideration to how best to place appropriate limits on Openreach's obligations related to pole adjustments. Our view is that the potential operational and financial impacts on Openreach of Ofcom's drop wire related proposals have yet to fully crystallise - therefore the setting of a reasonable upper financial limit to protect Openreach and its non-PIA customers from excessive costs would be a logical step to take, This would also align with Ofcom's overall objectives for a network adjustment financial limit (as referenced above).

6.222 Also, we would welcome clearer guidance in the WFTMR final statement on what reasonable 'PIA pole adjustments' Openreach is required to fund, compared to the elements that PIA customers should be responsible for funding themselves.[118] For example, we understand that Ofcom's proposals in Condition 12A.4 which restrict Openreach from charging for freeing up space or replacing a defective unusable pole are constrained to a degree, by the fact that they only apply to drop wire related network adjustments. However Ofcom could helpfully clarify that any new additional poles required to support PIA customer deployments, which result from Openreach poles being at full capacity and/or which are not replacements for unusable poles hosting drop wires, are to be classified as 'new infrastructure' and hence are not non-chargeable 'PIA pole adjustments' to be funded by Openreach.

6.223 More generally, we make the point that because Openreach has to face the full upfront costs of drop wire related network adjustments (in addition to all other adjustments) we have to consider these costs as part of our future build plans. Hence, Openreach's investment programmes are always incentivised to introduce leading innovation in the standards and equipment being used (e.g. new G.fast international standards, new types of space saving brackets etc.) and different technologies (e.g. FTTP, G.fast or FTTC) which can be selected to optimise coverage, cost and performance and efficient use of physical infrastructure.

6.224 Therefore, in a situation where a technology such as G.fast could be used to deliver an ultrafast service in a high cost area (and would be efficient in its use of scarce capacity on *existing* overhead infrastructure) - but a PIA customer chooses to deploy a technology such as FTTP which might require additional overhead capacity in that same area - then it has to be justifiable that the PIA customer faces, at least in part, a proportion of the *additional* network adjustment costs it generates, plus the full cost of any new additional overhead infrastructure it requires (i.e. new poles).

6.225 It is clear that a reasonable financial limit for PIA pole adjustments would have important incentive effects to ensure PIA customers take account of the costs they generate in their business cases at least to some degree, and also provide incentives to innovate and plan ahead to minimise costs for Openreach and its non-PIA customers.

6.226 Our recent operational experience is that PIA customers are not fully considering the overhead related costs and operational activities they are driving for Openreach at this time and this is a major concern to us. There remains considerable work to be done by industry to make multi-CP pole access work effectively in the future and having the right incentives in place will help focus PIWG discussion and industry SoRs on practical and efficient solutions rather than being based on an assumption that Openreach will carry all the costs. Additionally, at this time we also see initial evidence that some CPs are using equipment to physically reserve capacity and frustrate others from using available space on the pole.

6.227 We also reiterate the point we make in the PIA Market Assessment section of this response that Openreach does not have SMP in sites for attaching mobile equipment, and the regulatory analysis presented in the WFTMR of

[118] As Ofcom sets out for underground related works in Annex 12 Volume 5 WFTMR.

physical infrastructure markets and the subsequent SMP analysis does not in fact assess such a market in any meaningful way. It is our view that providing unrestricted access to physical infrastructure (and any related activities such as network adjustments) is only justified (and in fact required) to address market power in downstream wholesale fixed access markets (and associated retail markets) and that would be consistent with the economic underpinning for Ofcom's intervention and its policy objective of encouraging UK wide fibre network build.

6.228 Obligations to provide space for 'mobile' equipment on poles would not only conflict with the intention and spirit of Ofcom's drop wire proposals but would also have significant downsides in the use of scarce resources, and should not qualify for an Openreach funded NA. This limitation should also apply to kit which is not part of a 'public communications network' (PCN) or other equipment which makes inefficient use of pole space. We also note that requests which are outside the scope of the PIA obligation would in any case be subject to Openreach's regulated SoR process. Therefore, for such product requests which were potentially technically feasible and commercially viable the SoR process would be the appropriate route for such developments to be properly assessed.

PIA Productisation and Order Processing costs

6.229 We have previously set out our position on the cost recovery of Productisation and Order Processing costs for the PIA product in response to both the WLAMR[119] and PIMR[120] consultations.

6.230 Broadly, our view is that efficient investment decisions should be based on the merits of the case including amongst other things, forward-looking judgements on prospective revenues generated and the consequential costs incurred.

6.231 This is what Openreach faces when making its own development decisions. It assesses the full up-front costs, the resource implications and the prioritisation of any investment decision and then compares these to the anticipated benefits. However, the approach that Ofcom adopts for PIA Productisation and Order Processing costs means that PIA customers have no strong incentive to be efficient in any of their process and systems development requests to Openreach.

6.232 This is borne out by our recent operational experience. Since Ofcom changed its policy on how such costs would be recovered for the launch of the WLA PIA product in May 2018 it is clear that many developments have been requested by CPs and delivered at significant cost to Openreach (and diversion of scarce resource) and not been used. For example, we urgently implemented 'Time Bound Concessions' and 'On-demand Pole Testing' for overhead plant as we were informed these were critical requirements but they have not been used in any material way to date. We also came under external pressure to increase the size of PIA Orders only to find that some CPs are now placing hundreds of tiny orders with just one pole per order.

6.233 However, despite these issues, we do welcome Ofcom's overall approach on future systems developments, namely that they should be taken forward by industry and Openreach through the Passive Industry Working Group, so that we can align developments with PIA customers' stated priorities.

6.234 In this respect, we look to Ofcom to support us when we need to maintain some proportionality to the scale of actual known/committed demand and the potential efficiencies to be achieved. Future proposals do need to be carefully considered and realistically prioritised by the industry group. We have no objection to considering further

[119] See Question 7.2 in the Openreach response to the April 2017 PIA consultation.
[120] See Question 6.3 in the Openreach response to the PIMR consultation.

developments as long as they are justified, proportionate and that PIA customers have demonstrated some use and experience of the newly enhanced systems and processes. However, as we have noted, this is why we believe such development costs should be charged in a more direct way to CPs so that their decisions and priorities are properly informed by the costs they generate.

6.235 We also note that we have already demonstrated our ability and willingness to deliver efficient and flexible systems developments for the PIA product. The Digital Maps system was built separately from Openreach's PIPeR system by utilising alternative systems functionality to minimise development costs, increase design flexibility and enable rapid deployment.[121] And we are now looking to reflect customers emerging requirements for large scale use, by development of new B2B functionality enabling API access to Openreach systems which allows bulk data download, upload and edit,[122] in addition to the many "Day 2" product and system developments already delivered in October 2019.

6.236 Along with our concerns on Ofcom's approach to cost recovery, we also think that the costs and forecasts used by Ofcom for Productisation/Order Processing costs in its charge control modelling need to be refreshed. Please see our more detailed comments in this response on 'PIA Rental Charge Controls'. To the extent that any additional Productisation/OP costs are incurred, we would expect to be able to fully recover these costs from PIA customers and/or through Ofcom's proposed pricing approach from April 2021.

Other ancillary activities

6.237 Ofcom's proposal for the pricing of PIA Ancillaries is that they should be regulated by Condition 6 'Basis of Charges'. This is a reasonable approach in our view, and we support it (leaving to one side the separate points we make on the treatment of network adjustment and productisation costs above).

Question 5.2: Do you agree with the above proposal to introduce the PIA simplified underground lead-in service and the associated timings? Please set out your reasons and supporting evidence for your response.

6.238 We fully support Ofcom's proposal to introduce the PIA simplified underground lead-in service and the associated timing. The proposal is a result of significant work carried by Openreach with its PIA customers, the OTA and Ofcom during 2019 in order to restructure and simplify the lead-in product and charges for the benefit of all parties.

6.239 Currently PIA customers using a lead-in cable to serve a single premise via underground access need to purchase a combination of several PIA rental services - including lead-in duct (charged per metre), potentially lead-in link duct (charged per metre), and one or more facility hostings (to enter and exit footway boxes or chambers) and each of these services attracts a separate charge.

6.240 To order the product PIA customers are required to record information relating to their use of each element of the lead-in charge for each and every customer premises and submit this to Openreach. The information required includes the lengths of lead-in ducts, lengths of lead-in link ducts and the number of facility hostings required to serve each and every premises. This is because Openreach would have no inventory of PIA customer usage for billing without it. Also, PIA customers have found this information recording to be a significant administrative overhead.

[121] These were also carried out prior to formal obligations being placed on Openreach.
[122] Currently estimated to be over £[✂]m of systems investment required.

6.241 To simplify recording for telecoms providers and provide greater predictability in charges, Openreach proposed an alternative single flat, aggregated price for a 'Simplified Underground PIA Lead-in' product - i.e. a consolidated, fixed price lead-in rental service that would apply from the telecoms provider's optical distribution point all the way to the building entry point of the end-customer premises. The intention being to replace the existing services, i.e. the lead-in duct, the lead-in link duct, and the facility hosting(s) - with the pricing of the proposed fixed-price service being based on an estimated weighted-average usage of the existing three service components. The objective being that PIA customers should not on average pay more than the current pricing for underground lead-ins.

6.242 In developing the new price and service we used a sample size approaching c.400k lead-in ducts derived from our New Sites deployments. This is a very large and statistically significant sample and represents a spread across a wide range of geographies in the UK. Therefore, we believe the information used can reasonably be applied to all sites across the UK, and at this time represents the best lead-in information available to us and the industry. Over time as the PIA product develops and if further information becomes available it may become viable to base the charge on a larger data set and we would support that.

6.243 As set out by Ofcom in paragraph 5.50 we believe the introduction of this service (in addition to our improved and simplified recording system for both underground and overhead lead-ins) should remove the current complex and burdensome process for PIA customers and significantly reduce administrative overheads such as verification and record-keeping. It should also help reduce operational costs for PIA customers and Openreach and provide a much greater degree of certainty for PIA customers in developing their investment cases for FTTP build in a target area. The proposal has received strong support from all stakeholders to date, in industry and bilateral meetings and via an on-line survey commissioned by Openreach.

6.244 In reviewing the consultation, we have checked Ofcom's explanation of Openreach's pricing methodology in paragraphs 5.52 to 5.53 and can confirm it is correct. This leads to a calculated charge of £9.25 per-lead-in per-annum for the new service for the financial year 2019/20.[123]

6.245 We have also reviewed Ofcom's two 'Draft Directions' related to the existing WLAMR and PIMR legal instruments (see WFTMR Volume 5 pages 205 to 216) and agree they are a reasonable basis on which to proceed i.e. ensuring the removal of the existing charge control conditions and replacing them with the new simplified lead-in charge control on the same date.

6.246 Ofcom note their intention is to implement the regulatory change as soon as possible after the WFTMR consultation closes, and we fully support that proposal. We also agree with Ofcom's intention to base future lead-in prices resulting from the WFTMR consultation on this new consolidated lead-in service.

6.247 Finally, we note Ofcom's comments in WFTMR Volume 1 paragraphs 3.9 to 3.13 supporting the benefits and purpose behind the introduction of the new lead in product i.e. that it is intended to simplify the charging for '… the duct that provides the last few metres of access to a premises. Therefore, as explained in the meeting between

[123] Ofcom's text in paragraph 5.57 incorrectly states the year as 2018/19 but the associated Legal Instruments in Volume 5 of the WFTMR correctly state the year as 2019/20.

Openreach and Ofcom on 5 March 2020 we do aim to introduce some reasonable use guidance and/or relevant conditions in the PIA contract to ensure that the product is ordered and used for the purpose intended.[124]

6.248 Based on Ofcom's consultation we have now notified the launch the new product on a voluntary basis during June 2020 but will not withdraw the legacy product until determined by Ofcom's consultation process. Initial positive industry feedback has already been received.

Question 6.1: Do you agree with our proposed approach to charge controls for ancillaries? Please provide evidence to support your views. Please set out your reasons and supporting evidence for your response.

6.249 Question 6.1 does not address PIA ancillary services as they are covered under Question 5.1 of Section 5, of the WFTMR consultation. Therefore, please see our comments under Question 5.1 above.

Question 6.2: Do you agree with our proposals for fair and reasonable obligations for ancillaries not covered by a charge control? Please set out your reasons and supporting evidence for your response.

6.250 Question 6.2 does not address PIA ancillary services as they are covered under Question 5.1 of Section 5, of the WFTMR consultation. Therefore, please see our comments under Question 5.1 above.

[124] In the meeting of the 5 March 2020 we explained to Ofcom that we were encountering an issue with a specific CP that was suggesting it would use the product in ways which might result in lead-ins of circa 1-2 kilometres. In discussion both parties agreed that this was not the intended purpose of the newly proposed product.

7. Dark Fibre and Leased Lines

Dark Fibre: Key points

7.1 In the Consultation Ofcom is proposing to maintain the inter-exchange dark fibre ("DF IEC") remedy that was first mandated in the 2019 BCMR. In addition, Ofcom is also proposing to introduce a new dark fibre access remedy ("DFA") in Area 3 only.

7.2 Openreach does not support the imposition of the new DFA remedy. Openreach considers that the imposition of the DFA remedy is premature, that Ofcom should allow unrestricted DPA to play out ahead of introducing an additional passive remedy, and that Ofcom has failed to properly assess the degree to which DPA will in practice offer a competitive constraint in Area 3 for leased lines in the absence of the DFA remedy.

7.3 Should a new DFA remedy be imposed, Openreach agrees with Ofcom that it should be limited to Area 3 only. Ofcom's reasoning amply supports the conclusion that extending the remedy further would create significant risks of unintended consequences, in particular by undermining incentives both for Openreach and alternative network builders to build infrastructure, contrary to Ofcom's strategic objectives.

7.4 Further, if the new DFA remedy is imposed in Area 3, Openreach is very concerned that Ofcom should take full account of five key points, as described below. The third and fifth points have wider application than just Ofcom's proposals in relation to DFA.

7.5 Firstly, Openreach considers that the DFA price is based on an incorrect assessment of the relevant costs of supply, and in consequence is far too low.[125] If this is not addressed, it will lead to overly rapid mass migration from active to passive services in Area 3 which would carry significant additional costs, undermining Openreach's operational ability to deliver scale FTTP build in Area 3, and undermining Openreach's ability to meet QoS standards for leased lines nationally. Ofcom needs to urgently re-evaluate the costs of supply for DFA, and through this exercise set prices that are justified and proportionate. Openreach provides more detailed comments on this topic below and in the pricing remedies Section of this response.

7.6 Secondly, Openreach is proposing a set of pragmatic 'usage rules' aligned to Ofcom's policy objectives to be included in any DFA reference offer that Openreach is required to publish, both to give clarity to the market and to help ensure that the remedy is used to address the competition concerns identified by Ofcom. The two dark fibre remedies are being imposed principally to address competition concerns in leased lines markets[126]. Openreach understands that Ofcom's DFA remedy in the leased lines market requires Openreach only to provide DFA from an exchange to an end-user site or between two end-user sites (i.e. it does not require Openreach to provide dark fibre between two intermediate network nodes[127]). The boundaries of this requirement are important. If Openreach is required to provide DFA, it would intend to introduce contractual provisions to reasonably limit the use of dark fibre to the strict scope of what Ofcom requires. This is because, if there were no contractual usage restrictions, in practice CPs could 'game' the measure. For example, CPs could use the DFA remedy to deploy FTTP networks by using dark fibre to connect to intermediate network nodes in Openreach's FTTP network. This would

[125] Openreach is concerned both that the start prices are too low and that CPI-X gradients are too steep.
[126] Ofcom Consultation Volume 3, Paragraphs 6.5-6.17, 6.21 & 6.22.
[127] Ofcom also proposes to require Openreach to provide dark fibre between certain Openreach exchanges, pursuant to its inter-exchange dark fibre remedy.

allow alternative network builders to 'cherry pick' at different parts in the value chain. Openreach considers that this could lead to unintended consequences, including undermining Openreach's incentives and ability to roll out scale FTTP networks in Area 3. That risk can be mitigated by the inclusion of usage rules in any DFA reference offer, providing reasonable contractual limitations on the use of dark fibre in this respect.

7.7 Thirdly, Ofcom should approve Openreach's proposed definitions to make clear whether any given dark fibre request is subject to the regulatory Network Access obligation or not. Openreach is concerned that Ofcom's current guidance on when dark fibre requests would be required to be met by Openreach (i.e. Ofcom's clarification on how the Network Access obligations should be interpreted) could be misinterpreted by stakeholders. To avoid unnecessary, costly and time-consuming future disputes, Ofcom should clarify the scope of the obligation to provide dark fibre access now. Ofcom's current guidance correctly restricts the scope of the dark fibre obligations on Openreach to the making of network adjustments that are (i) necessary; (ii) feasible; and (iii) to improve efficiency[128.] However, it provides no guidance to assist CPs and Openreach in distinguishing requests for network adjustments of that kind (which would fall within the scope of the proposed regulatory Network Access obligation) from requests for network extensions (which would not). Ofcom should clarify that Openreach would not be obligated to meet a request for a network extension (regardless of whether that extension was considered to be necessary, feasible or improving of efficiency). Obligating Openreach to meet a request for a network extension would exceed the intent of, and Ofcom's powers to impose, Network Access obligations and would result in Openreach being required to deliver requests that are not proportionate. Openreach therefore proposes a set of definitions to help distinguish if a dark fibre request is subject to a regulatory Network Access obligation or not. Ofcom should endorse them to provide more certainty for Openreach and the market, and to avoid unnecessary disputes. To note, although Ofcom's guidance on this topic is provided solely in relation to the dark fibre remedies, Openreach's comments and proposals apply more widely, and the definitions Openreach proposes will apply equally to all leased lines services.[129]

7.8 Fourthly, Openreach does not consider that the DFA implementation timescale proposed by Ofcom (1 month after the statement) is proportionate or technically and operationally feasible and needs to be changed. Ofcom's proposal appears to be based on an erroneous assumption that the DFA remedy that was under development in connection with the 2016 BCMR[130]can be simply 'dusted off' and reused. In fact, delivery of the DFA remedy proposed by Ofcom will require, given other urgent priorities, around 13 months to fully deliver running over 7 EMP releases. Openreach is also concerned that Ofcom's proposals to introduce full remedies (e.g. QoS standards, SLGs) straight away do not allow any time for operational "bedding in" which is a standard approach for new product launches, for good reason. Openreach sets out alternative proposals in relation to these matters in its response.

7.9 Finally, Ofcom should confirm that it will be open to consideration of further representations concerning the effects of COVID-19. Openreach notes that at time of writing, the UK is dealing with the COVID-19 pandemic. As Ofcom is aware, Openreach's operational plans for dealing with the pandemic are (i) to ensure the safety of its employees and the general public; and (ii) to focus on delivering services that are most critical to the UK. COVID-19 has already impacted existing operational plans and will continue to do so for some time to come. In this context, certain aspects of this response, for example in relation to the implementation plans for DFA (but potentially other aspects too), may change as a result of COVID-19 impacts. In circumstances where COVID-19 leads to changes in

[128] Ofcom Consultation Volume 3, Paragraph 6.98.
[129] Ethernet products, the two dark fibre remedies and Optical products. Ofcom Consultation Volume 3, Paragraph 6.81.
[130] Ofcom Consultation Volume 3, Paragraph 6.81

the positions set out here, Openreach will therefore make subsequent representations to Ofcom at the appropriate point in time and would expect Ofcom to fully consider any such further representations ahead of making any final decisions.

Leased Lines: Key points

7.10 Ofcom's leased lines proposals encompass the two dark fibre remedies (DF IEC and DFA) together with Openreach's current portfolio of active Ethernet and Optical products.[131]

7.11 Openreach supports Ofcom's proposal to define separate leased line and WLA markets. This is needed to recognise the different competitive conditions and constraints that exist in these markets. Openreach considers that enduring differences are particularly apparent in the market for VHB (>1G) leased lines services, in which there is currently little evidence that scale substitution by MSN based FTTP type products is likely in the near-term.
Openreach also considers that it is sensible to set out different geographies (i.e. CLA, HNR, Area 2 and Area 3) based on the competitive conditions that exist in those geographies. It is right that Ofcom imposes lighter touch SMP remedies in HNR areas than in Areas 2/3 for example, and it is also right that Ofcom continues to allow the market, rather than regulation, to determine outcomes in the CLA where effective competition is already well established and is delivering benefits to end customers.

7.12 However, any given approach to defining geographic markets is likely to have issues/inconsistencies that need to be considered and resolved. As set out in detail below, the analytical approach taken by Ofcom means that certain sites such as Heathrow Airport, where in fact there is a high density of leased lines and where high levels of competition exist, have been designated as being in Area 3, which attracts the heaviest suite of regulation. Left unresolved, significant anomalies of this kind would undermine the establishment and/or development of infrastructure-based competition, contrary to Ofcom's strategic objectives.

7.13 This outcome is not proportionate and is a by-product of the Ofcom methodology. Openreach considers that in these cases, Ofcom needs to apply an overlay assessment to complement its general approach and having done this re-designate such areas to properly reflect the competitive conditions that are in existence. Openreach argues that Heathrow Airport, for example, should be designated as not having SMP at all given the competitive conditions that are present there which are similar to those present in the CLA. As noted, this exercise can be done as an overlay exercise to complement the existing approach adopted by Ofcom. There is no requirement to change the approach entirely.

7.14 In the 2019 BCMR, Ofcom indicated that its judgement that BT had SMP in HNR areas, versus finding those areas to be effectively competitive (and so not subject to SMP at all), was "finely balanced"[132]. Openreach considers that since the 2019 BCMR, competition has further increased in these areas through, for example, the growth of competing networks which are now supported by unrestricted DPA. In addition, there is other evidence in HNR areas of increasing competition such as Openreach's approach to pricing (where there are many similarities to the approaches taken in the CLA) in order to remain competitive, along with the rise in "buyer power" as evidenced in the increasing use of tendering processes by sophisticated end customers in the public and private sectors.[133]

[131] Ofcom Consultation Volume 5.
[132] *Promoting competition and investment in fibre networks: review of the physical infrastructure and business connectivity markets*, Volume 2, 6.147.
[133] See witness statements of Mr Christopher Bailey, CAT appeal case number 1330/3/3/19. November 2019.

7.15 As noted by the CAT in the recent BCMR appeal, it is important for Ofcom to look at more than just market shares when assessing whether SMP exists or not[134]. In re-assessing the competitive status of HNR areas, Ofcom should continue to look at the broad range of indicators used in its assessment but update that assessment to take account of current and forward-looking market circumstances rather than rely on earlier analysis which is likely to be out of date. Openreach considers that when Ofcom updates its assessment on this basis, it will find that not only have the areas covered by HNR increased in size, but that in addition there are now strong grounds for HNR areas to be re-designated as effectively competitive and so not subject to SMP.

7.16 In Area 2, Openreach supports the Ofcom proposal to allow for pricing indexation of leased lines. This approach will provide good incentives for access seekers to build new, competing networks, will support Openreach's incentives to build scale fibre networks in Area 2, and will provide appropriate protection to consumers from excessive pricing.

7.17 In Area 3, Ofcom is proposing a detailed and multi-layered set of regulatory remedies to address competition concerns in leased lines markets: unrestricted DPA, dark fibre and continuation of the active leased lines remedies (covering Ethernet and Optical products). This is a very detailed set of regulatory remedies, two of which (DPA and dark fibre) are upstream in nature and one of which (DFA) Ofcom itself predicts will fully replace active leased lines in Area 3.[135] Openreach does not consider that this is a proportionate set of regulation over an extended period. If the DFA remedy is to be adopted, Ofcom's proposals should also include a process / mechanism for removing regulation from the active leased lines portfolio. This would be consistent with the approach sensibly taken elsewhere by Ofcom, for example in relation to WLR.[136]

7.18 Openreach is broadly supportive of the general remedies for leased lines being proposed by Ofcom, where, for example, it is important that Openreach continues to offer transparency to the market via KPIs, notification obligations and reference offer obligations.

7.19 That said, Openreach does have some specific concerns in relation to Ofcom's proposals to prevent (subject to an approval process) geographic discounts in Area 2, and to require a minimum 90-day notification for commercial offers that are based on volume commitments or range of services. These concerns are summarised below and dealt with in more detail in the Section of this response covering the regulation of geographic discounts and other commercial terms.

7.20 For leased lines Openreach considers that there are not good grounds to extend the geographic limitations that are currently in place, and indeed Ofcom has not provided any good evidence as to why such limitations are warranted in relation to leased lines.

7.21 Openreach is also concerned that Ofcom's proposals in relation to geographic discounts and volume arrangements would in practice hamper Openreach's ability to fairly compete for business, especially when such business was awarded through bid / tendering type processes, which are growing in significance in leased lines markets.

7.22 Separately, BT Group has signalled a strategic intent to reduce the number of exchanges in the longer term. This will clearly have major implications for Openreach and its industry customers. Openreach therefore intends to begin consulting CPs on this issue later this year. In the context of the leased lines market and the proposed DFA

[134] See paragraph 171 of the Competition Appeal Tribunal's judgment dated 5 March 2020 in Case 1330/3/3/19 TalkTalk & Vodafone v Ofcom.
[135] Ofcom Consultation Volume 3, Paragraph 6.8, footnote 120, Annex 13 paragraphs A.13.53-58
[136] Ofcom Consultation Volume 2 Paragraph 1.47-1.51

remedy, it is important that Ofcom and CPs note that from the late 2020s, Openreach expects to start to close exchanges and this will require thinking in the medium term about the need to migrate leased lines (including dark fibre) services away from local serving exchanges[137] on to network that terminates at Openreach Handover Point (OHP) exchanges.

7.23 Finally, Openreach is very concerned about Ofcom's loosely defined and puzzling proposal for a new Cablelink product for DFA as set out in the Consultation Volume 3, para 6.59. More details on Openreach's concerns have been set out in our response to Question 5.1 later in this response. However, in summary, the proposed requirement to offer such an ancillary service does not appear to Openreach to be necessary in the context of the competition concerns that Ofcom has identified in the leased lines markets. Further, the issue of space and power within an exchange is not a single product issue that can be dealt with at an individual product level. Currently space is allocated (in line with Ofcom guidelines set out at Volume 3 paragraph 3.8) on a 'first come first served' basis.

7.24 Should there be a specific industry requirement for access to DF IEC at an exchange where space and power is exhausted, then this issue is better served via the existing SoR process. Taking this approach would allow Openreach and industry to frame the issue properly and investigate a feasible solution for all products using existing processes that were created to evaluate such requirements. Openreach recommends strongly that Ofcom removes its Cablelink proposal and allows the right solution to be worked through between Openreach and its customers, using established industry processes that are themselves already subject to regulatory oversight.

Leased Lines Market Definition and SMP Assessment

Questions – Volume 2

Question 6.1: Do you agree with our provisional conclusions on product market definition for wholesale markets? Please set out your reasons and supporting evidence for your response.

Question 7.1: Do you agree with our provisional conclusions on geographic market definition for wholesale markets? Please set out your reasons and supporting evidence for your response.

Question 7.2: Do you agree with our provisional conclusions on the application of the three criteria test to the wholesale inter-exchange connectivity market? Please set out your reasons and supporting evidence for your response.

Question 8.1: Do you agree with our provisional SMP findings and resultant competition concerns for wholesale networks? Please set out your reasons and supporting evidence for your response.

General comments

7.25 Openreach supports Ofcom's proposals to define separate product markets for leased lines and WLA markets. Whilst network architectures for supplying both markets are converging, the demand-side competitive conditions in these markets are quite different, and it is appropriate for Ofcom to recognise this.

7.26 Although there will be some substitution by MSN based FTTP services for lower bandwidth (sub 1G) leased lines, sufficient demand and supply side differences remain (such as FTTP availability and technical limitations) that

[137] This will apply to both LA and Standard circuit configurations, as currently all circuits including those terminating in other exchanges route their fibre through the local serving exchange.

means FTTP is unlikely to become a full substitute for even lower bandwidth leased lines in the short term. Obviously, as technologies evolve, the dynamics of this could change and so may need to be monitored over time.

7.27 In the market for VHB leased lines, the differences in competitive conditions between WLA and leased lines markets are much greater (given, for example, the current technical inability of FTTP to provide uncontended bi-directional bandwidths that are required from VHB leased lines) and are likely to endure in the period covered by the WFTMR.

7.28 Openreach also considers that it is sensible to set out different geographies (i.e. CLA, HNR, Area 2 and Area 3) based on the competitive conditions that exist in those geographies. If applied correctly, this approach should help to ensure that the regulatory remedies imposed in a given area are proportionate, given underlying competitive conditions.

7.29 Openreach notes that there are some differences in terms of competitive conditions within the leased lines market. For example, VHB services tend to be quite distinct and subject to the highest levels of competition (as evidenced, for example, in the increase in competitive tendering and the pricing approaches for in particular 5G and backhaul applications that Openreach has been required to take in this market to remain competitive)[138], while lower bandwidth services will face increasing competition from MSN based FTTP-type services.

7.30 As noted above, in the 2019 BCMR, Ofcom found that its determination that BT had SMP in the HNR areas (which was based on assessment of data that dated back to 2017) was "*finely balanced*". Since then, network competition in these areas has further increased. Openreach therefore welcomes Ofcom's recent statutory information requests to allow it to refresh its network reach analysis based on the most up to date location of networks.

7.31 Given the increase in network competition in the HNR areas since 2017, Openreach urges Ofcom to consider that such increasing competitive constraints, which will only continue to increase during the period covered by the WFTMR, mean that BT no longer has SMP in these areas.

7.32 Openreach also notes, as was made clear by the Competition Appeal Tribunal in its judgment of 5 March 2020 in Case 1330 TalkTalk & Vodafone v Ofcom, that a market power assessment requires a regulator to take account of more than simply market shares when making its assessment market power. When Ofcom re-examines the competitive conditions in the HNR, it should continue to look at a range of factors. In particular, its assessment should take into account how these factors have changed and evolved since the BCMR 2019 including: the density of rival networks (which should be based on refreshed data as discussed above), the evidence of the pricing reductions made by Openreach in order to compete in HNR areas, the increasing prevalence of tendering processes (which are indicative of increasing buyer power), plus the increased deployment of DPA that is facilitating competitive network deployment[139].

7.33 As part of that assessment, Ofcom needs to consider the increase of competitive tendering in leased lines markets as a means for end customers to contract for new business. The increase of tendering in this way is indicative of increased network competition and build and signifies an increase in buyer power – given that such tenders tend to be associated with end customers that are large and sophisticated such as associated with 5G network build and public sector infrastructure projects such as the Health and Social Care Network ("HSCN")[140].

[138] See witness statements of Mr Christopher Bailey, CAT appeal case number 1330/3/3/19. November 2019.
[139] See witness statements of Mr Christopher Bailey, CAT appeal case number 1330/3/3/19. November 2019.
[140] See witness statements of Mr Christopher Bailey, CAT appeal case number 1330/3/3/19. November 2019.

7.34 Ofcom should also examine the voluntary price reductions and the commercial offers (where the common feature has been significant price discounts) that Openreach has been required to make in HNR areas – which have been very similar in scope to those run in CLA areas – in order to remain competitive. This, in of itself is a strong indicator that competition is already providing an effective constraint in HNR areas. Further detail on this topic is set out below.

7.35 Drivers of large-scale leased lines deployments that make use of competitive tendering processes, include the roll-out of 5G networks by MNOs, the deployment of the HSCN to update and replace previous NHS connectivity arrangements and the Local Full Fibre Network ("LFFN"). There is also evidence of increased use of DPA as a successful means to win leased lines type business, for example CityFibre in winning 5G business from the MNO "3".

7.36 When Ofcom has updated its analysis in a holistic way (as discussed above), which should also be forward looking as well as static (by looking not only at where new network has been built, but where the economic conditions are conducive for new network to be built), it should conclude that competition has increased in HNR areas to the extent that the "*finely balanced*" decision made in the 2019 BCMR should now be changed to a finding of no SMP.

Details of competitive conditions in HNR areas and the CLA

7.37 Openreach faces the most competitive conditions for leased lines in the CLA and also HNR areas. There is significant evidence in HNR areas, for example, that Openreach has needed to significantly reduce its prices in the market in order for remain competitive.

7.38 Example offers that Openreach has needed to run in order to remain competitive include an EAD 1G connection offer dating from March 2018 that was made available in what Openreach calls the "Flexzone" - an area made up of various urban central business districts (CBDs) covering CLA and HNR areas. This offer was subsequently extended in May 2019 to other HNR areas as defined in Ofcom's draft BCMR Statement.[141]

7.39 When the rationale of these offers is examined, it is very clear that the primary purpose is to improve Openreach's commercial position in the face of stiff competition. [✂].

7.40 As set out in Table 7.1 below, Openreach has been required to run a number of discount offers to try and maintain a competitive position in the HNR areas.

[141] These papers were also presented as evidence at the BCMR CAT appeal. Openreach OCPPB papers dated March 2018 and May 2019.

Table 7.1: Openreach connection price discount offers

Product / bandwidth	Offer period	Geography	Cx price offered	Discount level
EAD 100	5/4/16 to 30/9/16	Nationwide	950	50%
EAD 1G	1/10/16 to 31/3/17	Nationwide	1,350	35%
EAD 100	8/11/16 to 30/3/17	CLA	950	53%
EAD 100	1/4/17 to 31/3/18	Nationwide incl. CLA and HNR	656	65%
EAD 1G	1/4/17 to 31/9/17	Nationwide incl. CLA and HNR	1,100	46%
EAD 100	1/4/18 to 30/9/18	Nationwide incl. CLA and HNR	1,425	27%
EAD 1G	1/5/18 to 31/3/19	CLA and HNR	1,125	40%
EAD 1G	1/4/19 to 30/6/19	CLA and HNR	1,125	39%
EAD 1G	1/7/19 to 31/3/20	CLA and HNR	1,125	39%

Source Openreach Price List

7.41 Above and beyond the discounts offered, Openreach has also introduced voluntary price reductions (i.e. reductions that have not been required by regulation) in order to remain competitive. For example, in between March 2016 and October 2019 in CLA and HNR areas, the 3-year total cost of ownership ("TCO") not including special offers for Openreach 100M EAD reduced by 11%, for EAD 1G it reduced by 39% and for EAD 10G it reduced by 37%.

7.42 This is further strong evidence that competition is well established in HNR areas and that Openreach has been required to price aggressively in order to try and remain commercially attractive in the face of growing competition.

7.43 Openreach has also seen that some alternative network providers have been targeting large public sector tendering processes for projects such as HSCN and LFFN in order to secure an anchor tenant[142]. [✂].

7.44 Procurement processes using tendering has also increased in these areas – for example in relation to city deployments by MNOs rolling out 5G infrastructure.

7.45 Openreach also considers that the deployment of alternative and competing network infrastructure continues to increase in HNR areas. [✂]

Table 7.2: [✂]

[✂]

7.46 It is also clear that in high density urban areas, unrestricted DPA offers a very attractive means for alternative network providers to pick off high value / densely clustered business.

[142] See witness statements of Mr Christopher Bailey, CAT appeal case number 1330/3/3/19. November 2019.

7.47 In the BCMR appeal Openreach made available analysis it had undertaken setting out how DPA was being used in order to compete for leased lines business in the CLA. Openreach will also track the use of DPA in HNR areas and proposes to make further information available to Ofcom in this regard later in the Consultation process.

7.48 In summary, Openreach considers that there is strong evidence that HNR areas are now competitive and should be deregulated alongside the CLA. The pricing action that Openreach has been required to take, the evidence of increased procurement via tendering processes and associated buyer power, plus the evidence of increasing alternative network deployment all point to strengthening competition already providing an effective constraint on Openreach for leased line services in HNR geographies.

Anomalies within Area 3

7.49 Examining the proposed geographic areas shows some small areas which appear as "islands" of Area 3 within larger expanses of Area 2. Many of these islands appear to be predominately industrial and business postcode sectors. It is possible that some of these islands have been classed as Area 3 due to low density of premises, and therefore do not fall within Ofcom's "urban" clusters.

7.50 Ofcom acknowledges that its approach filters out large green spaces in urban areas "*such as large parks, golf courses and airports*" (Consultation, paragraph A8.53). Whilst density of premises is a driver for MSN deployment, this is not the only driver for the deployment of competitive leased lines networks. Openreach believes that allowances need to be made when this rather broadband focused geographic definition is applied to leased line services. This could either be through an overlay in its market assessment of leased lines to account for these drivers and competitive constraints or through some differentiation of the remedies imposed at such sites.

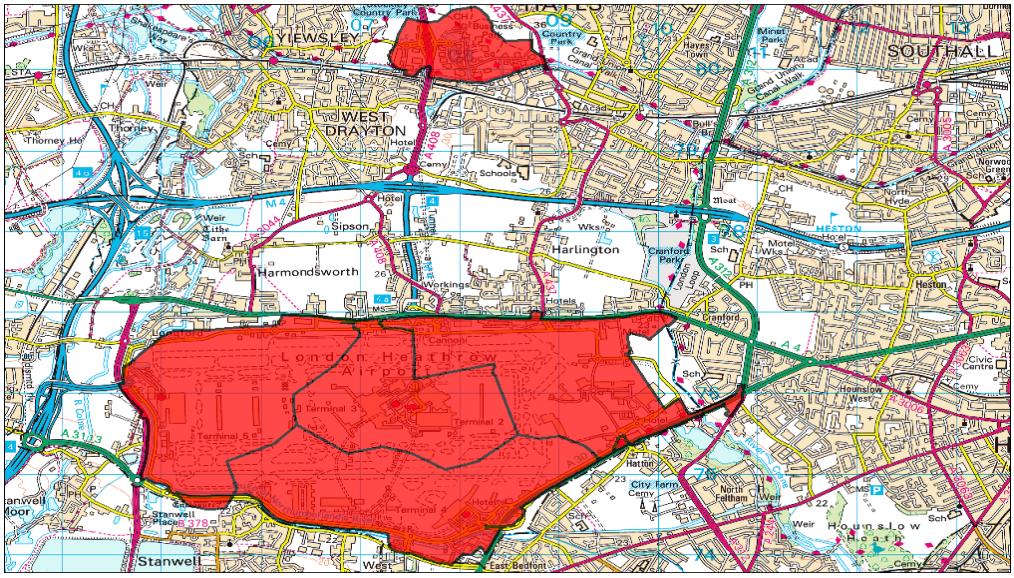
7.51 The categorisation of business parks as Area 3 seems to be a simple consequence of the Ofcom methodology rather than being based on an accurate assessment of the competitive conditions that exist at such locations. In some of the examples Openreach has found there is evidence of existing alternative networks (e.g. postcode sectors L24 8; UB11 1; and L30 4). Adding an overlay to Ofcom's methodology would allow Ofcom to decide not to mandate DFA in such areas. The proposed extension of a DFA remedy to such areas would actively undermine the development of infrastructure-based competition, contrary to Ofcom's declared strategic objectives.

7.52 Similarly, Openreach also considers that regulation of leased lines services at the buildings at airports should not be dependent on the calculated density of the postcode which also includes the area of the actual runway. The categorisation of the market into which airports fall should be updated, or some differentiation of remedies should be applied, to take account of the different competitive constraints and drivers to actually exist at such locations.

7.53 Openreach also believes that Ofcom's HNR methodology is having an impact on its market assessment. For example, the relatively short "network reach" figure of 50m leads to some anomalies in the markets that are defined. This is acknowledged by Ofcom in the detailed examination of postcode sectors in relation to the CLA (BCMR 2019 statement paragraph A12.94) but not in the HNRs. Thus, in the CLA, it is noted that in some instances where there is a large structure or landmark that covers the 50m radial distance from the postcode centroid it is not possible to find OCP network infrastructure in the area. The examples quoted by Ofcom in the CLA are St Paul's Cathedral, Euston Station, St. Pancras station and the Tate Modern gallery. Despite not meeting the HNR threshold, in the BCMR 2019 Ofcom rightly concluded that such low network reach result may be an anomaly and includes them in the CLA.

7.54 Openreach considers these anomalies are not restricted to the CLA, and there are other areas where the calculation of "network reach" does not reflect the true competitive conditions that prevail. This is then further compounded by these areas being low density and so being categorised as Area 3. One clear example of this is the Trafford Shopping Centre in Manchester.

Figure 7.1: "Islands" of Area 3 Postcode Sectors covering Heathrow and Stockley Business Park



Source: Openreach analysis

7.55 Openreach considers that the competitive conditions at Heathrow Airport are more akin to CLA / HNR areas than Area 3, where in the latter Openreach is subject to the heaviest suite of leased lines remedies, including upstream remedies in the form of DFA and unrestricted DPA.

7.56 While Openreach broadly supports the approach to market definition taken by Ofcom, Openreach nonetheless considers that some overlay of "exceptions" is needed for certain sites to properly reflect the competitive conditions present, and in turn to ensure that such sites have proportionate regulatory remedies applied.

7.57 In Openreach's view this could be achieved in two ways:

a) Ofcom could include another step in its market assessment / definition work to identify exceptions where competitive conditions in an area are heterogeneous to the rest of Area 3. Having done this, Ofcom ought then to revise its SMP assessments. This would complement the approach being taken by Ofcom and will help to mitigate the unintended consequences of Ofcom's approach as discussed above.

b) Alternatively, Ofcom could apply differentiated remedies within identified markets. Openreach understands that defining a different Area 2/3 boundary for WLA and leased line services may not be ideal and suggests applying the same approach as has been used for the interexchange market, where in the "BT Only" market, dark fibre services were not imposed in a subset of the defined market. A similar approach could exclude DFA being available in any 'islands' of Area 3, for example. This differentiated remedy approach would be wholly proportionate and would better serve Ofcom's strategic objectives.

Data used for Ofcom's leased lines market analysis

7.58 Ofcom has stated that it considers the data gathered for the 2019 BCMR remains a reasonable basis for analysing existing leased lines network presence for this consultation, and that there has not been any material new leased line-only build (Consultation paragraph A8.60). Openreach does not agree and welcomes the fact that Ofcom is now starting to update this network reach analysis.[143] This is a dynamic market, and it is important that Ofcom makes use of the most up to date analysis available, particularly given that some of Ofcom's decisions in the 2019 BCMR were finely balanced (e.g. the HNR SMP assessment discussed above), and that the regulation imposed will be in place for a lengthy period of time.

7.59 Much of the current analysis that Ofcom relies on is based on data used in the 2019 BCMR that itself dates from 2017. It is important, given that the regulation set by Ofcom in the WFTMR will persist for 5 years, that it is based on the most up to date view of market conditions in what is a dynamic market that is subject to constant change. This is particularly given the introduction of unrestricted DPA which Openreach believes has led to a significant increase in build plans by other CPs and will continue to accelerate the availability of competitive networks in different geographies.

7.60 In Openreach's view, by updating its analysis, Ofcom will find that there have been some significant changes, including that the postcodes covered by HNR areas have expanded. Openreach does not have access to Other CPs' detailed network records or network deployment plans but has some data which indicates the location of some activities of other infrastructure players.

7.61 [✂]

Figure 7.2: [✂]

[✂]

7.62 [✂]

7.63 Openreach considers these examples of new network build since Ofcom last assessed the market are likely to be indicative of a wider pattern across the UK, and this needs to be thoroughly evaluated by Ofcom – through collection of information from all relevant organisations - to ensure that the analysis used to make important decisions is current.

Figure 7.3: [✂]

[✂]

7.64 In addition to updating its analysis, in assessing competitive conditions, as noted above it is important that Ofcom continues to take a "holistic" approach – i.e. basing assessments on a combination of indicators such as network density and market shares, plus forward-looking measures, rather than relying on a single indicator (e.g. market shares) which may not be reliable when taken in isolation. In this regard, Ofcom must also consider the evolution (and increase) in the incidence of leased lines purchase decisions being made through bid type processes, which in Openreach's view, is indicative of increasing buyer power. For example, Openreach is aware of Public Sector Network tenders as part of the Government's LFFN programme including serving public sector anchor tenant sites

[143] Ofcom Final 20th WFTMR s.135 dated 3rd March 2020.

across 13 defined areas in the UK between 2018 and the end of the financial year 2020/21[144]. Openreach has also been invited to respond to multiple confidential MNO infrastructure tenders directly and indirectly through CPs in 2019/20 and 2020/21.[145]

7.65 In Area 3, as noted above, Ofcom is proposing multi-layered regulatory remedies that will be capable of addressing competition concerns in leased lines markets: unrestricted DPA, dark fibre and continuation of the active leased lines remedies (covering Ethernet and Optical products). This is a very detailed set of regulatory remedies, two of which (DPA and dark fibre) are upstream in nature and one of which (dark fibre) Ofcom expect will replace active leased lines in Area 3.[146] Openreach does not consider this is proportionate for this set of regulation to endure.

7.66 In this regard, Ofcom's proposals should include a process / mechanism for removing SMP regulation from the active leased lines portfolio. This would be consistent with the approach (correctly) taken elsewhere by Ofcom, e.g. in relation to WLR.[147] A potential approach could be to notify withdrawal of new supply obligations after a period. Openreach would welcome further discussion on this matter with Ofcom.

Comments on the three criteria test

7.67 Ofcom needs to update the analysis it relies on that is relevant to this area. This is particularly important given the 5-year period of the WFTMR. For example, Ofcom needs to update its analysis of Cablelink connectivity to Primary Core Operators (PCOs) and update its analysis of the build plans for alternative network operators that are in proximity to BT exchanges.

7.68 Ofcom actually define each exchange as its own market (Consultation paragraphs 7.98-7.99) i.e. 5,500+ markets. However, the SMP assessment is done per exchange cohort i.e. "BT only" or "BT+1" and so on. Ofcom admit there is likely to be build to some exchanges but say it is uncertain where. Whilst the build may not be significant at the cohort level, at the individual exchange/market level it is. Some specific exchanges will not have high barriers to entry, so each of these markets fail the first criteria test, and will be tending towards effective competition so fail the second.

7.69 This is particularly true of the BT+1 exchanges where although the average (mean) distance to next nearest competitor is 1.5km, the median distance is only 319m (see paragraph 45 of the Openreach Response to Ofcom's BCMR Volume 1 Consultation January 2019). As Openreach has previously noted, this means that half of these exchanges have a second competitor less than 319m away, and with unrestricted DPA this is not a high barrier to entry.

7.70 The use of mean and median values for the BT Only cohort hides the extent of short distances for some exchanges/markets. The 2019 BCMR Consultation referred to a mean of 6.2km and median of 2.7km, but this cohort includes a large number of very small, very remote exchanges which distort the results. In the final BCMR Statement, Ofcom identifies 566 of the BT only exchanges that are within 100m of an alternative PCO and 981 that are within 300m of alternative PCO.

7.71 Ofcom's analysis of CPs planning to build to exchanges (Consultation Annex 7 table A7.5) is bizarrely limited to planned build by leased lines only networks. This restriction isn't justified, and a MSN CP, such as Virgin Media for

[144] https://www.gov.uk/guidance/local-full-fibre-networks-programme. & https://www.ispreview.co.uk/index.php/2019/03/government-lists-9-winning-uk-bidders-for-wave-3-full-fibre-fund.html
[145] These tenders are subject to confidentiality restrictions, but Ofcom could request details of them using its statutory information gathering powers.
[146] Ofcom Consultation Volume 5 & Volume 3, Paragraph 6.8, footnote 120, Annex 13 paragraphs A.13.53-58
[147] Ofcom Consultation Volume 2 Paragraph 1.47-1.51.

example, will target any BT exchange that's in an area where it is planning to build. BT Exchanges are high value sites and will inevitably be targeted like any other high value business site. Many of the BT Only and BT+1 exchanges are in Area 2 where CPs have stated they intend to build MSN infrastructure (Consultation paragraph 7.42, Volume 2). These Exchanges/markets do not meet the high barriers to entry criteria. This shortcoming in the Ofcom analysis should be addressed.

7.72 As noted separately, Openreach is proposing a set of sensible contractual usage rules for DFA in order to ensure that it is used solely to address the competition concerns set out by Ofcom in the Consultation. Openreach notes that in circumstances where DFA was allowed to be used for more than access-only users (which it should not), then the barriers to entry for the IEC services will fall, meaning that many more exchanges/markets would not meet the first criteria.

General Remedies in Leased Lines

Questions – Volume 3
Question 3.1: Do you agree with our proposed general remedies? Please set out your reasons and supporting evidence for your response.

7.73 Openreach is in the main supportive of the general remedies proposed by Ofcom. However, Openreach does have further comments, and concerns, on Ofcom's proposals in leased line markets for geographic discounts and discounts involving volume or range of services features which are set out in detail in the Section of this response dealing with the regulation of geographic discounts and other commercial terms and summarised below.

7.74 As discussed in the Section dealing with QoS, Openreach agrees that QoS standard compliance for DFA should be measured as part of a wider leased lines 'bucket' (along with Ethernet and DF IEC products). This will allow for substitution between the DFA and Ethernet products. However, Openreach does not agree that SLGs for DFA should be imposed immediately. Openreach believes that it is right to allow for a product bedding in period ahead of imposing proactive SLG obligations. This would also be consistent with the approach taken by Ofcom to the introduction of the DF IEC remedy in the 2019 BCMR.

7.75 Openreach provides further commentary on Ofcom's QoS proposals for leased lines (including in relation to SLA and SLG arrangements) in the Section of this response dealing with QoS.

Ofcom's proposed approach to geographic discounts and notification requirements for volume deals

7.76 In the leased lines markets Ofcom is proposing to introduce two new measures associated with Openreach commercial arrangements: (i) Ofcom is proposing to prevent (subject to an approval process) geographic discounts in Area 2 and (ii) to apply to a minimum 90 days' notification requirement for volume / range of services type deals to all geographies that are subject to SMP.

7.77 Openreach has a number of serious concerns with Ofcom's proposals in relation to the leased lines market which are discussed in detail in the Section dealing with geographic discounts and other commercial terms above and summarised below.

a) Both in relation to geographic discounts and volume discounts, Ofcom's analysis and competition concerns leading it to impose the proposed remedies is vague and unfounded. In particular, Ofcom has ignored the peculiarities of the leased lines markets which clearly demonstrate the absence of a competition concerns capable of justifying the extension of the current remedies.

b) Ofcom has not properly weighed the risks against the benefits of commercial schemes with geographic and volume features for leased lines markets. For example, Ofcom has not considered the potential efficiencies and customer benefits derived from commercial arrangements based on geographic and volume commitments or that such arrangements are not automatically harmful to competition. In many cases the opposite is true, and such arrangements can support more efficient economic outcomes to the benefit of end customers.

7.78 Ofcom's proposals are not appropriate and are disproportionate. In leased lines markets, an increasing amount of business is now being awarded via competitive tendering processes. The mechanics of such processes, such as the obligation to respond to a tender within a certain time limit mean that a minimum 90-day notification, or the need to obtain permission if the arrangement was geographic in nature would place Openreach, and the CPs using the Openreach network for the purposes of bidding, at an unfair structural disadvantage. In some cases, such requirements could even lead to Openreach not being able to place a competing bid. It could also lead competitors to "price follow", having sight of Openreach's offer.

7.79 As noted above, in leased lines markets, an increasing amount of business is now being awarded via competitive tendering processes. The mechanics of such processes, such as the obligation to respond to a tender within a certain time limit mean that a minimum 90-day notification, or the need to obtain permission if the arrangement was geographic in nature (which could feasibly take at least 90 days to complete), would place Openreach, and the CPs using the Openreach network for the purposes of bidding at an unfair structural disadvantage versus other competing organisations when such processes are used. In some cases, such requirements could even lead to Openreach not being able to place a competing bid. Such an outcome would be unfair to Openreach and would harm the proper functioning of competition in the market, to the detriment rather than benefit of end customers.

Specific Remedies

Question 5.1: Do you agree with our proposed specific remedies in the WLA, LL Access and IEC markets? Please set out the reasons and supporting evidence for your response.

7.80 In Area 3 Ofcom is proposing a multi-layered set of remedies capable of addressing competition concerns in the leased lines market: unrestricted DPA, dark fibre (IEC DF and DFA) and active products (Ethernet and Optical). Ofcom itself expects the DFA remedy in Area 3 to replace active leased lines.[148]

7.81 Openreach questions, over a 5-year period, whether this is a proportionate regulatory solution in Area 3. Given that there will be two upstream remedies in place, one of which (DFA) is likely to rapidly replace active services in Area 3, Ofcom should be simultaneously setting out its proposals for withdrawing SMP regulation for the active

[148] Ofcom Consultation Annex 13 paragraphs A.13.53-58

products, or at least proposing a mechanism trailing how this will happen in future. This would be consistent with the correct approach taken elsewhere by Ofcom, for example in relation to WLR[149].

7.82 Openreach therefore invites Ofcom to set out, as a necessary part of any balanced regulatory solution for leased lines in Area 3, the mechanism via which SMP will be rolled back from the active Openreach services. Openreach would welcome further discussion on this matter ahead of the Final Statement.

Comments on Ofcom's Cablelink proposals

7.83 Openreach has concerns regarding Ofcom's outline proposal for a new variant of Cablelink for DFA and IEC DF where space and power is exhausted within an exchange (Consultation Volume 3, para 6.59).

7.84 Openreach does not understand why the ancillary service is necessary to address the competition concerns that Ofcom has identified. Openreach remains unclear and unaware of the specific industry issue Ofcom is trying to resolve through its proposal and for which a new variant of Cablelink may not be the right solution in any event.

7.85 Openreach notes that Ofcom is already proposing to impose a general SMP remedy requiring Openreach to consider requests for new forms of network access and any specific requirements for network access would be most appropriately dealt with through industry negotiations using existing processes. Openreach elaborates on these points further below.

7.86 Ofcom's proposal appears to be that at exchanges where space and power within an exchange is not available, Openreach is required to offer an external Cablelink that connects directly to either a DFA service or a DF IEC service. Ofcom states that it considers this proposal is necessary to enable the effective use of the proposed regulated dark fibre remedies in situations where the building of new accommodation space and power may be inefficient. As set out below, Openreach disagrees that such an ancillary service is necessary.

a) In relation to DFA, the remedy requires Openreach to provide dark fibre access for access segments (see Volume 3, para 6.31). The definition of "*Access Segment*" in the legal instrument sets out that an access segment is network access between an end-user premise and a Local Access Node or between two customer sites. As such, under Ofcom's proposed remedy it would already be possible for a CP to order a dark fibre service to a Local Access Node, even if that Local Access Node is not a BT exchange. Whilst Openreach may choose to route such a DFA circuit through a local serving exchange, the CP would not be required to be present/ have space in that exchange. In other words, the Ofcom Cablelink proposal is a remedy which serves no additional purpose (it is not necessary) and indeed would create a great number of technical issues as detailed further below.

b) In relation to DF IEC, Ofcom's remedy is designed to address competition concerns about the lack of competitive backhaul available from BT Only-DF exchanges. Ofcom has provided clear guidance that where a telecoms provider does not have presence or an intention to become present in a BT Only-DF exchange, the provision of DF IEC is not required unless there is a clear purpose for establishing the route using dark fibre which requires the telecoms provider to be present at that exchange (e.g. for the aggregation of non-leased line access circuits). The remedy is about providing backhaul from a BT exchange to another BT exchange to address competition concerns which have been identified in an IEC market. In other words, the market which Ofcom has defined is limited to routes between BT exchanges. The new form of Cablelink which Ofcom is proposing is not a necessary or indeed a relevant ancillary service within this market.

[149] Ofcom Consultation Volume 2 Paragraph 1.47-1.51

7.87 Further, the Openreach policy for allocating space within an exchange applies across all products: Copper, Ethernet, DPA and Optical. The long-administered policy (in line with Ofcom's own guidance at Consultation Volume 3, paragraph 3.48) is to allocate space on a 'first come first served'" basis and Openreach is not aware that the lack of space and power is a specific industry issue today for EAD or DF IEC or, in the future, likely to be an issue for DFA.

7.88 Ofcom also references, by way of justification for the new Cablelink variant, the Openreach "Distant Locate" product. Openreach is confused by this comparator, given the Distant Locate product (launched around 2007), is a legacy copper product, introduced to provide alternative access to the 'local loop' via a copper tie cable from an MDF in an exchange out to a CP built cabinet in the street. Ofcom should be aware however that it is over 10 years since this product was last purchased and Openreach is not aware of any live Distant Locate Cabinets currently in operation. In addition, given the planned withdrawal of the copper portfolio, the Distant Locate product is becoming increasingly obsolete.

7.89 Openreach also has specific technical concerns with the suggestion from Ofcom that the Openreach solution should allow a DFA circuit to be directly spliced onto a Cablelink circuit. This proposal undermines the current termination arrangements in place for the DF IEC product today, (and those previously agreed for the 2016 DFA Remedy) which is for a dark fibre circuit to have a clear demarcation point at both ends of the service by terminating the service on a patch panel. The current Ofcom proposal raises serious concerns and issues from both a provision and repair perspective. This is because Openreach would have no clear demarcation point for either service in the exchange to test from, (hence the requirement for a patch panel termination point) and Openreach would be unable to isolate and test either fibre service without breaking the fibre splice. Ofcom should note that for the Distant Locate product, the demarcation point is the copper MDF. A similar demarcation point is not replicable for the Cablelink variant proposed by Ofcom.

7.90 Finally, Openreach is aware of a recent Industry SoR that requests a solution for access to DF IEC in an exchange where space and power is exhausted. The SoR is in its very early stages, but should industry have a proven requirement for access to DF IEC (and DFA) at an exchange where space and power is exhausted, this is better served via the existing SoR process, which will allow both Openreach and industry to properly frame the issue and investigate a feasible solution suitable across all products using normal well-established processes.

7.91 In summary, Openreach recommends strongly that Ofcom removes its poorly thought through proposal and allows the right solution to be worked through between Openreach and its customers, using the established industry processes.

Ofcom's proposed dark fibre remedies

Question 6.1: Do you agree with our proposed dark fibre access and dark fibre inter-exchange remedies? Please set out your reasons and supporting evidence for your response.

7.92 Ofcom is proposing to introduce an unlimited DFA remedy in Area 3 to address competition concerns in leased lines markets. It is Ofcom's stated belief that this remedy will in time replace all leased lines in Area 3.[150]

[150] Ofcom Consultation Annex 13 paragraphs A.13.53-58.

7.93 This is therefore, by design, an extremely disruptive remedy, and Openreach continues to believe that Ofcom has overstated the benefits and underestimated the potential costs associated with it.

7.94 For example, Ofcom asserts that the DFA service will allow greater innovation in the use of electronics equipment by CPs. However, this position doesn't acknowledge that such innovation is already possible in an active product environment. Nor does Ofcom recognise that the general lack of SORs from CPs[151] to facilitate such innovation undermines the implicit argument that DFA is needed to address some market requirement that cannot be met using existing products and processes.

7.95 Further, Ofcom asserts that various benefits are likely to arise for VHB active services but does not acknowledge that at the currently proposed price point, the DFA remedy will substitute new supply of 100Mbit/s and 1Gbits/s active services and drive migrations from existing low bandwidth active services to DFA, where benefits are difficult to establish and the costs do not appear to have been considered by Ofcom.

7.96 Ofcom is also dismissive of the potential risks associated with launching an unlimited DFA remedy. For example, Ofcom dismisses risks associated with cost recovery, or of the DFA remedy undermining incentives for Openreach (and other CPs) to develop MSN based FTTP networks in Area 3, without any detailed explanation. Ofcom is wrong to do so.

7.97 Ofcom is similarly dismissive of the scope for DPA to offer a competitive constraint to DFA in Area 3 for leased lines applications. The extent to which DPA will play out in Area 3 is in fact unproven, but Openreach considers that it would be prudent for Ofcom to allow DPA, which remains in its early stages as an unrestricted remedy, to play out ahead of the imposition of an additional passive remedy. Openreach will continue to collect information on DPA in Area 3 and urges Ofcom to similarly update its analysis ahead of the final statement in order to test if its theory that DPA will not be an effective constraint for leased lines in Area 3 is holding up.

7.98 In its response to Ofcom's remedies consultation[152,] Openreach set out that Ofcom had not adequately explained why DPA could not act as a remedy in leased lines markets in Area 3. Openreach also included a report by Alix Partners that set out the potential risks of imposing an additional dark fibre access remedy in Area 3. Openreach continues to believe that the points it raised in the remedies consultation have not been adequately addressed by Ofcom, and Ofcom should take the opportunity now to properly assess the leased lines use case for DPA in Area 3, and also conduct a more detailed assessment of the risks and benefits of introducing the DFA remedy at this juncture.

7.99 The current Ofcom proposals mean that in Area 3, Openreach will be subject to three layers of regulatory remedies to address potential competition concerns in leased lines markets, two of which are passive / upstream in nature (DPA and DFA). Openreach questions if, over a 5-year period, this is a proportionate response to the competition problem identified. As noted above, Openreach considers that it would be appropriate, if Ofcom maintains its current approach, to also set out a mechanism via which active leased lines services are deregulated.

7.100 In this context, and given that the DFA remedy will be disruptive, Openreach urges Ofcom to conduct a proper evaluation of the likely costs and benefits of introducing the remedy, rather than relying on cursory and hypothetical exercise that has been undertaken to date. Such an exercise should include an update to the relevant Ofcom analysis (such as DPA take up in Area 3) to help test whether Ofcom's hypotheses are holding up.

[151] Openreach SoR tracker.
[152] https://www.ofcom.org.uk/consultations-and-statements/category-1/promoting-investment-competition-fibre-networks-approach-remedies March 2019.

7.101 Openreach agrees with Ofcom that, should a DFA remedy be imposed, it should be limited to Area 3 only. If Ofcom extended the DFA remedy to Area 2, this would reduce incentives for competitive network build, thereby undermining one of the key objectives of the WFTMR. This risk is recognised by Ofcom in the Consultation at Volume 3, paragraphs 6.18-6.20.[153]

Pricing for the dark fibre remedies

7.102 Ofcom proposes to price the dark fibre remedies (DF IEC and DFA) at cost. Ofcom provides very little further detail in the Consultation as to its policy intent on this topic, nor is comprehensive detail provided for the basis on which certain costs are excluded or included.

7.103 Openreach has various comments on the approach that Ofcom appears to have taken to evaluating cost, particularly in relation to the DFA remedy. Overall, Openreach considers that Ofcom has failed to properly include all relevant costs, and that in consequence the start prices for DFA are too low, and the CPI-X calculations for both remedies are too steep.

7.104 For example, for DFA Ofcom is proposing a starting annual rental price starting at £701 and a glide of CPI-7%, and connection price of £1,419 and a glide of CPI-2.5%, whereas Openreach considers that, when Ofcom conducts a proper evaluation of the relevant costs, it will find that the start prices should be £1,524 for connection and £1,084 for rental with CPI glides of +3.7% for connection -1.48% for rental respectively.

7.105 These very significant differences are driven by a range of factors including that Ofcom has failed to adopt the actual costs of delivery in Area 3, which are significantly higher (given the characteristics of this geography) than the UK average (the costs Ofcom has used). This is a geographically limited remedy and Ofcom should use the costs for Area 3 in specifying that remedy.

7.106 Openreach provides a detailed exposition of its comments on the treatment of costs and pricing for the dark fibre remedies in the pricing remedies Section of this response.

Mass migration from active to DFA in Area 3

7.107 By pricing the DFA remedy far too low, Openreach is very concerned that this will inevitably give rise to a large scale, and rapid, migration of circuits from active services to DFA in Area 3 and that the scale of this migration, which is not currently part of any operational forecast, will have three consequences within a 3 to 5 year time horizon: (i) it will create significant cost, (ii) by tying up operational resources it will undermine Openreach's ability to deploy scale FTTP networks in Area 3 and; (iii) by tying up operational resources it will undermine Openreach's ability to meet QoS standards for all leased lines services nationally. Ofcom does not appear to have considered this matter at all in its Consultation.

7.108 There is currently an installed base in Area 3 of around [✂] active circuits. Based on the currently proposed price for DFA (starting at £701 annual rental),[154] Openreach anticipates that this will lead not only to new supply of circuits moving to DFA (which Ofcom itself predicts), but that in addition the existing base of active circuits will also migrate to DFA circuits over the period covered by the WFTMR (which Ofcom hasn't considered at all).

7.109 The commercial case in support of this hypothesis is compelling. As shown in table 7.3 below, Ofcom's proposed price point means that not only will there be a commercial imperative for customers to move from 1Gb/s and

[153] Ofcom Consultation, Volume 3 paragraph 6.18- 6.20
[154] This is the price following the update made by Ofcom.

above services to DFA, but there will also be a commercial imperative for customers to move 100Mb/s services to DFA and the level of associated price arbitrage will increase year on year as the DFA connection and rental prices reduce with Ofcom's proposed glides (by 2025/26 the prices are proposed to be £1,510 connection and £602 rental including the initial testing charge in the connection price and patch panel testing charges in the rental price).

Table 7.3: Total cost of ownership / price comparisons[155]

Total Cost of Ownership (TCO)	DFA	EAD 100 LA	EAD 1Gb/s LA	EAD 10Gb/s LA
Connection Price	£1,419	£1,848	£1,848	£4,063
Rental Price	£701	£1,374	£1,620	£2,600
1 Year TCO	£2,120	£3,222	£3,468	£6,663
3 Year TCO	£3,522	£5,970	£6,708	£11,863
3 Year TCO £ Variance to DFA		£2,448	£3,186	£8,341
3 Year TCO % Variance to DFA		70%	90%	237%

Source: Openreach price list and Ofcom's proposed prices for DFA

7.110 Even in cases where CPs are not currently planning to move their customers from active products to DFA, their hand will be forced by the risk of competitors taking business away from them by offering end customers more compelling terms based on the input prices currently proposed for DFA. It is therefore sensible to assume that, if the current prices do not change, there will be a large-scale migration of existing base from active to DFA during the period of the WFTMR in addition to new business moving straight to DFA supply.

7.111 The price would also drive churn at a far higher rate than would normally be expected in a "steady state" competitive environment. For example, in a steady state environment, Openreach would expect the existing base to churn in around a [✂]. If Ofcom persists with the current pricing approach for DFA, Openreach would expect the same population of circuits to churn in 3 to 5 years due to the inappropriately low prices currently proposed and the economic incentives created thereof.

7.112 Given the value of the applications supported by leased lines, business customers invariably prefer to avoid service interruption when moving from one service to another (e.g. from active to passive). This position is supported by typical CP behaviour – where the process of choice when underlying product change is required has been invariably been "new provide and cease" – whereby end customer service interruption is avoided by providing the new service which the customer is moving to ahead of ceasing the old service that the end customer is moving away from.

7.113 For example, where Openreach has offered fibre reuse same CP upgrades from £720 (EAD 100Mb Local Access to EAD 1Gb Local Access) compared to new provide connection price of £1,848 typically involving 1-2 hours down-time (up to a maximum of 4 hours), CPs have in the vast majority (near 100%) of cases continued to prefer "new provide and cease" upgrades, despite the higher charge.

[155] DFA connection includes initial testing charge of £119. DFA rental includes patch panel rental at customer premises and patch panel apportionment in exchange.

7.114 There is no good reason to believe that customers in future will want to move away from the provide and cease process as described above, given that there is no other process that is currently available that can avoid operational downtime.

7.115 It is therefore sensible to assume that the migration of existing base from active to DFA in Area 3 will make use (to a very large extent) of the provide and cease process. This means that such migrations will require, for every circuit, a new provision and cease to happen, with the cost and resource implications associated with those processes. Openreach is also concerned that where CPs request it, installation of the DFA circuit while the active Ethernet circuit is live may lead to duct congestion that will drive further incremental work.

7.116 The rate of migration from Openreach's active Ethernet services will be affected by the launch price of DFA and the shape of the CPI-X control glide. Openreach sets out in the pricing Section of this response corrections that it considers should be made by Ofcom in setting the price of DFA in Area 3.

7.117 Openreach has estimated the level and rate of migrations from active Ethernet services to DFA based on Ofcom's proposed DFA rental start price in the consultation of £701 and Openreach's calculated view of the appropriate start rental price of DFA at £1,084. Based on a rough mid-point DFA rental price of around £850 Openreach estimates that circa [✂] active Ethernet circuits would be migrated to DFA from 22/23 to the end 2025/26 which would drive around a [✂] increase in orders in Area 3 during this period.

7.118 Openreach calculates that this would require around [✂] on average during this period, which would represent an increase to existing resources in Area 3 of around [✂]. This assumes that the migrations follow a new provide and cease route (as discussed above), with the vast majority of new provides [✂] having existing spare fibre. Openreach's initial estimate of the costs associated with these migrations is [✂]. These costs are initial estimates and are likely to be conservative because the profile of migrations could be expected to be variable (rather than flat) thereby requiring higher levels of resourcing. The costs are also before recruitment, training and kitting of resources. Were Ofcom to persist with the proposed rental price of £701 the level and rate of migrations, and the associated costs, would be higher still.

7.119 In the pricing remedies Section, we also set out the estimated impact on migrations from active products to DFA in the event that Ofcom applies the necessary corrections to the DFA price.

7.120 This would therefore represent a massive, un-planned uplift in the operational work that Openreach would be required to undertake during the period of the WFTMR. This outcome is currently omitted from Ofcom's analysis, and would bring three main consequences:

a) Significant additional cost would be incurred that Openreach would need to recover, and which isn't currently accounted for by Ofcom. Further detail is provided on this topic in the pricing remedies Section of this response.
b) Openreach's ability to roll-out scale FTTP networks in Area 3 would be compromised because engineering resource required to undertake that work could be diverted to undertake provision and cessation work associated with active to DFA migration.
c) Openreach's ability to deliver QoS standards for leased lines nationally would be compromised because engineering resource required to undertake that work would be diverted to undertake active to DFA migration work.

7.121 Openreach considers that these are all undesirable and unintended consequences of Ofcom's inappropriately low proposed price for the DFA remedy. Openreach does not consider that it is Ofcom's policy intent to create such

outcomes, however, it does appear that Ofcom has not properly (or at all) considered this risk – and it urgently needs to do so now.

7.122 For Ofcom to avoid these unintended consequences arising in the first place, the only effective solution is to set the right price for DFA, based on the relevant costs experienced in Area 3.

7.123 Further detail on the approach Ofcom should take in relation to cost and pricing for the dark fibre remedies is set out in the pricing remedies Section of this response.

Design of the dark fibre remedies

7.124 Openreach understands that the DFA remedy Ofcom is proposing to impose is there principally to address Ofcom's competition concerns in leased lines access markets, including for delivery of leased line circuits to mobile cell sites.[156]

7.125 It is important that the remedies are designed and then used in a manner that is consistent with the specific competition problems they are meant to be addressing and are not "gamed" (in the sense of being used for applications that are outside of leased lines access market in ways that could give rise to unintended consequences).

7.126 Openreach understands that Ofcom's DFA remedy in the Leased Lines Access market in Area 3 is intended to require Openreach to provide dark fibre terminating segments in three configurations:

- access segments;
- access segments including a main link between exchanges; and
- end-to-end access segments without a mainlink.[157]

7.127 Access segments are connectivity between an end-user site or premise and a Local Access Node. Openreach understands from this that Ofcom is not proposing to require Openreach to provide dark fibre network access between two intermediate nodes in the network, i.e. where the dark fibre does not terminate at an end-user site (subject of course to the separate remedy Ofcom is imposing in the leased lines inter-exchange market). To the extent Ofcom maintains its proposals to require Openreach to provide dark fibre access (which for the avoidance of doubt, Openreach considers it should not), Openreach considers this design aspect of the dark fibre remedy is appropriate.

7.128 Indeed, Openreach considers it would not be appropriate to extend the circuit configurations that Openreach is required to provide such that Openreach is required to provide access between two intermediate network nodes. If Ofcom proceeds with its proposals to impose a DFA remedy, Openreach would intend to ensure that there are appropriate contractual restrictions in place to prevent usage of the remedy beyond what it is required to provide under the SMP obligations.

7.129 This is because Openreach is concerned that if the DFA product which Openreach offers to meet the requirements of the DFA remedy is not subject to some reasonable constraints, then there is a risk that the product could be

[156] Ofcom consultation Volume 1 Overview, Volume 3, paragraph 6.14 & 6.21.
[157] Ofcom consultation, Volume 3, paragraph 6.31.

used, for example, for the purpose aggregating fibre services between network nodes, and this could give rise to unintended consequences that could undermine Ofcom's wider policy agenda.

7.130 In this context Openreach considers that, in order to provide certainty to stakeholders, it would be helpful for it to clearly set out in the product contract the permitted usage rules for the DFA remedy. Openreach also accepts that such usage rules would need in of themselves to be fair and reasonable in nature. Openreach sets out examples of the types of usage rules it would intend to include in any contract if it were required to offer network access in the form of DFA in the Area 3 Leased Lines Access Market.

7.131 Openreach took this approach in relation to the DF IEC remedy that was fully launched in December 2019, by embedding certain rules in the Reference Offer for the product.[158] This approach has worked well and has helped to provide certainty to CPs as to the permitted applications for the product. This also helps Openreach to ensure that its operational processes, where possible and/or relevant, are aligned to the permitted usage rules under the contract.

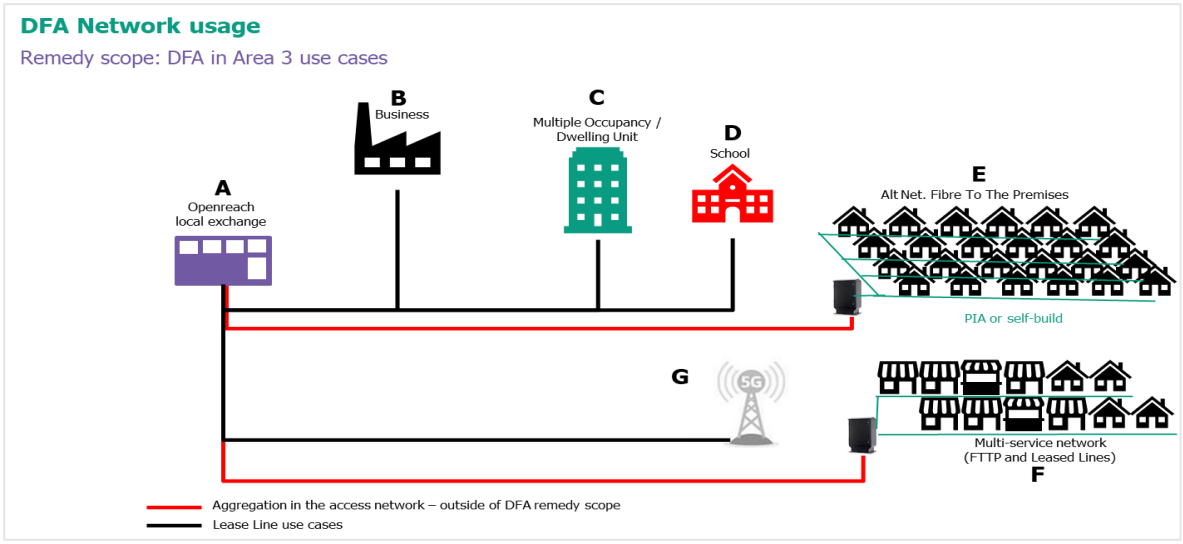
7.132 Openreach notes that Ofcom is mindful of the need to prevent gaming in the permitted usage of the dark fibre remedies. At Volume 3, paragraphs 6.35 to 6.39 of the Consultation for example, Ofcom has included a proposal to avoid gaming of the scope and purpose of the DF IEC remedy via use of the DFA remedy. Openreach supports this proposal by Ofcom, which is rightly needed to stop stakeholders from bypassing some of the intentional limitations placed on the DF IEC remedy for good policy reasons.

7.133 Openreach suggests that it, working closely with industry, may be better placed than Ofcom to offer detailed operational / contractual solutions to issues of detail such as this one. As such, and in line with the approach already taken for DF IEC, Openreach is proposing to introduce a set of reasonable usage rules for the DFA product. It is envisaged that the usage rules will be implemented into the reference offer for the DFA product (as occurred with the DF IEC product).

7.134 Openreach sets out below, at high level, the proposed usage rules for the DFA service, and their basis.

[158] Dark Fibre X Contract, Schedule 2. https://www.openreach.co.uk/orpg/home/products/darkfibrex/contracts/darkfibrexcontracts.do

Figure 7.4: DFA network usage scenarios



Source: Openreach

7.135 As shown in Figure 7.4 above, Openreach understands that to address Ofcom's competition concern of lack of competition in the leased lines access market[159] Ofcom intends for the DFA remedy to be used in connectivity scenarios involving the provision of leased line services to end-user sites (i.e. in access segments). These connectivity scenarios are illustrated in B, C, D and G i.e. where connectivity is being provided to a business customers premise, to a Multiple Occupancy / Dwelling Unit, to a school (or similar public building), and to a mobile cell site respectively.

7.136 Conversely, given the competition concerns identified by Ofcom relate to the provision access segments of leased lines (which under Ofcom's definition is from a BT exchange to an end user premise),[160] Openreach understands that Ofcom's DFA remedy would not require it to provide dark fibre to intermediate aggregation nodes points in the access network, including CP PoPs and street cabinets, for the purposes of aggregating fibre services such as leased lines and/or FTTP connecting multiple houses or buildings depicted in scenarios E and F.

7.137 Given the scope of what Openreach understands Ofcom's remedy to require, if Openreach was required to offer DFA, it would intend to include contractual restrictions to prevent usage beyond that which it is required to provide pursuant to the SMP obligation. This is because Openreach is concerned that VHB leased line connectivity enabled by dark fibre provided at cost (based upon Openreach's costs of supplying active Ethernet and Optical services to business premises) risks enabling aggregation in the access market downstream of BT exchanges leading to CP aggregation nodes for onward connecting multiple fibre services to premises and cell sites.

7.138 The resulting aggregation of active services would carry a significant risk of stranding Openreach's assets, thereby undermining cost recovery. This would also see the impacts of such usage of a DFA product going beyond the defined leased line access market with implications for the Trunk market within which CP nodes (Points of

[159] Ofcom Consultation Volume 2, paragraph 8.127 & Volume 3 paragraph 6.9
[160] Ofcom Consultation, Volume 5, Part 2: Interpretation – definition of 'Access Segment'.

Presence) and Data Centres sit. Ofcom has identified that no operator has SMP in the trunk market (other than in the IEC market) and such connectivity is therefore outside the scope of Ofcom's proposed DFA remedy.

7.139 Equally, if DFA was to be used to aggregate FTTP broadband access services this would also reduce Openreach's incentives to build FTTP in Area 3 and would also risk undermining Openreach cost recovery.

7.140 For the above reasons, if Openreach was required to provide a DFA product to comply with an SMP obligation to provide network access in the form of dark fibre, Openreach would intend to place reasonable contractual limitations on such a product to providing leased line services to a single or for connecting two customer premises aligned to the competitive concerns Ofcom is seeking to address in the leased lines access market in Area 3. Conversely DFA should not be available for the aggregation of fibre services at intermediate nodes for connecting to multiple premises such as leased lines and FTTP.

7.141 Openreach considers that the usage rules outlined above are aligned to Ofcom's definition of a leased line as an access circuit between an end-user site and the first point of aggregation or in some cases, between two customer sites. (Consultation Vol 2 paragraph 6.68 discussing market definition distinctions).

7.142 As noted above, Openreach envisages that the usage rules would be included in the reference offer for the DFA product. CPs would then be required to agree to those terms as part of product adoption processes. Although still under review, it is also envisaged that CPs would be asked annually to self-certify that they are using DFA compliantly (i.e. in line with the usage rules) and Openreach would reserve the right to carry out spot check audits of CP usage for compliance purposes. Openreach considers that such an approach would be light touch to operate and would not act as a barrier to CPs purchasing the DFA product.

7.143 Finally, all customer premises would need to in a defined Area 3 postcode. In other words, where a DFA service connecting two customer premises sites was requested both ends would need to be in defined Area 3 postcodes. Openreach understands that this is aligned to Ofcom's intention as to the circuit configurations that Openreach would be required to provide, as set out at paragraph 6.32 of Volume 3 of Ofcom's Consultation.

Inter exchange usage rules

7.144 Openreach notes that at paragraph 6.39 of Volume 3 of Ofcom's Consultation, whilst describing how the DFA remedy is intended to fit with the DF IEC remedy, Ofcom states that the instances where Openreach is not required to provide dark fibre between two exchanges in Area 3 as part of a DFA circuit are limited and that where a BT+1 or BT+2 exchange is connected to a BT Only exchange, dark fibre on that route would be available.

7.145 Openreach invites Ofcom to clarify that dark fibre would only be available on such routes where the CP is backhauling traffic from the BT Only exchange (i.e. that Ofcom does not intend through this statement to expand the scope of the IEC remedy as set out at paragraphs 6.83 to 6.111 of Volume 3 of Ofcom's Consultation). Paragraphs 6.84 to 6.96 of Volume 3 of the Consultation are clear that Ofcom intends to preserve the same scope of the remedy as it imposed under the 2019 BCMR.

7.146 The DF IEC contract which Openreach has introduced for the DF IEC product under the BCMR 2019 includes certain provisions aligned with the guidance set out by Ofcom in the BCMR 2019 as to the circuit configurations Ofcom expects Openreach to provide. This guidance is replicated at paragraphs 6.95 and 6.96 of the current Consultation. In particular, under the DF IEC contract, Openreach requires that the local serving exchange (i.e. the "B-end" of a circuit) must be a BT Only DF exchange. This ensures that the purpose of the DF IEC circuit is to

backhaul traffic from the BT only exchange to another exchange from where the CP would be able to obtain competitive backhaul.

7.147 Given Ofcom's guidance now remains the same as under the BCMR 2019 in the section of the Consultation on the DF IEC remedy, Openreach understands that Ofcom does not intend to change such guidance. If, contrary to this, Ofcom was intending at paragraph 6.39 to expand the scope of the DF IEC remedy, Openreach would not support such a change, nor has such a change been properly consulted on by Ofcom at this stage.

7.148 Given that this matter (which would represent a change to existing policy) is not considered in the Consultation, Openreach assumes that this is an oversight by Ofcom. If this is not the case, this change should be identified by Ofcom and subject to proper scrutiny as part of the normal consultation processes. Openreach therefore requests that Ofcom clarifies its position on this point.

7.149 To note, Openreach proposes to maintain the existing usage rules related to DF IEC that where a CP requires a inter exchange dark fibre segment the local serving exchange must be a BT Only DF exchange.

Network access obligations

7.150 In the Consultation Ofcom provides guidance on "arrangements concerning provision of new infrastructure" in connection with the dark fibre remedies proposed.[161] In summary, Ofcom says that its power to impose a dark fibre network access requirement on Openreach extends to requiring Openreach to make "adjustments to its existing network to make dark fibre available, provided that the adjustments concerned are based on the problem identified, proportionate and justified in light of the objectives set out in Article 8(1) of the Framework Directive. Ofcom then refers in footnote 129 to the decision of the European Court of Justice ("ECJ") of 19 June 2014 in Case C-556/12, TDC v Teleklagenaevnet. That case considered the types of "adjustment" which an NRA can legitimately require an operator with Significant Market Power ("SMP") to make to its existing network in light of Articles 2, 8 and 12 of Directive 2002/19/EC (the "Access Directive").

7.151 In addition to the acknowledgment that any adjustments must be based on the problem identified, proportionate and justified, Ofcom sets out three criteria which it considers should be applied to determine whether a particular adjustment to Openreach's network falls within the scope of the dark fibre access obligation. In Ofcom's view, any adjustment must: (i) be necessary, (ii) be feasible, and (iii) improve efficiency. Ofcom then sets out further guidance on factors that would be relevant to considering how these criteria might apply in certain scenarios. Ofcom says that these three criteria take into account the factors listed in section 87(4) of the Communications Act. These are the same as the factors listed in Article 12.2 of the Access Directive which the Directive requires NRAs to consider when assessing the proportionality of a measure, including an existing network adjustment, in light of Article 8(1) of the Framework Directive. Openreach agrees that where a network access obligation is imposed, this may require it to make proportionate adjustments to its existing network to facilitate access to that network. Insofar as this guidance relates to true "adjustments" to the network, appropriate guidance may be helpful. Thus, Ofcom is right to emphasise that Openreach would not be required to make an adjustment to its network on request by a Communications Provider, if it was not necessary, feasible and/or efficient for it to do so.

7.152 However, before addressing the issues of necessity and proportionality, the first step is to identify the type of adjustment that an NRA can legitimately envisage an operator making to its existing network pursuant to Articles

[161] Ofcom Consultation Volume 3 paragraph 6.44-6.52 & 6.97-6.100.

2, 8 and 12 of the Access Directive and the case law. Only when Ofcom has completed this exercise can it move on to consider the second step, necessity and proportionality.

7.153 As for the types of adjustment that the Access Directive envisages, it is clear that a request for an extension to an existing network or for new network build (as opposed to a mere adjustment) does not form part of any network access obligation: as Ofcom has previously expressly accepted in its WLA and BCMR statements, Openreach is not under any regulatory obligation to build extensions to its network, whether a request to do so is proportionate or not.[162]

7.154 In Case C-556/12, the ECJ makes it clear that the obligation on an SMP operator to make a network adjustment can only be contemplated under the Access Directive when: (a) it is an adjustment to a pre-existing access network; (b) the adjustment simply connects end-users to that network, it does not extend it; and (c) the adjustment is required to allow competing operators to use the pre-existing access network to compete for end-users. Moreover, in that case, the ECJ proceeding on the basis that the adjustment connecting the pre-existing fibre access network and the end-user's premises could be no more than 30m in length. According to the ECJ, the purpose of this obligation was to ensure that competing operators could use TDC's pre-existing fibre access network in the areas in which it was deployed to reach end-users who were not yet connected[163]. Without this obligation, TDC would have been able to reserve the use of its fibre access network to itself. The purpose of the obligation was not to allow competing operators to reach end-users in areas where TDC had not deployed its access network. Moreover, the ECJ said that the obligation to install, at the request of competing operators, drop cables of no more than 30m in length was permissible only as long as that obligation was based on "*the nature of the problem identified, proportionate and justified in light of the objectives in Article 8(1) of the Framework Directive*"[164].

7.155 We are concerned that there is potential for confusion from the guidance as it currently appears in the Consultation, because it does not refer to or consider what amounts to a "network adjustment". It is important the guidance reflects the fact that Openreach is not required to undertake new fibre infrastructure build which goes beyond the making of a proportionate "network adjustment" to its existing access network. Some of the provision of new fibre infrastructure which Openreach carries out, and has carried out historically, entails Openreach extending its fibre network (and is therefore outside the scope of a network access obligation).

7.156 There is a danger that a natural reading of the guidance set out by Ofcom could lead a reader to assume that in areas where Openreach is subject to an SMP network access obligation, provided the provision of new fibre infrastructure meets Ofcom's criteria that it is necessary, feasible and efficient, the network access obligation requires Openreach to provide new fibre infrastructure in all circumstances. As set out above, a network access obligation does not require this.

7.157 To take a stylised example to illustrate this, assume that a CP requests connectivity to a new cell-site that it intends to build in a remote location (Location B) where Openreach has no network[165]. The nearest Openreach Local Access exchange (Exchange A) is 15km away. The CP requests a connection (either EAD or dark fibre) from Exchange A to Location B. On the route that would be required for such a connection, Openreach does have duct and fibre along 200m of the route. The CP has no fibre or duct along any of the route. There are no alternative

[162] See 2018 Wholesale Local Access Market Review Final Statement, Volume 3, paragraphs 2.32-2.99 (in particular paragraph 2.49). See also Annex 7 of that Final Statement at paragraph A7.25.
[163] Paragraph 46 of the judgment.
[164] Paragraph 48 of the judgment.
[165] For the purposes of this illustration, no network includes no duct or fibre connection.

routes to reach Location B and as there is no duct to Location B, Openreach's DPA product would not be available. There are no technical, operational or legal barriers that prevent the installation of the new connection. Build costs would be in the region of £100,000 but given Openreach has 200m of existing duct along the 15km route, it would be slightly more efficient for Openreach to build the fibre and duct infrastructure than for the requesting telecoms provider to build the necessary fibre and duct infrastructure.

7.158 It may be that an assessment of the above illustration under the guidance currently set out by Ofcom at paragraphs 6.44-6.52 of Volume 3 of the Consultation, would lead to the conclusion that Openreach has to provide the new infrastructure. If that were the case, Openreach would strongly disagree. In fact, the above scenario provides an illustration of new network build to which a Network Access obligation does not apply under the Access Directive (building a new route from the exchange to the location amounts to an "extension" of the network and goes beyond any reasonable definition of an "adjustment" in light of Case C-556/12).

7.159 Clearly just because a Network Access obligation does not extend to the above scenario does not mean that Openreach would never provide the connectivity. Openreach may still choose commercially to do so. In such circumstances, the build of the new network infrastructure (i.e. the timeframes for delivery of the new infrastructure and the cost of the build of that new infrastructure) could not be subject to SMP obligations as the network does not yet exist. Once the network infrastructure was built, Openreach would be subject to any SMP obligations, e.g. Network Access, pricing and service obligations that apply in that market (this would include providing connectivity over that infrastructure, i.e. the connection of the circuit and ongoing supply of the service). We expand on how Openreach would intend to provide new infrastructure on a commercial basis where this is beyond the scope of a network access obligation further below.

7.160 For the avoidance of doubt, whilst Ofcom's guidance is set out in relation to its proposed dark fibre remedy, Openreach's comments in this response are not limited to dark fibre alone. Openreach's comments as to the limit on the scope of a Network Access obligation apply in whatever context Ofcom imposes such an obligation (in particular they apply equally to Openreach's active Ethernet and Optical portfolio).

7.161 Openreach considers that it would be beneficial to all stakeholders to make clear what constitutes a network adjustment and what constitutes a network extension. Doing so would provide certainty to all parties, enabling decisions to be made quickly and the basis of those decisions to be transparent. In this regard we note that Ofcom provided similar guidance in relation to DPA throughout the 2018 WLA market review process.[166] We appreciate that the distinction may not always be clear cut in borderline cases, but that fact simply reinforces the need for such guidance to be provided, to enable Openreach and Communication Providers to understand on which side of the line a request falls. Providing such guidance will avoid lengthy and costly disputes being raised, for subsequent determination by Ofcom.

Need for a network adjustment threshold

7.162 Where a network adjustment can be envisaged under the Access Directive and the case law, to be permissible it must also be based on the nature of the problem identified and proportionate and justified in light of the objectives in Article 8(1) of the Framework Directive. Section 87(4) of the Communications Act and Article 12.2 of the Access Directive list certain factors that an NRA must take into account when assessing the proportionality of an access obligation in light of Article 8(1) of the Framework Directive. It follows that the criteria of necessity, feasibility and efficiency that Ofcom develops in its guidance should be consistent with these factors.

[166] See 2018 Wholesale Local Access Market Review Final Statement paragraphs 2.65 to 2.88.

7.163 All stakeholders would benefit from further clarity on the circumstances in which a network adjustment would be disproportionate. Openreach considers this threshold is based on the degree of work required to adjust Openreach's existing network. We also consider that the appropriate approach to establishing this threshold is analogous to the approach taken by Ofcom in the WFTMR to assess, for example, market definitions and economic build distances.

7.164 Openreach must have clarity about where and in what circumstances it is required by regulation to meet a customer request for a network adjustment enabling access to an existing network infrastructure in relation to which Openreach has been found to have SMP (and to ensure these assets are appropriately maintained and successor products made available where the underlying technology evolves); versus the commercial discretion to focus its investment in a way that can most efficiently achieve this in the long term.

7.165 In defining the boundary beyond which there is no regulatory obligation to provide service (but where service may nevertheless be provided on commercial terms) Openreach is considering two main scenarios:

1.1 Scenario one where the request involves Openreach expanding its footprint between its pre-existing access network and end-user premises; and

1.2 Scenario two where the request involves augmentation to capacity where infrastructure linking the access network and the customer premises is already in place.

7.166 In relation to both scenarios we consider that an appropriate approach to take in establishing a threshold is analogous to the approach taken by Ofcom in the 2019 BCMR to assess, for example, market definitions and economic build distances.[167]

Figure 7.5 Ofcom dig distance model

5. Break-even distance estimation

a) Click the button below and the tables will populate automatically; or

CALCULATE BREAKEVEN DISTANCES

		Approximate break-even route distance				Approximate break-even radial distance			
Circuit	Payback period (years)	Scenario 1	Scenario 2a	Scenario 2b	Scenario 3	Scenario 1	Scenario 2a	Scenario 2b	Scenario 3
EAD LA 100Mbit/s	3	Distance is not a factor	2,237	610	38	Distance is not a factor	1,598	436	27
EAD LA 100Mbit/s	5	Distance is not a factor	3,406	930	65	Distance is not a factor	2,433	664	47
EAD LA 100Mbit/s	7	Distance is not a factor	4,390	1,198	89	Distance is not a factor	3,136	856	63
EAD LA 1Gbit/s	3	Distance is not a factor	3,211	877	61	Distance is not a factor	2,294	626	43
EAD LA 1Gbit/s	5	Distance is not a factor	4,754	1,298	97	Distance is not a factor	3,395	927	69
EAD LA 1Gbit/s	7	Distance is not a factor	6,879	1,878	135	Distance is not a factor	4,914	1,341	97
EAD LA 10Gbit/s	3	Distance is not a factor	7,361	2,009	147	Distance is not a factor	5,258	1,435	105
EAD LA 10Gbit/s	5	Distance is not a factor	8,813	2,406	181	Distance is not a factor	6,295	1,718	129
EAD LA 10Gbit/s	7	Distance is not a factor	11,426	3,119	231	Distance is not a factor	8,161	2,228	165

Source: Openreach analysis using Ofcom's dig distance model

7.167 Openreach's approach to calculating a sensible threshold for requests that involve Openreach expanding its network footprint is based on Ofcom's "indicative-dig-distance-cost-model-1" with some minor updates to ensure that the model incorporates Openreach's current prices (the impacts arising from these adjustments is minor).

7.168 This model shows the incremental cost break-even point based on Openreach's current prices and the incremental costs using ECCs as a proxy for infrastructure build in four scenarios (fibre connected, duct connected with tubing, duct connected without tubing and new duct required).

[167] https://www.ofcom.org/consultations-and-statements/category-1/business-connectivity-market-review

7.169 The model's primary purpose is to show the commercial threshold of an Alternative Network extension to serve a customer, i.e. it shows on a commercial basis how far an alternative network provider would be prepared to extend its network to serve a customer to be around 50 metres. Openreach therefore regards this to be a generous view of the threshold of a network adjustment (which in reality ought in fact to be much lower than this, given one would normally expect a network adjustment to require less activity than extending a network).

7.170 The indicative dig distance model calculates around £5k (£4,934) to be the break-even for a "typical" access circuit (which we have taken to be an EAD 1G Local Access taken on a 3-year term). This also equates to the value of around 50 metres of duct and fibre build. To provide a sense of scale, by applying this threshold to orders with ECCs [✂] of all orders involved ECCs beyond this threshold (based on data from financial year 2019/20)[168]. There will also be a subset of orders without ECCs where this threshold of fibre duct build is also exceeded.

7.171 Openreach therefore proposes to adopt £5k incremental network build costs for fibre, sub-duct and new duct or pole provision as being the threshold beyond which requests for leased lines services will be treated as going beyond Openreach's network access obligation (and so not subject to any regulatory obligation to supply).

7.172 In Volume 3, paragraph 6.49 of the Consultation, Ofcom says that the DFA obligation will require Openreach to lay new fibre and/or duct in certain circumstances. According to the ECJ in Case C-556/12 and Ofcom's own statements in the WLA Market Review Final Statement[169], that obligation does not include a requirement to build extensions to Openreach's access network. So, it does not require Openreach to lay new duct or fibre over the entire route between a local exchange and a customer's premises. It may include a requirement to make adjustments to connect end-user customers to the access network subject to the adjustments being based on the nature of the problem identified, proportionate and justified in light of the objectives in Article 8(1) of the Framework Directive.

7.173 As for the proportionality and justification of network adjustments, the third criterion in Ofcom's guidance considers whether the requested adjustment improves efficiency. In assessing this criterion (in paragraph 6.50 of Volume 3 of the Consultation), Ofcom adopts a narrow frame of reference contrasting how efficient it would be for Openreach to provide the new infrastructure as compared to how efficient it would be for the CP requesting the service. Ofcom's guidance does not seem to consider wider efficiency considerations which are also relevant. To illustrate this, the ECC investment associated with the [✂] of orders above the £5k adjustment threshold totalled [✂] in 2019/20 with an average ECC of [✂] across [✂] orders. The engineering effort associated with this level of cost is comparable to building FTTP to around [✂] premises passed in Area 3. That is, under the current guidance set out by Ofcom, if Openreach is required to build new infrastructure for a single telecoms provider just because it is more efficient on a case-by-case assessment for Openreach to do so than the alternative telecoms provider, this creates an opportunity cost whereby Openreach could have built FTTP past [✂] premises for the same cost as was required to build [✂] leased lines circuits.

7.174 Thus, Ofcom in its efficiency assessment does not seem to give adequate consideration to the factors it is required to consider under Article 12.2 of the Access Directive and s.87(4) of the Communications Act, including: (a) the technical and economic viability of using or installing competing facilities, in light of the rate of market development; (b) the feasibility of providing the access proposed, in relation to the capacity available; and (c) the

[168] Openreach 2019/20 analysis using the Ofcom dig distance model.
[169] See Footnote 2 above.

need to safeguard competition in the long term, with particularly attention to economically efficient infrastructure-based competition.

7.175 The above factors cast doubt on Ofcom's suggestion[170] that Openreach might be required to lay new fibre where there is fibre but it is fully used. The obligation on NRAs, when assessing proportionality, to consider whether access is feasible in light of the existing capacity available suggests that in such circumstances a requirement to build new fibre would not be proportionate. Similarly, Ofcom said in the 2018 Wholesale Local Access Market Review Final Statement at Volume 3, paragraph 2.49: "… where additional capacity is required within the existing network footprint, as the amount of additional capacity sought increases relative to the total capacity in that section of the existing infrastructure, the work required to provide that capacity is increasingly likely to resemble the construction of new parallel physical infrastructure, rather than the augmentation of the existing infrastructure".

7.176 Openreach would emphasise that requests beyond the threshold of £5k incremental build will not automatically be rejected – this would not be a sensible commercial course of action for Openreach to take. It does mean, however, that Openreach would assess those requests on a commercial basis and could also consider offering terms outside of the standard regulated products, should that be the optimal solution available. Assessments would be conducted on an equal treatment basis, and so as to ensure no undue discrimination.

7.177 Openreach considers that adoption of such an approach (in relation to all leased line requests, not just dark fibre) would be helpful to all stakeholders, is consistent with the legal force and intent of the Network Access obligations, and would help ensure that Openreach is not obligated by regulation for requests that are not proportionate, or that constitute a network extension.

[✂]

7.178 [✂]

7.179 [✂][171]

7.180 [✂]

7.181 [✂]

7.182 [✂]

7.183 [✂]

7.184 [✂]

DFA implementation

Impact of COVID-19

7.185 It should be noted that the comments and proposals set out below regarding the Openreach proposed alternative timetable for the implementation of the DFA remedy were written before the scale of the COVID-19 outbreak was understood. Whilst these proposals remain the base case of Openreach's position, the scheduled systems release dates and alternative launch timetable are no longer secure and cannot be relied upon. Openreach proposes to

[170] Volume 3, paragraph 6.48 of Ofcom's Consultation.
[171] [✂]

conduct a thorough review regarding an updated timetable for DFA implementation for discussion with Ofcom when the implications of COVID-19 are better understood.

Overview

7.186 While Openreach does not support the imposition of the new DFA remedy for the reasons set out above, if required to deliver the DFA remedy, it is in no one's interests that Openreach be required to deliver a sub-standard product at such a speed that will compromise quality.

7.187 Openreach wants to meet the requirements of the regulatory remedy (if imposed) by delivering a robust quality product, agreed with industry and capable of being consumed at volume from day 1. These objectives cannot be achieved within the one-month timeframe as proposed by Ofcom.[172]

7.188 Complex developments such as DFA need close collaboration with industry. Industry also need sufficient opportunity to discuss the Openreach proposals and Openreach in return needs to give due to consideration to any comments or concerns from industry that may arise.

7.189 Openreach considers that Ofcom's proposed implementation timescale for DFA of 1 month beyond the date of the Final Statement is not feasible or proportionate and needs to be significantly extended.

7.190 Openreach believes that Ofcom should take account of the detailed analysis that has now been undertaken by Openreach into what a feasible implementation plan is. Openreach has conducted detailed analysis and proposes an alternative implementation schedule which it sets out below. This analysis considers the work that needs to be undertaken and the availability of systems development capacity within the EMP system, given other high-profile developments for FTTP and DPA that cannot be moved without creating negative consequences elsewhere.

7.191 To note, given the amount of development already in train, there is no real "give" in this plan and bearing in mind the fixed nature of systems development, it is not feasible to squeeze this timetable further. The proposal below therefore indicates the minimum timescale necessary for Openreach to develop an automated DFA product.

7.192 Openreach also provides comments in relation to the proposed specification of the launched DFA product (Openreach notes that this process necessarily took some time in the development of DPA). Further detail on this is set out below.

7.193 Ofcom is also proposing to introduce all QoS remedies (e.g. QoS standards, SLA/SLGs) straight away for the DFA remedy. Openreach considers that it would be prudent to allow a period of product testing ahead of introducing all remedies.

7.194 As set out in the Section dealing with QoS Openreach considers that it would be appropriate to introduce the remedies when the product is fully rolled out where Openreach is proposing a date of June 2022 for full product launch[173]. This would be more consistent with the approach taken in the 2019 BCMR for DF IEC. Openreach believes that, as in that case, there should be a period of product stabilisation before the introduction of SLAs and SLGs.

[172] Ofcom consultation Volume 3 paragraph 6.82
[173] Subject to further discussion with Ofcom given implications of COVID 19

Openreach's principal concerns about Ofcom's implementation timescale for an automated DFA product.

7.195 It is not feasible for Openreach to deliver systems capability to underpin the proposed DFA remedy one month after publication of the Final Statement.[174]

7.196 First, and as previously set out in Openreach's response to the BCMR 2019 Consultation, the idea that Openreach could deliver any new remedy by simply taking the dark fibre remedy developed for the 2016 BCMR 'off the shelf' is incorrect.

7.197 New Openreach products and product upgrades are implemented in EMP system releases (generally at most two per calendar quarter). These system releases are scheduled months in advance and have finite capacity in terms of amount of the changes they include and the resources available to deliver them. Openreach cannot simply "slot" in the new dark fibre design into this schedule without impacting existing industry agreed product developments for FTTP and DPA. Openreach's understanding is that Ofcom, rightly, would not want to shorten the delivery timescales for DFA by compromising other important developments for strategically important products.

7.198 Ofcom currently incorrectly assumes that one month after publication of the Final WFTMR Statement is a sufficient timeframe for Openreach to design, deliver and launch the proposed new DFA remedy and agree the Reference Offer with industry. This means that if Ofcom were to publish its Final WFTMR Statement on 1 April 2021, Openreach would be required to deliver a fully functional automated DFA product with a national rollout by 1 May 2021.

7.199 If Ofcom was to maintain its existing approach to product implementation, the product delivered would not be of the quality required on launch, and Openreach would immediately need to obtain a set of regulatory waivers given the product would not meet all of the specifications required of it. Openreach therefore urges Ofcom to change its approach and allow a reasonable implementation timeline, having properly considered the relevant facts and issues, as outlined below.

Openreach cannot simply reuse the DFA 2016 Remedy

7.200 In order to meet the required timeframe to implement the BCMR 2019 DF IEC remedy, [✂].[✂] Ofcom is wrong to assume that it could be re-used as the vehicle to deliver the proposed DFA remedy.[175]

Requirement to deliver DFA 2021 as a comparable product to Openreach active wholesale products.

7.201 Ofcom has also overlooked that it is over 4 years since the DFA 2016 design was completed; that in the intervening time period, numerous system and product enhancements have been implemented for the EAD product journey such as View My Job, KCI management, enhanced date and delay management and numerous smaller CP and Openreach impacting enhancements.

7.202 In addition, since 2016, Openreach has also refined its systems solution approach to product design, [✂].

7.203 Therefore, in order to ensure that the DFA 2021 remedy is comparable to the current Openreach active wholesale products as set out in Ofcom's guidance at Volume 3 paragraph 6.40 in the Consultation (in particular, having EAD

[174] Ofcom consultation Volume 3 paragraph 6.82
[175] Ofcom consultation volume 3 paragraph 6.81.

as the "benchmark" active product) Openreach needs to build the DFA 2021 remedy onto the current EAD component codebase rather than re-build it by mimicking the DFA 2016 design.

7.204 Designing the DFA remedy using the EAD codebase will allow the DFA product to remain synchronised going forward with any functional enhancements delivered for EAD[176] (and vice versa if required) and ensure that DFA is scalable to high volume usage scenarios.

Complexities of designing a new product based on EAD

7.205 However, designing and delivering a new product is a significant undertaking, and the design for DFA 2021 is complex. By way of explanation, all Openreach product order journeys (i.e. provision, repair, cease etc.) are underpinned by a number of separate but linked component systems that carry out the 'functional steps' necessary to progress an order e.g. validate orders, assign Circuit IDs, generate MIS, trigger SLGs, generate bills and so forth. The term 'complex' in design parlance is used to define the number of the systems impacted by a design journey, where the more systems are impacted, the more complex the design.

7.206 The DFA design is considered 'complex' because it will impact all the major component systems. At each stage in the DFA order journey, each system in the process hierarchy will 'hand off' to the next. Each hand off will need to be tested to ensure it works and 'regression testing' then needs to be carried out in order to test that the sequence of the hand overs work together, culminating in a final 'end to end' test of the system hierarchy.

7.207 Once the product design is complete, in order to physically launch the DFA product, the design needs to be allocated into a systems development release schedule.

7.208 Complex designs need to be spread over multiple major system releases (rather than just one). This is because Openreach needs to a) break down the component design into 'functional blocks' in order to assure each new piece of functionality performs as required, b) there is a physically finite capability (i.e. number of people) that can work on a component at any one time during this process to make changes, and complete the end to end processing, including testing and regression testing, c) this approach is necessary to spread any risk that could jeopardise the live systems when the new product code is launched; and d) to build in sufficient time for CP's and Openreach's operational teams to be ready for service at launch. Simply throwing more people at this problem would not fix the lead-time problem associated with Ofcom's proposed approach.

7.209 For DFA, as a complex design, Openreach estimates that it will require seven systems releases in total to deliver a complete solution, four of which will be dedicated to deliver the design for a basic provide DFA order journey. Openreach has set out its proposed implementation plan in more detail in the sections below, however in brief, the systems release proposal is set out below in Table 7.4. As noted above, this timetable may be subject to change given impacts from COVID-19.

Table 7.4: Openreach Systems release

Systems Release	Functionality Delivered	Operational Date

[176] An exception to this is Re-Imagining Ethernet (REP). As discussed with industry, the REP suite of developments are intended for initial trial on EAD products only. Should the trial be successful, only then will REP will be rolled out for other products such as DFA.

[✂]	[✂]	[✂]
[✂]	[✂]	[✂]

Source: Openreach

Allocating the DFA design to a system release

7.210 As outlined above, once the product design is complete and capability developed, in order to physically launch the DFA product, the capability needs to be allocated into a systems software development release schedule.

7.211 Openreach uses EMP as its software development platform and the majority of Openreach products are built on this platform. In order make a change to an existing product (i.e. add new functionality) or launch a new one, such as DFA, capability has to be designed and built into this system stack and once fully tested launched on the EMP platform as a live functionality ready for CPs to consume.

7.212 Openreach's systems development release cycle (there are generally at most two releases per quarter) do not have large amounts of spare capacity, nor does Openreach have infinite trained resource to work on developing the required capabilities.

7.213 The allocation and prioritisation of developments to each systems release is agreed with industry several months in advance so that customers have sight of the planned developments and can make plans for their own developments on the back of this. This is another reason not to reschedule existing allocated developments.

Systems Release Contention

7.214 Ofcom should note that all systems releases up to March 2021 are taken up with changes either agreed with our customers or developments underpinning the critical DPA and FTTP products. There is, therefore, no spare capacity in any release that would allow the proposed remedy to be implemented in the timescale which Ofcom plans to mandate.

7.215 By way of illustration, Figure 7.6 below sets out the developments currently allocated to the Openreach systems release schedule from July 2020 to May 2021. [✂].

7.216 Ofcom should note that in order to deliver an automated DFA solution by May 2021, design activity would need to commence now, Openreach would need to work at risk, and more importantly, Openreach would need to drop or delay a number of key developments currently allocated space in the forthcoming release schedule. This is because as outlined above, there is insufficient capacity within these releases to deliver all the required product designs simultaneously.

Figure 7.6: Current developments scheduled

[✂]

7.217 The developments most at risk would be those developments that are themselves considered complex and which currently take up the most capacity within the systems. These include the DPA development to deliver Application Programming Interface ("API") for ordering network adjustments. As Ofcom is aware, this is a critical enabler for large scale consumption of DPA by CPs and an Industry and Ofcom priority. FTTP new sites and digital workflow developments would also be impacted. These developments automate the plan and build journey and civil engineering not only for FTTP, but also DPA. As mentioned above these developments would need to be either stopped indefinitely or delayed should we need to relocate systems development capacity to introduce DFA in the same time frame.

Alternative proposed implementation timeframe to deliver an automated DFA product solution

7.218 A more pragmatic and less disruptive implementation approach for both industry and Openreach (should Openreach be obliged to deliver the proposed DFA remedy), would be for Ofcom to permit a phased implementation approach to deliver an automated solution across 7 separate development releases. This is set out in Figure 7.7 below. Please note this schedule may be subject to change due to COVID-19 impacts.

Figure 7.7: Proposed phase delivery for DFA

[✂]

7.219 Adopting a phased approach would:

a) Deliver the DFA provision journey with CPs able to place orders and consume DFA (plus repair capability) by 1st October 2021.

b) Enable Openreach to reduce the execution risk in the systems stack and allow a range of developments to support the critical programmes of FTTP, PIA and DFA to be delivered simultaneously.

c) Allow a period of operational testing for DFA both in house via the model office and with industry.

d) Allow Openreach a 5-month period to negotiate and agree the terms of the DFA contract and all supporting product documentation making up the DFA Reference Offer, to be followed by a 28-day notification period prior to initial launch from 1st October 2021. This reduces the risk of disputes following launch of the product as Openreach and its customers will have had the opportunity to discuss, adapt and understand the final product specification.

e) Allow industry to onboard and establish for the DFA product in time to order the DFA product from 1st October 2021.

f) Allow Openreach to deliver the less essential product elements at a later stage i.e. Novations and B2B by March 2022.

g) Allow Openreach and industry to negotiate a phased operational Regional roll out (similar to that agreed for DF IEC), allowing CPs to test and scale DFA operationally within their own organisations so that the product is ready to be consumed at volume nationally by June 2022.

Dark Fibre Reference Offer and Operational Readiness

7.220 In addition to completing the significant activity outlined above required to enable systems readiness for product launch, Openreach would need to simultaneously:

a) Negotiate and agree contractual text and supporting product documentation with industry to support the DFA remedy;

b) Implement a national training programme for Openreach desk and field teams; and

c) Establish customers for the product (which can only begin once Openreach has an agreed product contract and supporting product documentation).

Dark Fibre Reference Offer – combined DF IEC and DFA

7.221 To be consistent with the approach of the Connectivity Services contract which covers the Ethernet and optical portfolio, Openreach is considering combining the DF IEC and DFA products under a single Dark Fibre contract and Reference Offer.

7.222 However, as the new DFA remedy is distinct in its content and presentation from the current DF IEC remedy, Openreach will need to negotiate revised contract text (including SLAs/SLGs) to support this activity. As outlined above, 4 weeks is an insufficient timeframe in which to engage with industry, negotiate and agree the new contract text and supporting product documentation. Experience with the DFA negotiations in 2015/16 and more recently for the DF IEC remedy in 2019 showed that these discussions can be lengthy and protracted. CPs themselves will also want time to consider, discuss and understand the new proposals in detail.

7.223 Whilst Openreach can draw upon the terms of the previously agreed DFA 2016 Reference Offer and the DF IEC 2019 Reference Offer there will be a significant number of contractual changes required to accommodate the new DFA 2021 product. In addition, certain assumptions can be built upon and made for the DFA 2021 Reference Offer in advance of the WFTMR Final Statement, but there can be no guarantee that these assumptions will not change and require subsequent interpretation and agreement with industry. It is unrealistic to conclude all these activities within a 4-week negotiation window.

7.224 If forced to publish the DFA 2021 Reference Offer within one month of the Final WFTMR statement, Openreach would need to notify the Reference Offer without consultation with industry and then go into 'immediate contractual review'.

7.225 It is in no one's interest that Openreach launches a product at speed without the opportunity to discuss with industry and to give due consideration to any comments or concerns that they raise. Such an approach risks unnecessary disputes which could be avoided if opportunity is given to conduct necessary negotiations. As set out above, Openreach considers that a reasonable time period in which to launch the product and conclude industry negotiations on the Reference Offer is a period of 6 months (5 months plus the notification period) after publication of the WFTMR Final Statement.

Operational roll-out

7.226 Ofcom should note that this section is written assuming BAU (non COVID-19 impacted) conditions and that face to face training of Openreach field and desk communities can be carried out as required.

7.227 Openreach has sought to take learning from the development, launch, and operational roll out of DF IEC. However, it should be noted that at the time of writing, Openreach had completed 33 DF IEC circuits since the product launch in August 2019. Whilst this is not a statistically valid volume to assess a product process, Openreach has used the learning from DF IEC to inform our approach for the operational roll out of DFA.

7.228 The DFA product is expected by Ofcom to be consumed at volume within Area 3.[177] As Area 3 covers all of the Openreach FND Regions and Areas, to achieve full national coverage as required, and ensure maximum operational flexibility and efficiency, Openreach will have to train all of its Precision Test Officers (PTOs), jointing engineers and refresh the training for our national planning and desk communities.

7.229 As DF IEC and DFA will use different processes and procedures, Openreach cannot simply re-use the training used to support the launch of DF IEC in 2019. This will be a significant undertaking for Openreach and will require bespoke training modules to be developed and delivered to [✂] Field and desk staff all over the UK. Openreach's field teams will need to be upskilled to install, test and repair DFA circuits (including associated systems on their iPhones). Ofcom should further note that the training material can only be completed once the final design and developments of the DFA product are known and understood.

7.230 Table 7.5 below sets out estimated numbers of the various desk and Field teams that will require training to support DFA. An estimated half day programme is required for each, some of which will be delivered by CBT and others by face to face training programmes depending on the specialism.

Table 7.5: Estimated field training requirements for DFA

[✂]

7.231 Executing a national training programme of this size requires significant planning and project management and the minimum time period to roll out the physical training segment of this programme would be 10-12 weeks. It cannot be delivered within a 4-week window.

7.232 Operationally, Openreach plans for [✂] shrinkage[178] within a given week to be assigned to training. If this was to be completed in 10-12 weeks, this would take out all the existing training capacity for a quarter. Therefore, Openreach would either have to reprofile the existing training requirements (which might not be possible if they are mandatory), double the shrinkage assumptions and thereby increase ineffective time in the business, or change the delivery profile of the training across a longer period.

7.233 For the reasons set out above, taking field teams out of operation to attend [✂] training sessions needs to be staggered and targeted so that it does not disrupt or have a negative impact on other BAU products, such as EAD or FTTP.

7.234 This also does not account for the upgrade of the EXFO[179] and JDSU testers that the engineers currently use. These testers need to have a software upgrade applied to them to enable them to use a Bluetooth dongle which is required to test Dark Fibre circuits. The engineers will also require training on this new functionality.

7.235 It is therefore not feasible for Ofcom to expect Openreach to develop and train a national workforce to deliver DFA within 4 weeks. As outlined above, Ofcom should allow Openreach and industry to negotiate a phased operational

[177] Ofcom Consultation Volume 3, footnote 120, Annex 13 paragraphs A.13.53-58.
[178] Shrinkage is the operational term used to describe the number of engineers who are not available for work at any given period, as a result of either annual leave, sickness or training.
[179] EXFO & JDSU are handheld testers used by engineers to test the fibre and record light loss and light availability.

Regional roll out (similar to that agreed for DF IEC), allowing Openreach to minimise disruption on other large scale BAU programs such as EAD FTTP; and provide CPs and Openreach with sufficient time to test and scale DFA operationally, over a managed period of time.

Should Openreach be required to deliver the DFA Remedy within 4 weeks

7.236 As outlined above, the 2016 DFA remedy codebase [✂] and cannot therefore be used to deliver the DFA product in 2021. Openreach has also articulated the significant disruption to other key developments such as PIA and FTTP if it were to attempt to deliver an automated DFA solution by May 2021. Openreach has also proposed an alternative approach that it considers to be a proportionate proposal and timeframe to build and deliver a strategic automated DFA product solution.

7.237 Whilst Openreach strongly recommends against this course of action, should Ofcom nevertheless maintain the requirement for Openreach to launch the DFA product 4 weeks after the Final WFTMR Statement, then Ofcom should be aware that Openreach could only attempt meet this obligation by:

a) Re-calibrating the current systems release schedule to drop or delay a number of developments required for FTTP and DPA as set out at Figure 7.6 above (subject to the COVID-19 caveats); or

b) Delivering a sub-optimal product using manual means.

Delivering the DFA Remedy via a Manual solution

7.238 Ofcom should note that the term 'manual' in this context means that Openreach would need to set up a dedicated 'live desk' staffed with trained individuals to manage the orders. This process would be inefficient, labour intensive and would represent a significant overhead. For each stage in the order process a physical action would be required from an individual to acknowledge and progress the task to the next stage of the process, for example:

a) The CP would be required to email their order via a spreadsheet into a dedicated email account.

b) Each order would be manually validated, and the order emailed to the next stage of the process i.e. planners, who in turn would need to email the order to the field for allocation.

c) All KCIs, billing and SLGs would also be manually generated.

7.239 Ofcom should also note that for every human 'touch point' involved in processing an order journey, the likelihood of an (unintentional) error increases. Therefore, for a volume product such as the DFA remedy, a manual process, however short term, is not the correct solution and should be avoided.

7.240 The table below sets out how a manual DFA process would need to operate.

Table 7.6: Manual DFA process

Systems	Product and Contract	Operations	CPs
• No systems solution will be delivered: • CPs will order via a CRF spreadsheet, with a circuit number generated by macro in WFMT. • All planning and orchestration and delivery will be done manually via spreadsheet. • Manual KCIs. • Manual Billing. • We will also in parallel need to investigate a strategic solution for DFA, but the timing for this is currently unknown	• The contract and the ancillary documents will need to be completely rewritten to reflect the manual processing approach. • CPs are unlikely to agree to the contract, nor establish for the product.	• CPs would need to be restricted to 3 - 5 concurrent orders each (then we would move into an amended phased launch plan). Restrictions can only be removed once the strategic automated solution is delivered. • Designing, delivering and staffing this tactical process would remove significant resource (in terms of numbers and expertise) and focus from implementing the strategic solution, as well as being incredibly prone to ordering and delivery risk due to manual data handling and lack of order validation.	• CPs will need to place and track orders manually, resulting in extra effort for them and additional contact into our service desk. • CPs could place incorrect orders that will require significant effort to correct.

Source: Openreach

An interim manual solution would not meet Ofcom's objectives or requirement to offer parity with EAD:

7.241 Ofcom has set out its objectives for DFA with an accompanying detailed product specification in detail at Section 6, Volume 3 of the WFTMR Consultation. Ofcom also expects the DFA product to be consumed at volume.

7.242 However, a manual process would be limited in the number of orders it could physically process, which in practice would mean a restriction would need to be imposed on the number of orders a CP could place at any one time, therefore impacting CPs plans for volume DFA consumption.

7.243 The DFA product specification and design (as set out Table 6.1 & 6.2, Consultation Volume 3) sets the expectation that the DFA product should have parity with its corresponding active wholesale product (i.e. EAD and EAD LA) using the same systems and processes. This requirement will not be possible to achieve via a manual solution. EAD is a fully automated product that provides CPs with, for example, the ability to change, modify and track order progress without contacting Openreach. None of this functionality could be supported via manual processes, which would require the CP to contact Openreach for queries or updates.

7.244 Given the requirement for DFA to be comparable with the corresponding active product[180], the manual product would not be compliant and, and as a matter of urgency Openreach would need to seek a waiver from Ofcom on this issue in order to prevent non-compliance with its regulatory obligations.

7.245 A manual process would also deliver a very poor customer experience, The CP would need to set up a corresponding manual facility (in addition to their existing automated systems that interact with EMP) to receive and retrieve order information i.e. check the email messages in order to manage their customer orders, make queries, check progress etc.

7.246 In parallel, the DFA manual product would require completely new terms and conditions which would need to be written and agreed with industry to reflect the manual processing approach and associated timescales for order management. This would be in addition to a separate Reference Offer for a subsequent strategic DFA product.

7.247 In addition, designing a manual solution would divert key Openreach design resources away from developing a strategic product (as work would need to be focused in the short term on developing manual process solutions). Diverting this resource would delay the progress of a strategic design, and the allocation to a future systems release would be unavoidably delayed.

7.248 As outlined above, Openreach consider that an interim manual process is not a feasible (or desirable) outcome for either Openreach or industry. If imposed, it will force unnecessary and inefficient duplication of design and process resource for both Openreach and CPs. Openreach also considers that, given the additional operational effort in involved for industry, they are more likely to be reluctant to consume the manual product, delaying DFA consumption until the strategic automated DFA solution is delivered.

Summary of the Openreach Proposals to deliver the DFA 2021 Remedy

7.249 Openreach urges Ofcom to take the utmost account of the analysis summarised above that has been undertaken by Openreach into what is required to underpin a feasible implementation plan for the DFA Remedy, in particular:

a) To acknowledge that Openreach cannot reuse the previous 2016 DFA design and that to copy the design for the DFA Remedy in 2021 is the wrong approach.

b) That to deliver an automated solution by May 2021 can only be achieved by severely impacting the delivery of key product enhancements to DPA and FTTP as set out above.

c) That a manual interim solution is not is not the right answer to this issue for the reasons set out above.

d) That Ofcom should allow Openreach 5 + 1-month notification (i.e. until the 1st October 2021) in order to:

   (i) Deliver the key system components of an automated DFA solution (i.e. the provide and repair journey).

   (ii) Negotiate with industry the new contract text and supporting product documentation for the product.

   (iii) Allow CPs sufficient time to establish both from a contract and systems perspective in order to be ready to order and consume DFA from the 1st October.

   (iv) Deliver non-essential developments such as Novations by March 2022.

[180] Ofcom consultation Volume 3 Table 6.1, 6.2 paragraph 6.40.

(v) Negotiate with industry for a phased operational geographic roll out similar to DF IEC.

(vi) Deliver national roll out of an automated solution by June 2022, with SLAs and SLGs in place.

DFA Product Specification: Reuse of BCMR 2016 Process and Services

7.250 Ofcom has set out at Table 6.1, 6.2 and para 6.54 of Volume 3 of the WFTMR Consultation that it expects the provisioning, repair and migration process and services developed by Openreach for the BCMR 2016 DFA remedy to be suitable for the proposed WFTMR DFA remedy.

7.251 Openreach has set out its position above regarding Ofcom's assumptions concerning the suitability of the previous BCMR 2016 DFA design for the 2021 WFTMR DFA remedy. However, regarding the provisioning, repair and migration process and services developed by Openreach for the BCMR 2016 DFA remedy, Ofcom should note the following:

a) **Migrations: -** Openreach developed a suite of migrations scenarios for the previous DFA 2016 Remedy, none of which were tested with or consumed by industry. Given:

(i) the intervening 4+ years since these designs and discussions were concluded; and

(ii) industry preferred behaviours when switching between active (EAD and Optical) products in the portfolio is to avoid operational down time and order the 'provide of one product, followed by a cease' rather than use a managed migration process.

Openreach considers that the appropriate course of action in considering industry requirements for a migration process from active products to DFA should not be to offer migrations from day 1, but to discuss and agree requirements with its customers prior to committing to designs and developments that may no longer be required.

b) **Repair Lead Times:** For the BCMR 2016 DFA product, Openreach negotiated an 18hr repair lead time with industry and corresponding SLA/SLGs. However, given the propensity of rural locations within the geography of Area 3 and the potential for increased travel times between both ends of a DFA circuit, Openreach will need to reassess the relevance and competence of the 18hr repair lead time and review and negotiate any new proposals with industry.

c) **Provision lead times:** Similarly, the provision of the DFA circuits in Area 3 have the potential to be more complex in nature than those provided in Area 2. They are more likely to require new build and for circuits to Cell Sites, may require delivery to remote and unmanned locations. Given the operational challenges this may pose, Openreach proposes to assess an appropriate lead time for the provision of DFA circuits and associated SLA/SLGs for discussion and agreement with industry. Using the EAD orders delivered between January 2019 and March 2020 inclusive, Openreach saw Area 3 lead times of [✂] working days, compared to a lead time of [✂] working days for non-Area 3 orders. This reinforces the Openreach assertion that Area 3 circuits will be more complex and take longer to deliver.

Legal Instrument comments and clarifications

7.252 Openreach has a number of comments and clarification requests regarding the new definitions and amendments to the WFTMR Legal Annex specifically those concerning leased lines, DF IEC and DFA. These are summarised in the table below.

Table 7.7: Openreach Comments on Legal Instrument in relation to Leased Lines

Condition	Comment/clarification from Ofcom required
Definitions: **Backhaul Segment**	Ofcom uses the definition of "Backhaul Segment" from the WLA 2018. Openreach notes that the definition of "Backhaul Segment" in the BCMR 2019 is subtly different in that it also includes reference to "operational buildings". To avoid any unintended consequences in Leased Lines markets and for greater clarity, Openreach suggests the following additional text in red: • Backhaul segment means network access providing uncontended bandwidth connecting one MDF/ODF site or operational building of the Dominant provider to another MDF/ODF site or operational building of the dominant Provider
Definitions: "**Cablelink"** means a connection from a Third Party's equipment to other equipment located within the same MDF/ODF Site, or from a Third Party's equipment to a fibre cable originating immediately outside an MDF/ODF Site.	Ofcom has provided a new definition of Cablelink and for clarity, Openreach suggests the following addition in red: • "**Cablelink"** means a connection from a Third Party's equipment to other equipment located within the same MDF/ODF Site, or from a Third Party's equipment within the same MDF/ODF site to a fibre cable originating immediately outside an MDF/ODF Site. • In addition, it would be helpful if Ofcom could confirm that this definition is not intended to capture GEA Cablelink, which is a separate product providing connectivity to an NGA Head End.
Definitions "**Local Access Node**" means either: i. an MDF Site; ii. an ODF Site;	Ofcom uses the definition of "Local Access Node" from the WLA 2018. Openreach notes that the definition of "Local Access Nodes" in the BCMR 2019 is subtly different in that […]. To avoid any unintended consequences in Leased Lines markets and for greater clarity, Openreach suggests the following additional text in red: "**Local Access Node**" means either:

Condition	Comment/clarification from Ofcom required
iii. an operational building designated by the Dominant Provider for use as an ODF Site in future; or iv. an operational building of the Dominant Provider or Third Party which is reasonably equivalent to one of the above;	i. an MDF Site; ii. an ODF Site; iii. an operational building designated by the Dominant Provider for use as an ODF Site in future; iv. an operational building of the Dominant Provider or Third Party which is reasonably equivalent to one of the above; or v. an operational building of the Dominant Provider which supports the provision of services to end users and to which the end user is directly connected.
Condition 1: Network access on reasonable request **Condition 1.5 & Condition 1.11**	Both Conditions refer to the requirement to provide Ancillary Services/Associated Facilities i.e. C.1.5 refers to associated facilities, whereas C.11 refers to Ancillary Services, which are themselves defined as an associated facility. Please could Ofcom confirm if this is a duplicative error? However, if this is not an unintended duplication, could Ofcom provide clarity on the difference between what is meant as an associated facility as opposed to an ancillary service?
Condition 2: Specific forms of network access	The Previous BCMR 2019 Condition 2.4 is omitted from draft WFTMR Condition 2. Openreach notes, however, that Ofcom has provided guidance on parity of DFA with active wholesale products at Table 6.1, 6.2 and para 6.40, Volume 3 of the WFTMR consultation. Openreach considers that It is appropriate that the initial DFA product is based on EAD but thereafter it should be for Openreach and industry to agree how each product should evolve. Ofcom's guidance already provides suitable clarity that Openreach is expected to align the DFA design to EAD LA processes.

Condition	Comment/clarification from Ofcom required
	The Previous BCMR 2019 Condition 2.6 has been omitted from draft WFTMR Condition 2. Openreach notes that while Ofcom has laid out guidance on this issue at para 3.5, Volume 3 of the WFTMR Consultation, Openreach request that this Condition is reinstated in order to make it explicitly clear that Openreach is not required to provide Dark Fibre to itself or use it as an input element to provide network access.
Condition 5: No Undue Discrimination **Condition 5.2 (b) and Condition 5.4 (a)** *(previously BCMR 2019 Condition 4.2)*	The previous BCMR 2019 C.4.2 (a) (Condition 5.2(b) & 5.4(a) in the draft WFTMR) included the reference to "the allocation of space (to be allocated on a first come, first served basis)" which has been removed from the new WFTMR Condition 5.2(b) & 5.4(a). Ofcom should note that the allocation of accommodation space within a BT Exchange on a first come first served basis is a key element of our space and power policy and ensures we apply a non-discriminatory approach to all requests for access to space in an exchange. For the reasons set out above Openreach would like this sentence re-instated in Condition 5.2 (b) & 5.4 (a) the final WFTMR Statement. This would then be consistent with the EoI guidance set out on Accommodation Services by Ofcom at Para 3.49 of Volume 3 of the WFTMR consultation.
Condition 7: Publication of a Reference Offer **Condition 7.2 (h) network integrity** **Condition 7.2 (p) traffic and network management**	Condition 7.2(h) and (p) are both new requirements for inclusion in the Reference Offers for which no guidance or explanation is provided within the WFTMT Consultation document itself. Openreach notes that both are absent from the minimum list of requirements for a Reference Offer set out at Para 3.101, Volume 3 of the WFTMR consultation document. Given that Openreach is unclear as to what information Ofcom are expecting Openreach to provide to comply with these requirements, it would be helpful if Ofcom could provide clarity on both points.

8. Quality of Service

Impact of COVID-19

8.1 At time of writing it is not possible to predict the precise impact COVID-19 will have on Openreach's ability to meet the 2020/21 QoS standards. Nor is it currently possible to gauge how long the impact of COVID-19 will last, for example whether it will impact the 2020/21 compliance period only or will have longer term impacts that also affect the period covered by the WFTMR.

8.2 It is, however, inevitable that overall COVID-19 will have a significant and negative impact on Openreach's performance against the QoS standards and this is down to the operational impacts that will flow from the different phases of the crisis.

8.3 Operationally, Openreach is currently in a phase of 'prioritisation and stabilisation'. This phase is characterised by:

a) Openreach focussing on a smaller set of provision and repair jobs, in line with the prioritisation of Critical National Infrastructure (CNI) and vulnerable end customers combined with the need to safeguard the health and safety of its engineers, contractors and the general public;

b) Reductions in supply capacity associated with increased sickness within the engineering teams combined with requirements to take special leave to e.g. care for children and other dependents, and loss of capacity from suppliers; and

c) Reduced demand from the market as certain sectors go into a state of 'hibernation.'

8.4 This phase is currently having different impacts on the service being delivered by Openreach – for example in BCMR markets, provision performance superficially appears to be reasonably "strong" (when assessed via a QoS standard lens), albeit against a reduced and prioritised order pipeline. In WLA markets, some performance aspects appear to be strong, such as repair (again, against a reduced pipeline of work), whereas other measures such as FAD have been negatively impacted by Openreach's policy to reduce appointed work on health and safety grounds.

8.5 What is clear overall, however, is that Openreach performance is being heavily constrained by COVID-19 impacts and is NOT reflective of the "normal" conditions that QoS standards were created for.

8.6 It also needs to be noted that many aspects of current performance in both BCMR and WLA markets are overstated / misleading. This is because there is a large number of provision and repair jobs (such as appointed jobs or Ethernet tail orders) that cannot be currently completed on health and safety grounds and so have been "furthered" or "paused" – and will not count towards QoS standard compliance until they close at a later date, at which point a they will likely count as failures. In other words, a large amount of future QoS standard failure is being stored up that will not count until jobs close (given that the QoS standards are based on closed order performance).

8.7 In both WLA and BCMR markets Openreach is doing as much work as it safely can (e.g. by clearing voice and broadband faults by doing work outside the premises or to the primary NTE plus delivering Ethernet circuits to the curtilage). Again, when restrictions are lifted, there may be residual work to do in relation to these types of jobs to

ensure all end customers issues are dealt with. Again, this will store up further work and potentially an amount of 'failure' in terms of QoS standard compliance.

8.8 The next phase of COVID-19 is expected to be the 'recovery phase'. While this phase is starting to appear at time of writing, it is uncertain how long it will last, or what precise trajectory it will take. That said, it is inevitable that this phase will include a resurgence in demand across the Openreach portfolio as the economy starts to recover. It is very likely that the increase in demand will not be smooth / linear but will be very difficult (if not impossible) to predict with any precision and will be subject to significant local variations e.g. in terms of geography, market sector and product type. This will still the case even where any lockdown is eased gradually.

8.9 The recovery phase will be operationally very challenging for Openreach as it will be characterised by potentially large, unpredictable and 'lumpy' demand coming back online that is likely, particularly at local levels, to outstrip supply capacity. Openreach therefore expects that this phase will drive significant reduction in the apparent performance against the QoS standards as Openreach works its way through pent up demand (in addition to the furthered jobs discussed above) in order to get provision and repair workstacks back to "steady state" levels. This has some similarities, albeit the COVID-19 impacts will be far greater in scale, to the challenges faced by Openreach in meeting the 2019/20 BCMR QoS standards, in which its progress was impeded by the need to return the provision workstacks to normal levels following demand spikes followed by higher than expected demand from Autumn 2018.

8.10 Again, the conditions that exist in the recovery phase will be abnormal, and Openreach will also need to deal with other matters that will affect service performance such as reduced engineering capacity, continuation of localised restrictions, potential national guidance around new safety practices, plus ongoing requirements to prioritise end customers with the greatest needs.

8.11 In these very difficult times, Openreach will continue to deliver the best service it can for its customers. However, these are not normal times and so Openreach considers that Ofcom needs to take a different approach to QoS standard compliance assessment while COVID-19 impacts are being felt.

8.12 Given that forecasting the precise impacts of COVID-19 and their duration is not currently possible, Openreach recommends that Ofcom temporarily withdraws the QoS directions of both the WLA 2018 and BCMR 2019 (relying on the provision under Section 49A(2) of the Communications Act). An alternative approach could be to devise some form of "COVID-19 adjustment" to overlay to the QoS standards. However, Openreach does not favour such an approach given that the precise effects of COVID-19 cannot be forecast with any confidence, and so any scheme devised to mitigate the effects of COVID-19 would be at high risk of not being specified correctly.

8.13 The recommended temporary withdrawal should remain in place until it is clear that the impacts of COVID-19 have been worked through, and that operationally a "steady state" for provision and repair across the markets that QoS standards apply to has been achieved. During this time, Openreach will continue to deliver the best service it can for the good of the market, but should not be bound by QoS standards compliance obligations, which could actually prove counter-productive for example by inadvertently incentivising the wrong types of behaviour during a period when Openreach needs to be focussing on vulnerable and CNI type end customers and focussing on health and safety considerations. For example, chasing performance against the QoS standards could lead Openreach to focus on closing the most recent orders and faults, when the right thing to do would be to deal with the customers who have been waiting longest for service (where closing the jobs will negatively impact QoS standard performance).

8.14 During the phase affected by COVID-19, Openreach will continue to be transparent with Ofcom and its customers, for example through ongoing publication to Ofcom of QoS and KPI performance. Openreach will also continue to provide regular updates to stakeholders through existing channels such as the industry service and commercial forums.

8.15 In summary, Openreach would welcome further assurance from Ofcom on the following points:

a) That Ofcom will temporarily withdraw the QoS standard compliance obligations during the period affected by COVID-19 (including both the lockdown period and the subsequent recovery period). In effect this would be a "pause" to the QoS standard compliance until such a time that steady-state operational conditions exist. If Ofcom is not willing to do this, Openreach seeks as a minimum further assurance from Ofcom that it will take fully into account the impacts of COVID-19, including the phase after the pandemic stage, in any future QoS standard compliance assessment; and

b) That Ofcom will reconsider what appropriate future QoS standards should be at the point in time when it is possible to forecast the exit from COVID-19 effects. The best way to do this will be for Ofcom to run a consultation at an appropriate future date. Depending on the extent and duration of COVID-19 impacts, it is possible that this will affect QoS standards into the period covered by the WFTMR.

Question 7.1: Do you agree with our proposed approach to QoS? Please set out your reasons and supporting evidence for your response

8.16 Openreach's comments on Ofcom's proposals for QoS in the WFTMR are set out below but, as noted above, are likely to change in light of the recent events related to COVID-19. They have been drafted in respect of the pre-COVID 'steady state' situation and while the points of principle largely appropriate, clearly the current performance position has dramatically changed. At this stage, we are unable to determine the full extent of the impact relating to the outbreak (including the scope and duration of any impact) and therefore we will need to make further representations to Ofcom in the future. It is highly likely that a wide range of performance (i.e. QoS) measures will be affected not only in the period of the outbreak, but for some time afterwards as we recover and return to usual levels in the future. In addition, there will likely be impacts and subsequent delays to software release cycles which may not only impact service delivery but our ability to release product developments on schedule. Openreach's focus is to ensure that its people and the public remain protected and Openreach continues to ensure that network services are provided, in particular to those who need it most.

8.17 Openreach's response to this question is provided in four sections:

a) Comments in relation to the wholesale local access market;

b) Comments in relation to the leased lines access and inter-exchange connectivity markets;

c) Comments in relation to the physical infrastructure market; and

d) General comments about Ofcom's proposed approach to QoS.

8.18 Overall, Openreach is generally supportive of Ofcom's proposed approach to QoS and is pleased at the widespread recognition of Openreach's improved service quality and efforts to work collaboratively with industry. In the following sections Openreach provides detail of the aspects it supports and the areas where Openreach believes

that an adjustment to Ofcom's proposals could lead to better overall outcomes for industry, across each of the markets covered by this review.

8.19 Openreach supports Ofcom's view that it is right to maintain many of the existing arrangements, including:

a) Ofcom's proposals not to increase QoS standard targets;

b) Ofcom's proposals to not apply QoS standards to FTTP, Optical products and PIA; and

c) Maintaining the current approach to specification of SLA and SLG arrangements.

8.20 That said, Openreach considers that there are some areas that need further review, including:

a) A more detailed assessment of how future changes to the markets (e.g. market 'triggers') plus CP behaviour will impact on Openreach's ability to meet the QoS standards is required. This should include considerations such as proactive CP fault reporting and repair, demand fluctuations, dark fibre migrations interaction between Ofcom remedies in upstream (e.g. unrestricted DPA) and downstream markets plus other constraints placed on Openreach such as the various voluntary codes of practice[181].

b) Openreach provides some specific comments on how Ofcom should deal with such changes. Openreach also requests that Ofcom explicitly acknowledge the scenarios set out in setting future regulation;

c) Removing the 'Upper Percentile' QoS standard for leased lines on the grounds that it is not fit for purpose and replacing it with a set of enhanced transparency obligations; and

d) Reviewing the feasibility of the First Available Date (FAD) 10-day QoS standard for wholesale local access services, where Openreach is concerned that 10-days may be too difficult and is likely to cause perverse incentives, and where Ofcom should consider maintaining the level at 12-days.

8.21 Openreach provides detailed comments and evidence for these statements in the following sections which deal with each market respectively.

[181] https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/codes-of-practice

Quality of Service in the Wholesale Local Access market

Key points

8.22 It is right that Ofcom recognises the importance of QoS in the provision and repair of wholesale local access services, not only in terms of ensuring good outcomes for consumers, but to ensure a proper functioning of the market. Regulation should encourage parties along the value chain to ensure their own effectiveness, and to allow the recovery of efficiently incurred costs for providing good levels of service.

8.23 Ultimately, however, there are operational limits to achieving ever higher service levels that are accompanied by a significant incremental cost and Ofcom is right to acknowledge that those operational limits are close to being reached[182] for services provided over the legacy copper network (i.e. MPF and FTTC services). Openreach is pleased that Ofcom have called out that performance levels for these services are at good levels – noting that from April 2020 under the Wholesale Local Access (WLA) market review (2018) the level of service required by Openreach is set to increase further for a number of measures,[183] via the QoS standards that Openreach is required to meet.

8.24 The QoS focus for industry players needs to shift to future services, while maintaining current good levels on existing services. For this reason, Openreach generally supports Ofcom's policy proposals not to increase the QoS standards, to protect consumers during the shift to full fibre whilst encouraging take up of those new services. It would be disproportionate for Ofcom to increase the QoS requirements on legacy services while at the same time trying to incentivise moves to full fibre.

8.25 Ofcom should be mindful that optimal outcomes for all parties in the value chain are likely to be delivered through constructive collaboration. QoS standards, while important, are only one aspect of ensuring end-customers receive a great order experience. CPs also have a significant part to play in delivering high QoS to end customers.

8.26 Similarly, it is important to recognise the impact of changing market dynamics on the relevance of the QoS standards and Openreach's ability to meet them. The market is dynamic and constantly evolving and shifts in industry behaviour mean that QoS regulation could, over time, become out of date or disproportionate. It is right that Ofcom takes note and considers this when imposing regulation for the next 5 years to ensure the QoS remedies remain fit for purpose.

8.27 With this in mind, Openreach supports a number of Ofcom's proposals for wholesale local access services in its consultation:

a) Openreach agrees with Ofcom's conclusions that **service is being delivered at good levels**. Openreach is proud of the service being provided and the important part that Openreach plays in our society and the industry.

b) Openreach is supportive of **the proposals to keep the QoS standards at flat levels for** legacy-based services and agrees that it is right to continue to provide users of these services with a consistent level of acceptable service.

[182] Ofcom consultation - Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26, 7 January 2020, 7.33-7.44.
[183] Quality of Service for WLR, MPF and GEA: Statement, 28 March 2018.

c) **It is right not to increase the QoS standards any higher**[184]. Doing so would be disproportionate and would conflict with Ofcom's other stated policy objectives of encouraging investment in full-fibre services.

d) Openreach agrees that **it would be premature to impose QoS standards on FTTP**, either by adding FTTP into the existing requirements or by imposing a separate standard for FTTP. It is too early in the product lifecycle and attempting to create a standard at this time would be disproportionate. Instead, Openreach thinks that quality metrics should be agreed over time with industry, when it is more widely understood what 'good' looks like. Openreach intends to consult with industry on this during 2020.

8.28 Openreach also has some concerns with Ofcom's current proposals:

a) **Rolling forward QoS standards at flat levels only works if the underlying assumptions behind the QoS standards (e.g. volumes, product mix, etc) stay the same**. There is already some evidence of shifting market dynamics which will lead to an impact on these assumptions, potentially impacting the feasibility and proportionality of the QoS regulation imposed. Openreach provides more detail and examples of these changes later in this response and requests that a deviation from these underlying assumptions should initiate a formal review process by Ofcom.

b) Openreach believes that **it is right to assess the feasibility of achieving the 10-day FAD QoS standard**[185] as part of this assessment. Openreach has concerns about whether 10 days is achievable in light of other conditions (such as changing CP behaviour and tighter repair standards) and whether in fact tightening the FAD measure could create perverse incentives that could, lead to worse outcomes for end-customers. This happens because Openreach is incentivised to offer even shorter appointment times to try to meet the QoS standards where in fact the CPs are unlikely to select those shorter appointments (and so the benefits of a shorter lead time are not, in practice, passed on to the end customer). Openreach considers that CPs and end customers already receive good levels of service for appointed provisions, and that retaining the 12-day level strikes the right balance between provision and repair activity whilst incentivising Openreach to provide early appointments that CPs are able to make use of.

c) **Ofcom must consider the impact of CP behaviour and particularly proactive / robotic testing when imposing QoS standards.** Openreach is concerned that without an amendment to the construct of the QoS standards to account for the impact of proactive repair, Openreach will be unable to comply with Ofcom's requirements.

d) It is unclear whether enough consideration has been given to the **interaction between Ofcom's different policies aimed at the wholesale and retail levels**. For example, downstream policies such as the various codes of practice are aimed at CPs who provide services directly to end-customers and are therefore expected to result in changes to CP behaviour. This has created considerable additional activity for Openreach which was not originally foreseen, and the impact on Openreach and the QoS standards delivery model needs to be considered. When proposing QoS standards, Ofcom should take this broader context into account.

[184] Assuming no changes to the existing force majeure arrangements.
[185] The FAD QoS standard tightens from 12 days to 10 days from 1 April 2020.

e) Repair QoS standards should be specified by reference to the applicable **Service Level Agreements (SLAs)** that Openreach agrees with its customers, aligned to the approach taken in business connectivity markets. Not doing this means the measures could become misaligned with industry ways of working.

f) Although Openreach notes Ofcom's ability to amend regulation under direction via consultation (which it supports), it is currently **unclear under what circumstances Ofcom would review the relevance of the regulation** and how long any such process would take. Openreach would like Ofcom to be more explicit about what type of triggers would stimulate a review of the regulated QoS standards, rather than a 'wait and see' approach in terms of compliance against the QoS standards, when there is clear evidence of shifting market behaviour. Openreach would like Ofcom to be more explicit about these scenarios and how it proposes to deal with them in the assessment of QoS.

Introduction

8.29 In previous submissions on market review consultations[186], Openreach set out a set of principles that Ofcom should consider when imposing QoS standards. Openreach believes that these principles continue to be relevant and are, in some cases, even more important for the 5-year WFTMR period:

a) QoS standards (or Minimum Service Levels (MSLs) as they were previously known) should be achievable – they are not aspirational measures or stretch targets but backstop measures of good service. In this market review, Ofcom needs to reassess achievability in light of how market dynamics may lead to changes in the way that operators behave, in addition to what is reasonably achievable for an efficient operator to deliver across different products.

b) Good value for money (i.e. striking the right balance between customer need and affordability / customer willingness to pay) – previous customer research by Ofcom has determined that customers want better service but not at any cost. Therefore, what Openreach provides needs to be good value for money and Ofcom must recognise the trade-off between continued investment in the legacy networks against its other stated policy objectives.

c) Fully funded – it should be recognised that different service levels come with an associated resource requirement and a subsequent cost implication. Openreach needs to be able to recover its efficiently incurred costs.

d) Proportionate and consistent – any QoS standards must align with Ofcom's objectives of promoting efficient investment, where in this market review we believe that due attention must be paid to how the regime is future-proofed and able to keep up with market and technological change.

8.30 There is no doubting the importance of QoS in the market in which Openreach operates and the priority level it is given by Openreach; Openreach supports Ofcom's policies to maintain service provision at good levels. That said, what QoS means in practice can and will change; both as technology evolves and market conditions change. These factors can lead to complexities in determining what metrics or measures should be used to assess what is a 'good' quality of service, and how these are different for different services;

[186] Including, for example, Openreach's response to Ofcom's Consultation on proposed quality of service remedies, 19 June 2017.

a) The targets or 'standards' against those metrics, as the assumptions that underpin the ability to meet a specific level of service may change over time; and

b) The product variants to include in the assessment as new services are taken up.

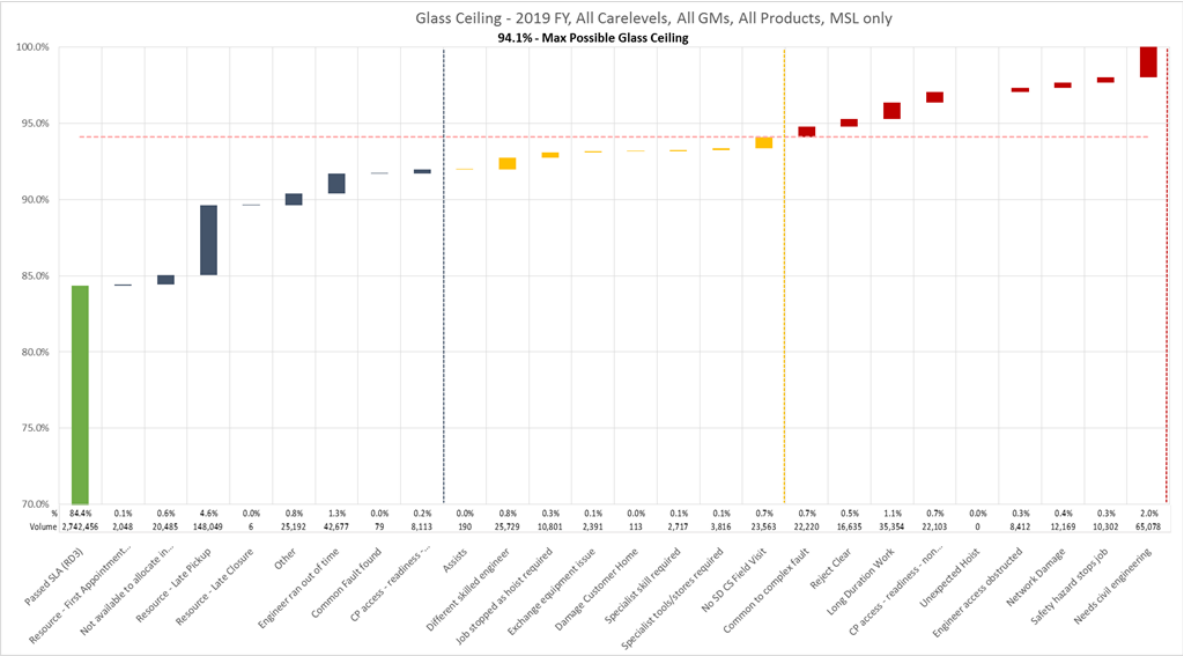
8.31 It is possible that measures and metrics which are relevant now may not be relevant in 3-5 years' time and for that reason Ofcom's proposed policies for QoS should be flexible enough to capture market and technological changes. During this period of change it is vitally important that Ofcom's policies achieve the right balance between ensuring continuation of existing services at good levels of service while encouraging take up of new services, particularly as the industry enters a period focussed on switching to full fibre services. It is important that Ofcom takes due account of the expected movement away from copper-based services and the impact that will have on investment both in infrastructure and supporting systems and processes.

8.32 Since the QoS standards were first introduced in the 2014 Fixed Access Market Review (FAMR), there has been a steady ratcheting up of the standards, both in target level and in scope (when they were expanded to include FTTC from 2018 in the WLA). During these market reviews it has been appropriate to review the regulation applicable in line with the developments of the market and to ensure the right incentive properties existed. During the 5-year period covered by Ofcom's WFTMR there is much more change anticipated than previously, further increasing the need to ensure that regulation is fit for purpose, able to keep up with market change while retaining the balance of incentives.

8.33 Openreach is pleased that Ofcom recognises that further increasing quality standard targets will have a diminishing benefit and will drive excessive costs (with consequences for product price). As part of the WLA market review in 2018 Openreach provided evidence of the inherent 'glass ceiling' within repair and the impact that this has on Openreach's ability to deliver higher levels of service as the MSL targets got closer to this ceiling. Openreach believes the standards are already at a challenging minimum level given the volatility Openreach experiences in both provision and repair intake. In consequence, the proposed levels are at the higher end of the balance between service and cost.

8.34 It is important that industry understand that this 'glass ceiling' defines the upper bounds of possible performance. Increasing the required standards further would be disproportionate. Not only would it be inappropriate to impose stricter conditions on Openreach that would come with significant marginal costs, it would be contradictory to Ofcom's stated policy objectives of encouraging investment in full fibre. As noted above, further ratcheting up QoS standard target levels would also drive price increases that the market would not be willing to support in any event, and so the benefits arising from such a policy would, in practice, not exist.

Figure 8.1: Repair Glass Ceiling analysis 2019/20



Source: Openreach analysis

8.35 Openreach has continued to address a number of areas identified in the glass ceiling analysis in order to deliver the stretching final year service levels set out in the 2018 WLA. This has included increasing the level of resource available to deliver service and upskilling our workforce to complete more complex repair activities. It can be seen from the full year 'waterfall' for 2019/20 that the glass ceiling remains consistent at just above 94%. However, we continue to see volatility in the glass ceiling across different service levels, General Manager (GM) patches and years and, in particular, the non-linear relationship between service and cost remains as detailed later in this document.

8.36 Our approach to QoS over the next review period will also reflect the move to full fibre. We are committed to maintain our legacy platform to continue to offer reasonable levels of service, but as we begin to transition to the full-fibre platform, we want to avoid unnecessary and short-lived expenditure. Therefore, as part of the 'stop-sell' process discussed in the section of this response on Copper Retirement, we propose to make FTTP provision the alternative to any 'expensive' or complex repair activity on legacy platforms. Expensive repair could include any repair requiring time-consuming engineering work where moving to FTTP can provide the end-customer with a preferred outcome. As a first stage, we propose to offer this as a reasonable alternative subject to CP and end-customer agreement and we do not believe any change in regulation is required, but as our FTTP roll-out accelerates, we would increasingly expect to provide new fibre lines instead of effecting copper repairs

8.37 There will also be instances where we do not believe it makes sense to carry out an expensive repair on to replace network assets (for example, a node or cable) providing copper-based services to a number of premises where an FTTP alternative is available for these customers. In these cases, it will not be practical to obtain prior permission from multiple CPs/end-customers, but we believe our general access conditions already allow for this option if the asset is beyond economic repair/replacement.

Service performance

8.38 Openreach is proud of the service it provides to industry and its role in delivering communication services to end-customers. Openreach recognises the role that Ofcom's policies (via the QoS standards) have played in this journey by keeping us accountable, and that there has been a greater understanding of the relationship between service performance and cost, and the increased operational effort involved in increasing service levels further.

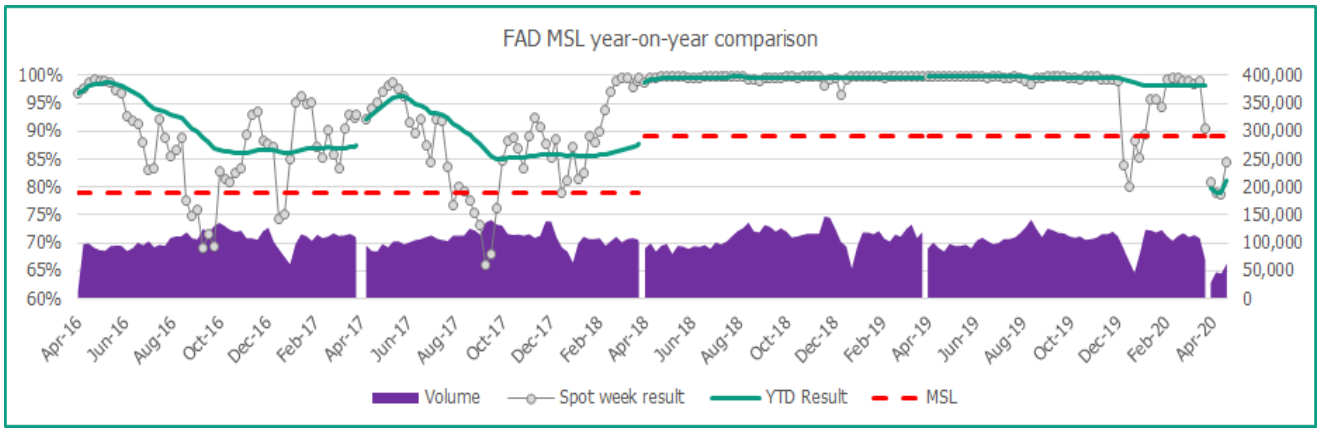
8.39 Openreach's performance in the repair and provision of wholesale local access services has been consistently and gradually increasing. This is in part a result of the investment Openreach has made in the front-line engineering workforce. Openreach has continued to upskill and since 2017 we have upskilled c. 5,500 engineers to our highest Underground (UG) skill level. Although there is a high cost and operational impact of this multi-skilling it has enabled us to address one of the key failure areas of the glass ceiling and bring more customers back into service within the target SLA.

8.40 Additionally, Openreach has continued to grow our Service Delivery workforce significantly, recruiting c. 5,400 engineers since 2017 which is a net increase of over 2,000 engineers after accounting for natural attrition. Openreach has targeted recruitment into specific service 'hot spots' to uplift our overall performance. We are continuing to recruit in 2020/21 whilst also focusing on our investment and transformation programmes.

8.41 This huge focus on training, recruitment and transformation has meant that Openreach has successfully achieved the standards required, often comfortably where conditions have allowed. Our strong performance has meant that our CP customers are generally happy with performance, with our net promoter score (NPS) becoming positive for the first time ever and end customer satisfaction recently at all an time high (74.5%).Research that Ofcom itself has published[187] also concluded that end-customers are happy with the service that they receive. It should also be acknowledged that generally CP customers do not want to pay more for standard quicker provision and repair times.

8.42 The following charts demonstrate Openreach's strong service performance over the last c. 4 years[188].

Figure 8.2: FAD QoS standard performance

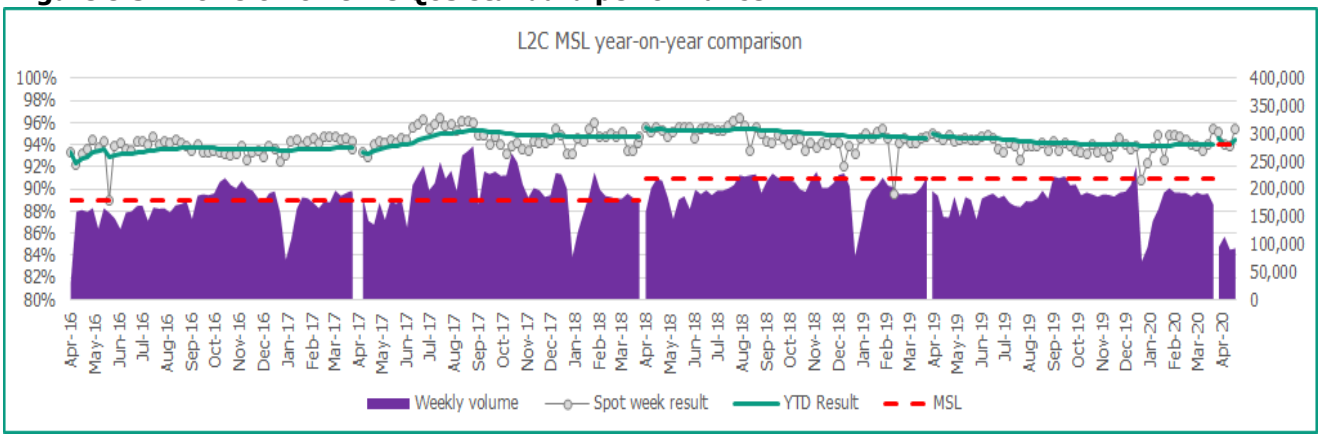


Source: Openreach analysis

[187] UK Regulators Network, Moving forward together - Performance scorecards 9 January 2020.

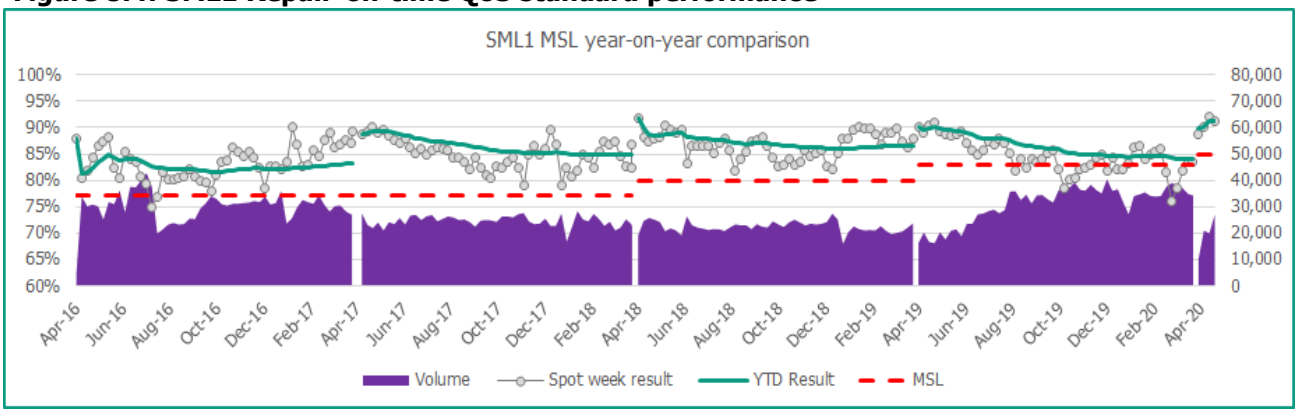
[188] Openreach notes that performance for provision has been impacted by severe weather conditions over the winter months, where practically it is considered that getting customer back into service is prioritised over new provides.

Figure 8.3: Provision on time QoS standard performance



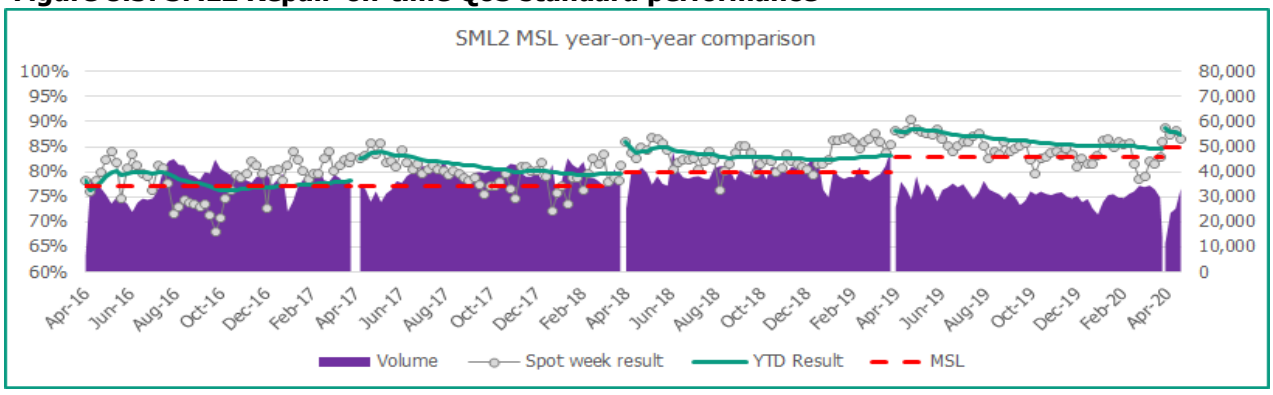
Source: Openreach analysis

Figure 8.4: SML1 Repair-on-time QoS standard performance



Source: Openreach analysis

Figure 8.5: SML2 Repair-on-time QoS standard performance

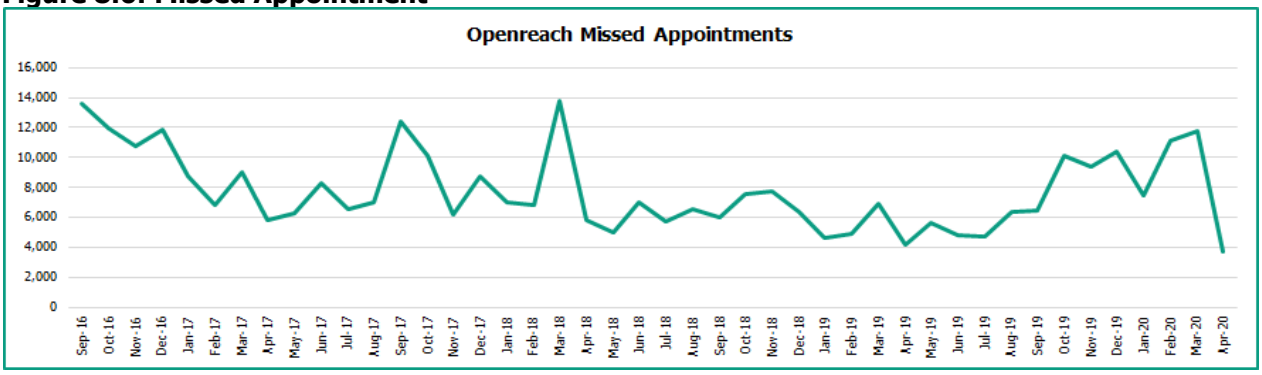


Source: Openreach analysis

8.43 Figures 8.2 and 8.3 above demonstrate Openreach's performance related to the provision QoS standards (On time provision and FAD), have been comfortably above the required levels since these were introduced. The On-time repair performance in Figures 8.4 and 8.5 outlines the progress made each year in improving performance levels through the investment in the business described above.

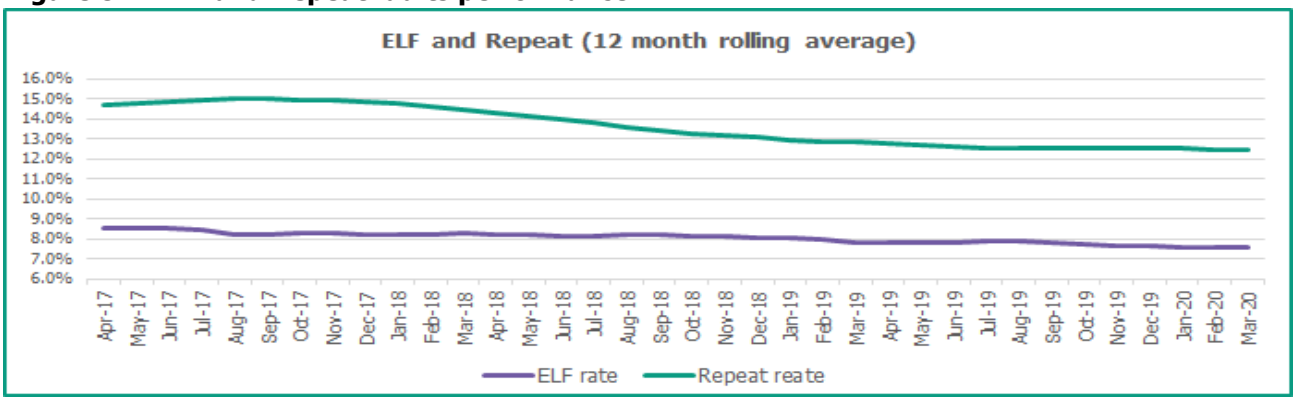
8.44 In addition, over the last 3 years Openreach has also been able to work collaboratively with industry to drive improvements in areas not directly covered by the QoS standards. For example, through improving our operational model, we have consistently driven missed appointments down year-on-year (see Figure 8.6), and this trend was only reversed in Q3 this year as a result of challenges faced with the weather in isolated areas in combination with CP behavioural changes on proactive repair (we provide more detail on this later in this document). Additionally, repeat faults and Early Life Failures (ELFs) (see Figure 8.7**Error! Reference source not found.**) have both been decreasing over the long term, with Openreach delivering lowest ever rates on both measures earlier this year.

Figure 8.6: Missed Appointment



Source: Openreach analysis

Figure 8.7: ELF and Repeat faults performance



Source: Openreach analysis

8.45 As with many of our service measures, the success has been driven not only by improvements in Openreach's operational performance but also through greater collaboration with our CPs. The performance also shows that Openreach is improving service in all important areas – whether they are covered by QoS standards or not.

Difficult conditions in Q4 2019/20

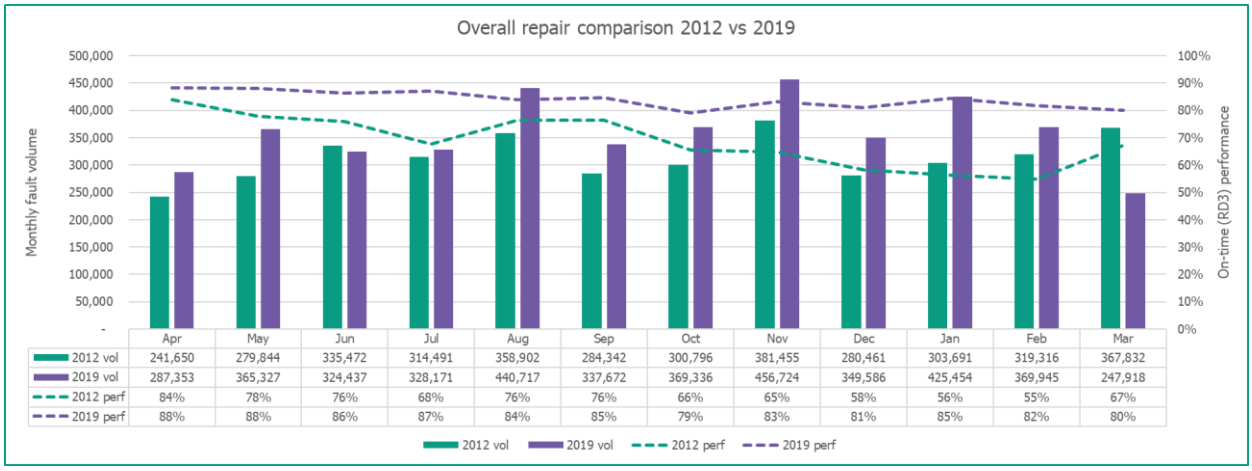
8.46 Whilst there has been a continual improvement to Openreach's service performance over a number of years, there has been some softening of performance in recent times with some weakening of service performance in Q4 2019/20 as a result of both challenging weather conditions plus changes in industry behaviours.

8.47 Financial year 2019/20 experienced one the wettest summers and autumns in 30 years, and the start of 2020 saw Openreach receive 2 of the 3 highest weeks ever for fault intake (in consecutive weeks) when Storms "Ciara" and "Dennis" hit the UK. The impact of the weather was then exacerbated by changes in CP practices responding in

part to the introduction of the voluntary code of practice, earlier this year. Since its introduction fault rates have increased massively (by c.15-20%) as CPs have altered their working practices in response to the threat of losing customers. The most notable of these changes has been through proactive repair which we discuss later in this document.

8.48 These impacts have seen the year-on-year fault reductions delivered through our fault volume reduction (FVR) programme increase in 19/20, with Q4 c.7% higher than Q4 in 18/19. Despite these significant challenges Openreach still successfully delivered all 42/42 QoS standards during the 19/20 compliance period. The transformation of the SD organisation is well demonstrated by comparing recent performance to the last time severe weather had such an impact on our operations in 2012 (see Figure 8.8 below). In 2012 it took many months to recover to the baseline service position whereas the current operation has been able to recover in weeks. Lastly, our CPs and customers believe that we are delivering good service with all time high customer satisfaction scores despite these extremely challenging circumstances.

Figure 8.8 - repair on time - 2012 vs 2019



	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
2012 vol	241,650	279,844	335,472	314,491	358,902	284,342	300,796	381,455	280,461	303,691	319,316	367,832
2019 vol	287,353	365,327	324,437	328,171	440,717	337,672	369,336	456,724	349,586	425,454	369,945	247,918
2012 perf	84%	78%	76%	68%	76%	76%	66%	65%	58%	56%	55%	67%
2019 perf	88%	88%	86%	87%	84%	85%	79%	83%	81%	85%	82%	80%

Source: Openreach analysis

The evolution of the WLA market and the need for a flexible approach to QoS regulation

8.49 Since the QoS standards were first introduced in 2014, the performance level has gradually increased over time and the product set has evolved with the market. For example, FTTC was added to the QoS standard regime in 2018, and Ofcom are proposing that from 2021 WLR falls out of scope as it will become deregulated.

8.50 In terms of the construct of the individual QoS standards, i.e. the way in which individual measures are designed and calculated, this has been consistent from initial implementation. Up until now, this has been appropriate as the high-level processes for provision and repair have not changed significantly. It may be appropriate to review the construct of the QoS standards in the future if provision or repair processes change, and we welcome Ofcom's acknowledgement that changes to the regulation may be required if new ways of working were introduced[189].

8.51 The fixed telecommunications market is not the same as it was in 2014 and we have observed a number of policies aimed at different segments of the market all of which impact Openreach in some way. For example, policies designed at the infrastructure level to encourage investment in FTTP through opening up Openreach's ducts and

[189] Ofcom consultation - Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26, 7 January 2020, 7.69.

poles. At a downstream level a number of voluntary codes of practice have been created with the aim of giving better information to end-customers about their broadband services (and compensating them in some circumstances), as well as policies around making switching provides easier for consumers.

8.52 During the period covered by the WFTMR (April 2021 – March 2026) it is likely that we will see many more changes. For example, we may see more entrants entering the market, increasing demands from end-customers in terms of line speed and a shift in end-customers moving to take up FTTP services.

8.53 Given these observed and anticipated changes, it would be inappropriate to think that the overall construct of the QoS standards will inevitably remain fit for purpose. When imposing QoS remedies, Ofcom should be confident that those remedies are proportionate and will remain proportionate for the duration of the 5-year control. In light of the changing trends in the market, the remedies imposed need to be sufficiently flexible to cater for those changes, or risk becoming out of date and disproportionate. A lack of flexibility could then lead to Openreach being unable to comply due to of a shift in market dynamics[190].

Reviewing broadband standards

8.54 Over recent years, Openreach and industry have worked together to develop a more holistic view of what constitutes good service for end-customers using broadband services. As part of this, extensive research and testing has been conducted to determine if there are different ways of measuring a 'working' broadband service using Service Layer Data (SLD), and what this actually means from a technical and practical perspective.

8.55 Openreach has concluded that at this stage it is not feasible to use SLD as a reasonable proxy for classifying faults due to a range of challenges, including that the data does not determine the location of any fault condition present. For this reason, Openreach has set out to industry that we are proposing to close the SoR (SoR 8482: S/MPF performance standards) as effectively delivered, given the extensive work and improvements in broadband repair performance the SoR has already driven, including:

a) Determining where SLD is useful for understanding when an end customer has broadband service issues and the subsequent use of SLD in CP diagnostics and Openreach engineering tasks;

b) Repeat rate reduced for 'LTOK' to 13.5% (a reduction of5% percentage points);

c) Roll out of new advanced broadband training and engineering culture change with a much greater focus on resolving end customer issues; and

d) Simplification of the Openreach broadband repair portfolio.

8.56 Openreach will continue to work with industry to explore ways of further improving the customer experience.

Openreach's vision to reduce 'disappointed' customers

8.57 Whilst Openreach supports Ofcom's proposals not to increase the QoS standards at the end of 2020/21, Openreach is still committed to delivering better service for its end customers, wherever possible.

8.58 In support of this, Openreach has launched its single biggest Service Delivery transformation programme – project Octagon – to drive down the number of 'disappointed customers'. This targets not only the QoS standard service

[190] We are nevertheless pleased that Ofcom have introduced specific exclusion facilities for certain propositions (e.g. bulk migrations), however we note that there may be a need for further exclusions in the future as different propositions evolve for the benefit of end-customers.

measures, but all other elements of customer service delivered via Openreach including Early Life Failures, Repeat faults and Tails. Through the use of data analytics, Octagon aims to manage' 'failure' at every point in the customer journey, starting with the prediction of faults through to the delivery of the right engineer with the right information and skills to ensure individual task success on the day. The ambition of the programme is to reduce the number of disappointed customers (across all service metrics) by [✂] by the end of 2021/22 (N.B. this may need to be revised given COVID-19 impacts).

Openreach comments on Ofcom's QoS standard proposals

8.59 In this section we provide our comments in relation to the different elements of Ofcom's QoS standard proposals for wholesale local access services:

a) QoS standards as a regulatory remedy;

b) The measures / metrics that standards should be applied to;

c) The levels (i.e. targets) of the standards proposed;

d) The scope and products that QoS standards are applied to;

e) The overall structure of the scheme, including how and when compliance is measured; and

f) Our view of potential trigger events or changing market conditions that could result in any regulatory QoS requirement becoming unachievable.

QoS standards as a remedy to ensure good service

8.60 Openreach acknowledges that QoS standards have played an important role in driving the improvements to Openreach service evident in recent years. In this, the acknowledgement that increasing service performance requires additional resource / cost which Openreach should be allowed to recover, has been essential. Reflecting the cost of raising service levels through the regulated charge control has been key to the effectiveness of the remedies. This principle needs to remain.

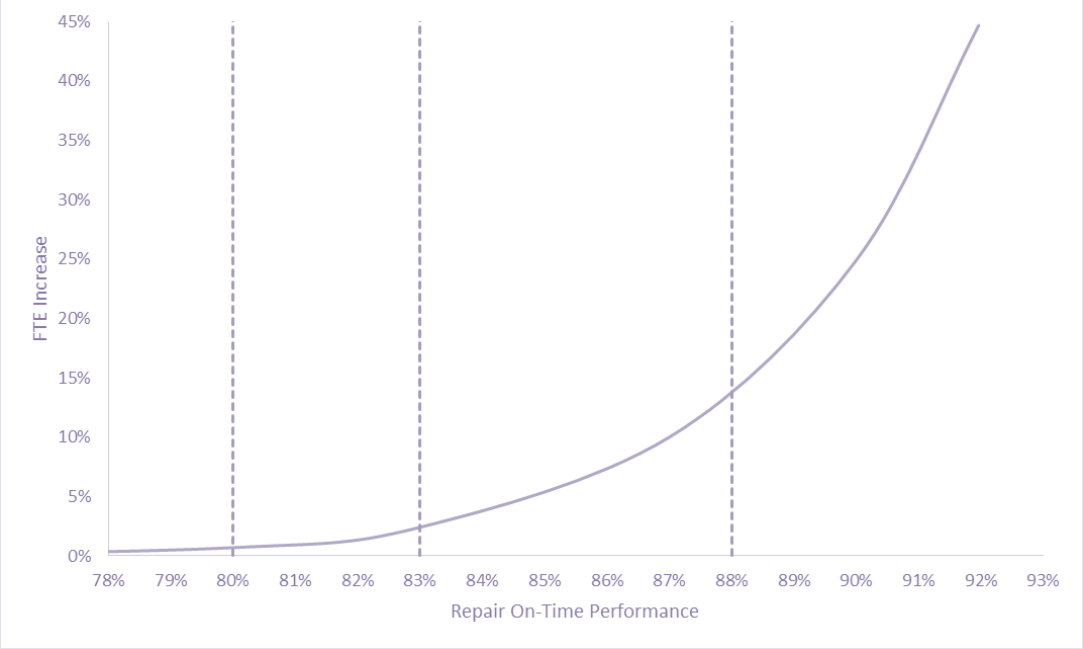
8.61 Regulatory remedies should only be imposed to correct a market failure; in this case Ofcom's view is that in the absence of a QoS standard, performance levels would fall to unacceptable levels. Openreach's view is that as long as our efficiently incurred costs can be recovered, we are supportive of the principle of QoS standards being imposed where needed and that those standards should act as a backstop to ensure that service does not fall below a particular level. What is critical, however, is that the target level and the construct of each QoS standard is proportionate given the policy objective Ofcom is trying to address. Since the standards were first implemented as 'minimum standards, Openreach is concerned that some of the target levels for the standards have become more akin to "stretch" levels of performance rather than acceptable (and good) backstop levels of performance. Openreach does not agree with this as a principle.

8.62 Separately, at very high levels of performance, the resources (and so cost) needed to deliver incremental service improvements gets exponentially larger. This, plus the fact that CPs and end customer are not willing to pay more for service that is already at good levels, means further ratcheting up QoS standards would not be proportionate and would not in practice deliver further benefits into the market.

8.63 During the 2018 WLA Openreach engaged consultants to develop a comprehensive l model (the 'Allocation Model') to better understand the relationship between resources employed (i.e. cost) and service levels delivered. We explained how the model more closely reflected the Openreach operational supply and demand dynamics. The model is essentially a workforce simulation/queuing model which uses available resource and detailed product dynamics as inputs to run scenarios and calculate relevant service outcomes/performance. The model will prioritise and allocate jobs in the workstack to engineers, simulate the completion or furthering of the tasks, the likelihood of multiple visits and the impact of travel and task time. The model can interact with different supply and demand input parameters, providing a far more granular analysis – allowing Openreach to adjust a wide range of demand and supply levers. Openreach continues to use this model for business planning purposes and to inform the operational resource requirements to deliver the increasing service levels each year.

8.64 A key output of the Allocation Model is the non-linear relationship between the service level and the resource required (see Figure 8.9). Beyond 88% service the resource requirement continues to grow exponentially with very small gains in performance and as such imposing higher service levels on Openreach would drive huge cost and inefficiency at a time when Openreach needs to invest in FTTP.

Figure 8.9: Comparison of cost vs service curve



Source: Openreach analysis

8.65 In the 2018 WLA, Ofcom already imposed stretching QoS standard levels for the third year of the control (2020/21). These targets are close to what we believe our operational limits are and will be tough to achieve, even if market conditions remain the same. It is important that Ofcom does not impose regulatory measures that go beyond an efficient level of operation or go beyond what is operationally achievable.

8.66 Although it is widely accepted that the introduction of the QoS standards was a key factor in Openreach's performance improvements in earlier years, performance has now been at good / excellent levels for a number of years, and this is recognised across the industry. There is a risk that retail CPs become too dependent on regulation automatically being imposed when there may not be an economic reason linked to a genuine market failure.

8.67 It is therefore also vital that Ofcom incentivise and encourage downstream and upstream players to work effectively together and ensure that any policy decisions introduced work for the industry as a whole. There are a number of policies focussed at retail CPs that are having significant consequences for Openreach; Ofcom must consider the whole supply-chain when creating policies that incentivise specific behaviour and the cost, resource and service implications it creates. We discuss this in more detail later in this document.

Comments on the individual measures

8.68 Ofcom has proposed rolling forward the existing QoS regime, covering provision and repair of MPF and FTTC services. Openreach thinks that it is sensible to maintain the existing measures (including the existing force majeure arrangements) for continuity and regulatory certainty, but we set out some concerns, challenges and suggested amendments below.

Repair measures

8.69 The repair QoS standards should be set by reference to the applicable SLAs that Openreach agrees with its customers via the contractual arrangements. This is the approach taken by Ofcom in relation to the business connectivity markets QoS standards and should be replicated here.

8.70 Openreach therefore requests that Ofcom amend the wording in the legal instrument to reflect any changes that Openreach and industry agree, which will align with the Ethernet QoS standards. That is, to require Openreach to repair services to the timescales set out in the applicable contractual SLAs in the set percentage of occasions.

8.71 Openreach notes that such an approach may be required in the context of proactive and robotic testing by CPs (which we address later in this response) and it is proportionate that Ofcom allows Openreach and industry to agree changes to the way that repairs are dealt with, should this be necessary and / or beneficial to end-customers.

Provision measures

8.72 Openreach is concerned about the First Available Date (FAD) remedy proposed. As set out in Openreach's response to the WLA 2018[191] there are two overriding elements that determine the level of end-customer experience with regards to the appointing process: the dates that Openreach makes available to the CP, and the date that the CP actually selects. Openreach offering up shorter appointment times only improves the end-customer outcome if those appointments are in practice used by the CP (given that the CP is able to select a longer appointment time).

8.73 Openreach considers that tightening the standard to 10-working days from 12 working days could actually result in a worse overall experience for end-customers. During busy periods, Openreach has the choice to either offer appointments at risk and deliver the FAD QoS standard or hold back the resource to enable better repair on time success. Ultimately, there has always been a trade-off between lead times and on time repair performance (where the latter is prioritised, should the situation require this). This relationship will become more strained if the FAD moves to 10 days in addition to the emergence of a more challenging repair landscape.

8.74 Imposing a 10-day FAD measure could result in industry behaviours which are not beneficial to end-customers, and we think there are some perverse incentives that could arise. For example, the majority of CPs start to take

[191] Openreach's response to Ofcom's Consultation on proposed quality of service remedies, 19 June 2017, paragraph 52.

appointments from day 5 onwards which currently gives 7 days of additional 'flex' in appointments whenever provision and repair demand is high (or resource capacity is low) and moving to 10 days reduces this flexibility to 5 days. Therefore, Openreach has a choice; it can either i) accept missing the QoS standard and the potential repercussions of this, ii) take on appointments at risk which could result in worse on-time performance for the customer, or iii) offer shorter lead times (less than 5 days) which they know the CP would not be able to operate within. To achieve QoS standards, the shorter appointment is likely to be offered and then refused by the CP, resulting in longer lead times for the end customer.

8.75 Given that the fault intake level is rising (due to serious weather conditions and a shift towards proactive behaviour from CPs which is resulting in more provision and repair jobs), there will be an inevitable impact on provision timescales as Openreach manages the inherent trade-off between providing new services and restoring existing ones. During the WLA consultation period, the regulatory proposals for QoS standards were more heavily focussed towards the repair elements and we subsequently believe that the FAD QoS standard level has been set at a level which goes beyond what is required by the market. This is further demonstrated by the fact that the 10-day measure is beyond the contractual SLA agreed with industry which remains at 12 days for the majority of products[192].

8.76 Figure 8.2 above demonstrates that since the introduction of the previous QoS standard in the WLA, FAD performance has remained strong and only dips when the operation is particularly stressed on repair and provision demand. We do not believe that there is a need to reduce the FAD QoS standard timescales to 10 working days and instead believe that a 12-working day FAD is sufficient for a QoS standard. In this regard, Openreach notes that while the FAD QoS standard has been set at 12 working days, the lead times it has offered to the market have been consistently excellent, and there have been no concerns from CPs in relation to Openreach performance. Openreach would argue that the case for change is simply not present.

8.77 Openreach would like to explore with Ofcom whether this standard should in fact remain set at a 12-working day level during the period from April 2020 (Openreach believes it should). Openreach believes that compliance year 2020/21 will be challenging to achieve the more stringent measure and will be engaging with Ofcom on this separately. Over the 5-year market review Openreach considers that the measure should be adjusted to account for the market changes and conditions identified throughout this consultation response.

8.78 Separately, Openreach supports Ofcom's proposals to exclude bulk migrations from the FAD QoS standard calculation. It is important to make sure that innovations and product developments designed at making overall improvements along the value chain are not restricted by regulation, so it is right that requests by CPs such as the bulk migration propositions are supported. We do note however, that at the time of writing, a number of CPs are not yet ready to consume the 'bulk' proposition and are submitting singleton migrations that are not grouped together. This means that, although we are receiving increased volumes of migration requests that are proactively being submitted by CPs (i.e. and not as a result of an end-customer requesting an upgrade) these additional volumes will not be captured as part of the exclusion to the FAD measure agreed by Ofcom earlier this calendar year[193].

[192] This means that there is a misalignment between the QoS standard and SLA/SLG regime which could cause unintended consequences.
[193] Upgrading broadband customers to superfast products – changes to quality of service regulation on Openreach, 29 January 2020. We note that Ofcom's definition of the Bulk Grouping Process set out at p.244 of the draft legal instrument needs to be amended to reflect the definition adopted by Ofcom in the 29 January 2020 Statement: "***Bulk Grouping process***" *means the process (known as the 'Bulk Grouping Provision Capability process' or similar names) under which a Third Party requests the provision of multiple GEA–FTTC services at a given street cabinet to be provisioned by the Dominant Provider on the same day when a single engineering visit to that cabinet can be arranged by the Dominant Provider*."

8.79 It may also be the case that in the future new propositions are developed for our CP customers to the benefit of end-customers in relation to migrations on to full-fibre, where further exclusions to the QoS standards may need to be discussed with Ofcom.

Comments on the QoS standard levels

8.80 It is important that Ofcom does not increase the QoS standards any higher. Doing so would be disproportionate because:

a) There is an exponential relationship between further increases to service levels and cost;

b) Openreach is already operating close to the limits of operational performance; and

c) Customers are not willing to pay for further increases to service levels which are already good.

8.81 In addition, the underlying assumptions on which the existing QoS standards were based (i.e. the fault rate forecast) are changing because of CP behaviour and therefore the existing levels may need to be reviewed.

8.82 In line with Ofcom's overall policy objectives of encouraging investment in full fibre, QoS standards that apply to services delivered over the copper network (i.e. MPF and FTTC) should act as protection measures (i.e. to maintain current strong service levels) as opposed to trying to improve performance any further. For this reason, we support Ofcom's proposals to keep the QoS standard levels flat, subject to the comments we make throughout this response.

8.83 While recognising that the year 3 levels were set via a consultative process during the last market review, Openreach's last submissions (e.g. prior to the Final Statement in 2018) were provided at a time when market conditions were very different. For example, neither Ofcom nor Openreach anticipated that proactive testing would be a factor that would undermine our ability to meet the QoS standards set. It is therefore important that Ofcom take careful consideration of whether the levels imposed via that market review are still reasonably achievable given environmental conditions.

8.84 Openreach provides more detailed comments on the proactive repair behaviour we have observed later in this response, but it is an example of how unexpected and uncooperative behaviour from CPs can significantly impact Openreach's ability to meet a regulatory obligation and change the underlying assumptions on which the QoS standards were based.

Comments on the scope of the QoS standards

8.85 Openreach agrees that the scope of the QoS standards should not expand further and should remain focussed on MPF and FTTC during what will be the start of a transitional period.

8.86 Openreach notes that in the 2018 WLA Ofcom proposed that new and single-order products such as SOGEA, G.FAST and SOG.FAST would be included as part of the QoS standard measurement as and when they were formally launched as they are an FTTC product variant. While we agree with Ofcom's latest assessment that

"performance is broadly higher[194]" for these sub-products[195], the volumes that we have observed up until this point have been very low and delivered during a trial phase[196]. As demonstrated as part of the 2018 WLA and when QoS standard level increased from 1 April 2020, Openreach will already be working at the upper end of our operational limits at a critical time when we are moving through the transition to single order products[197].

8.87 It is right not to include FTTP in the scope of the QoS standards. FTTP is a different product to the copper-based services that the QoS standards have historically been based on and it would not be appropriate to add FTTP into the same assessment methodology. Openreach also agrees with Ofcom that it is too early to determine what an appropriate QoS standard would be for FTTP. Please see our more detailed comments on FTTP QoS later in this response.

8.88 Separately, Openreach notes Ofcom's proposed deregulation of WLR services (and the subsequent consequence that WLR will not be included as part of the QoS standard measurement) where Openreach has adopted a set of commitments, including ensuring that the provision and repair of WLR remains at acceptable levels. Openreach will also continue to provide monthly KPI reports to Ofcom.

Comments on the compliance assessment structure of the QoS standards

Regional structure

8.89 Openreach's operational regional structure has been updated which should be reflected in the regional QoS standards that we are required to meet.

8.90 At present we have a misalignment between the performance metrics that we report as part of our regulatory requirements (QoS standards and KPIs) and our internal reporting as well as the measures reported to industry. It makes practical sense to keep these aligned.

8.91 Alignment to our current operational structure would be preferential for two reasons:

a) Avoids duplication/inefficiency of report production – Openreach produces many operational reports and having two different versions of each of these is inefficient for our reporting team and confusing for our operational leaders.

b) Provides clarity as to which QoS standard region Openreach's teams operate in – Openreach's new structure does not result in the new regions overlapping the old ones, meaning there is only one regional manager responsible for each QoS standard area. However, at a lower level, it is not as straight-forward for the managers below this breakdown, and it can be unclear which QoS standard region they are operating in. This could result in confusion when the business is making engineering loan decisions and whether it is truly the right thing to do. In a worst-case scenario, it is possible that the business inadvertently impacts a QoS standard regional performance by making the wrong resource decisions.

[194] We note that there may be an indirect impact on ELF and repeat performance from the introduction of SOGEA if end-customers are not informed about product changes, for example raising faults when there is no dial tone.
[195] Ofcom consultation - Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26, 7 January 2020, 7.48.
[196] The SOGEA product was formally launched on 1 April 2020.
[197] Openreach's response to Ofcom's Consultation on proposed quality of service remedies, 19 June 2017, p6.

8.92 Openreach therefore requests that the regions set out in the legal instrument are updated to reflect our new geographic model[198]. This will not dilute the level of service provided but will allow us to avoid potential complexities in having two separate structures.

8.93 Our comments above are by reference to the new WFTMR period (i.e. from April 2021 onwards); however, we also request that the regional structure updated for year 3 of the WLA, to cover the period 1 April 2020 to 31 March 2021. Openreach would like Ofcom to consult on this change (which we do not think will be industry impacting or affect the underlying service provided to customers) during the next compliance year (2020/21) so that end of year compliance is made against the updated regions. We will engage separately with Ofcom on this matter.

Compliance period

8.94 Openreach supports Ofcom's proposals to measure compliance on an annual basis – this has worked well since the QoS standards were first introduced and there is no case for change.

Trigger events and market changes

8.95 Maintaining the QoS standards in their current form and target levels is only appropriate and proportionate if the underlying assumptions stay the same / are likely to stay the same through the period in which regulation is set. Evidence of changes to these underlying assumptions is emerging and it is likely that there will be further change over the 5-year market review period.

8.96 In Table 8.1 below we have set out our current views on the potential trigger events / changes to market conditions could be, and the impact that they will have on regulatory structures. Openreach notes that the proactive repair 'trigger' is current and real rather than hypothetical and is having implications on service now. Openreach has provided more detail on proactive repair later in this response.

Table 8.1 – Examples of trigger events in the wholesale local access market

Trigger event market change	Description	Impact	Impacted QoS standard	Impact on fault rate?	Our current view of likelihood[199]
Proactive repair	CPs move from a reactive model (end-customer generated) to proactive model	Additional volume of faults created above forecasted levels and forecasted costs Inefficiency in instances where there is no customer issue	Repair on time (direct impact) Provision on time and First available date measures (indirect)	Yes	100% - this is already happening

[198] Noting also that this may need to be further updated in the future.
[199] This is a current view and may change over the WFTMR period.

Trigger event market change	Description	Impact	Impacted QoS standard	Impact on fault rate?	Our current view of likelihood[199]
		May impact overall level of customer service where 'genuine' issues delayed			
Changes to Service Maintenance Level (SML) mix	CPs change their bases to a different SML	Higher SML mix would put an additional strain on the resource requirement and alter the glass ceiling if significant	Repair on time	No	Low
Product mix changes	Significant movements from Self Install (SI) to Managed Install (MI)	Higher resource requirement, and greater skilling as MI involves more work	Provision on time and First available date	No	Low
SOGEA	Much larger take up than anticipated / misuse of product	Potential for CP/end customer misuse and incremental ELFs and Repeats causing additional faults	Repair on time	Yes	Medium
FTTP	High take up of FTTP in specific regions	Potential for significant additional resource and skilling requirement	All	Yes	High
Unrestricted DPA	Increased take up of DPA due to other policy measures	Increased fault rate from more intervention in network	Repair on time	Yes	Medium
Migrations	Significant increase in	Increased provision volumes	Provision measures	No	Medium

Trigger event market change	Description	Impact	Impacted QoS standard	Impact on fault rate?	Our current view of likelihood[199]
	migrations (not provided in bulk)				
Process change	Openreach and industry agree a different way of working, e.g. in relation to fault repair	For example, changes to SLAs or fault definitions	All	Yes	Medium

Source: Openreach

8.97 With these potential trigger events in mind, Ofcom's policies from 2021 onwards need to be fit for purpose, proportionate and forward looking. We think Ofcom needs to go further in setting out why and when the regulation would need reopening, and the ways in which it intends to ensure that the regulation remains fit for purpose and, to the greatest extent possible, future proofed.

Proactive Repair

8.98 In this section Openreach sets out our views regarding the proactive testing / repair activity we have observed from a number of major CPs, how this impacts our ability to meet specific regulatory obligations imposed by Ofcom and how it creates a major distraction in cost and resource from Ofcom's stated policy objectives of encouraging investment in full-fibre.

8.99 Below we set out some of the significant concerns we have and some options we are considering in managing the impact to ensure good service is provided for all of our customers, and the approaches we intend to take in reducing the risks faced including the potentially significant cost implications. Openreach notes that the issue of proactive repair not only impacts Ofcom's proposed policies for the WFTMR period but is also likely to impact existing QoS standards set via the WLA 2018. Openreach is providing a full view of this for completeness.

8.100 By proactive repair we mean faults raised into Openreach that have not been initiated by an end-user / customer contacting the CP to report a specific problem with their service but instead are submitted using algorithms and robotics. This activity circumvents the recognised industry processes that underpin a number of regulatory constructs, including the SLA/SLG framework and QoS standards and creates significant increases in fault volumes that are not forecast and may not actually materialise as real faults. For clarity, Openreach's position is that it is not the case that proactive and reactive faults should be considered to be the same all of the time – because the vast majority of faults received are not 'pull forward'[200] (as claimed by some CPs) and a higher percentage of the proactive faults we are receiving result in the fault closing without any action required, despite the cost implications it creates for Openreach (please see below for examples of the types of faults being submitted).

[200] Pull forward means the fault may have been raised in the future but is being brought forward.

Overview

8.101 Ofcom should note that proactive testing is:

a) not always in the end-customer's interests. It may not provide a benefit in any way, it may actually cause inconvenience by either asking customers to stay at home for a condition that cannot be located[201] and some CPs are charging end-customers to do this (and at no cost to the CP themselves). In addition, because of the overall implications for service in general, there is a risk that end-customers who genuinely raise issues will receive, on average, a lower level of service than recently observed;

b) likely to come at an additional and significant cost to Openreach; and

c) a distraction from and in conflict with Ofcom's other policy objectives in relation to full fibre. Any solution in which Openreach accepts proactive testing will involve investment in legacy services.

8.102 Several large CPs are now robotically and proactively testing and subsequently raising faults across broadband products when a 'condition' is identified on the GEA service test. These CPs are conducting this activity in different ways and at different stages even though the end-customer may not be experiencing any noticeable symptoms. Openreach has also seen instances of faults being reported where the line is operating with good speed and stability rating, which demonstrates how variable and subjective these different processes can be, as the CP attempts to make a judgement on behalf of the end-customer. This additional activity means that the volume of faults is likely to be materially above the forecast fault rate, and the inconsistency in approach away from the recognised process leads to challenges in operational planning.

8.103 Openreach has explored several options to reduce the volumes of proactive faults being submitted, of which we provide a summary later in this section, but there are a number of limitations and barriers that exist in not just their implementation but also their effectiveness. Openreach has also investigated options as to how QoS standards specifically could be measured in a different way to ensure that regulatory failure does not occur as a result of a change in CP behaviour.

8.104 As CPs have been reluctant to stop this activity, it is therefore left to Openreach to manage the fault intake and it must be acknowledged that unless Openreach takes action, all of industry (and not just those CPs involved) will suffer from the negative service impacts that proactive repair generates. This could take the form of, for example, lower performance against all of the QoS standards, detrimental impacts for non-regulated / industry metrics such as missed appointments, implications for customer service and transformation programmes or future product development.

8.105 Proactive repair was not foreseen by Openreach (or Ofcom) in setting resource requirements in the WLA and therefore we have not planned to be able to deal with the additional and volatile volumes that are being submitted. As a large proportion of these proactively submitted conditions are incremental, even if they had been incorporated into the forecast there would also be a subsequent cost implication. Therefore, it is not just a case of increasing resource now to be able to manage the impact. Openreach will therefore be taking reasonable steps to ensure that operationally we can manage the impact of proactive repair, such that it does not impact those end-customers who are experiencing genuine service-impacting issues and protect overall service levels for all of industry.

[201] We also note that some end-customers have, in fact, expressed issue with Openreach engineers attempting to discover issues that they did not raise.

8.106 In terms of the QoS standards proposed from April 2021 (and indeed the QoS standards that will be in place for the remainder of the 2018 WLA), the levels did not envisage the existence of proactively tested faults and so were not included in the fault rate analysis conducted. In this regard, it is important that Ofcom recognises that rolling forward the QoS standards at 'flat' levels only works if the underlying conditions remain the same. This is not the case here, and it would be disproportionate to set standards that would ultimately lead to regulatory failure due to a change in market conditions.

8.107 Openreach considers that proactively submitted faults should not form part of the QoS standard compliance assessment. However, a major issue is the lack of distinguishing factors that allow us to identify a proactively submitted fault compared to a genuine customer reported fault[202.] This means that Openreach is unable to remove these faults from any measurement and. more importantly, we are unable to treat a proactive fault any differently from a reactive fault. This means that there is an increase in overall work to complete (much of which is wasted effort), with consequential impacts on QoS standard performance, cost and resource. Openreach recognises that in evaluating any QoS standard solution this creates issues of certainty for Openreach and Ofcom in making any policy decisions, but at present we are left with an open-ended cost and resource risk with a number of complex challenges to being able to plan ahead with confidence.

8.108 Because of this difficult to forecast and open-ended risk, Openreach cannot accept a 'wait and see approach in terms of compliance assessment against the QoS standards (WFTMR or WLA). It would be inappropriate and disproportionate for Ofcom to expect Openreach to manage a regulatory risk in this way, and it would be operationally unfeasible to plan with no certainty on the approach that will be taken. From 1 April 2020 the QoS standard levels are increasing further; this is a major risk for Openreach, and we need Ofcom's support in managing the impact going forward.

8.109 In this section Openreach covers the key options we have considered from a regulatory perspective but also specific solutions we may seek to implement. We will continue to engage with Ofcom on this matter.

CP behaviour

8.110 The start of the BAU repair process begins with an end-customer experiencing an issue with their service. For example, this may come in the form of a slow line speed (compared with their maximum speed purchased), intermittency of service availability (i.e. the line is unstable), or a total loss of service. The end-customer contacts their CP who conducts their own checks (including in-home checks such as connectivity of the modem etc

8.111 Following the CP assessment, the CP can then decide to run the Openreach GEA service test on the line, using the end-customer's information alongside the GEA test outcome to determine whether to submit a 'fault' into Openreach.

8.112 Openreach has observed that several of the biggest industry players have set up their own proactive testing processes with significant differences in criteria, approach and effectiveness. This means that rather than submitting faults into Openreach following end-customer contact, different CPs are running different processes to identify different types and cohorts of lines to test and submit to Openreach.

[202] At present we are only able to confidently identify some cohorts of proactively submitted faults from their time stamps, but if this changes we will be unable to identify them unless the CP tells us.

8.113 Looking at this superficially and on a very limited scale, this concept might appear to be sensible and one that could add value to some end-customers, for example specific types of business lines which require a monitoring service. However, without mechanisms to control the way in which CPs submit lines, Openreach has found that:

a) As we cannot identify a proactively tested fault, we run the risk of deprioritising genuine end-customer raised faults, which is likely to result in overall customer-dissatisfaction;

b) The effectiveness of the overall repair process is detrimentally impacted because we have no information from the end-customer and the 'further' rate is generally higher;

c) A large proportion of the faults submitted require access to the end-customer's home which requires an appointment;

d) A proportion of the faults result in no remedial action being required and so are wasted effort (see below for examples);

e) CPs are able to send as many lines in as they can test, without limits and without any cost to them;

f) CPs can and are charging their own customers to this facility;

g) The volume received is inconsistent and volatile;

h) Some of the faults raised actually have a good speed and stability rating; and

i) CPs have given limited (or no) notice to Openreach of their activity and have generally refused to cooperate in a reasonable way.

8.114 The repair process that we operate is well established, understood by industry, and forms the basis of a variety of different mechanisms, a number of which underpin regulatory requirements set by Ofcom. This principle is extremely important; had the proactive repair volumes that are emerging now been present during the 2018 WLA, a very different fault rate is likely to have been derived, impacting the upper limits of possible operational performance and ultimately the QoS standard levels which would have been imposed.

8.115 The repair processes and models are based around identifying and subsequently resolving an end-customer reported issue; when the end-customer experiences a symptom on their service they initiate contact into their CP who runs a series of tests – often resulting in a fault being submitted to Openreach. This reactive approach is also an important principle. It is not economical or operationally sensible to run a proactive repair model on these services because:

a) Services provided over a copper network may experience fluctuations in performance; the properties of the copper network mean that this is inevitable. These variations do not necessarily create issues for end-customers but could show up on a test outcome at one point in time but not on another. The presence of a condition does not automatically mean a line is not performing well;

b) The GEA service test is designed to find the likely cause of a symptom reported by an end-customer; it is not designed to conduct blanket testing on lines without specified symptoms. Due to the emergence of proactive repair we are already considering redesigning the test if it continues to be misused;

c) Proactive testing has the potential to create huge inefficiencies in the way that we operate, causing excessive costs which ultimately may have to be passed on to customers. Not only will additional resource

be highly likely in order to attempt to deal with the incremental volumes received, much of this additional manpower is likely to be ineffective resulting from wasted visits / truck rolls trying to locate conditions that, in many cases, customers do not know exist and have no service impact;

d) It is very challenging to accurately forecast how many proactive faults may be received in a period of time; different CPs are using different algorithms and testing processes as well as the individual propositions they are running with their own end-customers (Figure 8.10 below demonstrates the volatility we are observing); and

e) Any proactive repair programme would require significant additional investment into the copper network by Openreach; this is problematic at a time when Openreach and Ofcom are focussed on moving customers to full-fibre services.

8.116 Openreach has repeatedly attempted to engage with CPs on this subject to limit the activity due to the adverse consequences, but with varying levels of success, and generally disappointing levels of CP cooperation. [✂][203]:

a) [✂][204]

b) [✂]

c) [✂]

d) [✂]

e) [✂]

f) [✂]

g) [✂][205]

8.117 [✂].

Figure 8.10: [✂]

[✂]

Impact of proactive repair on service and cost

8.118 Openreach continues to try and work collaboratively with all of our customers to find the best solution for the whole of industry, and we expect to implement additional measures to mitigate the negative impacts of proactive repair. These additional measures will be essential to enable Openreach to manage (reduce) the impacts from a technical, commercial and operational perspective.

8.119 In parallel, however, this change in market behaviour needs to be reflected in the QoS standard framework to account for the changes in the underlying assumptions. Forward looking regulation such as service levels should reflect anticipated change in the market and the current proposals assume a continuation of the status quo in

[203] Over the period October – November 2019.

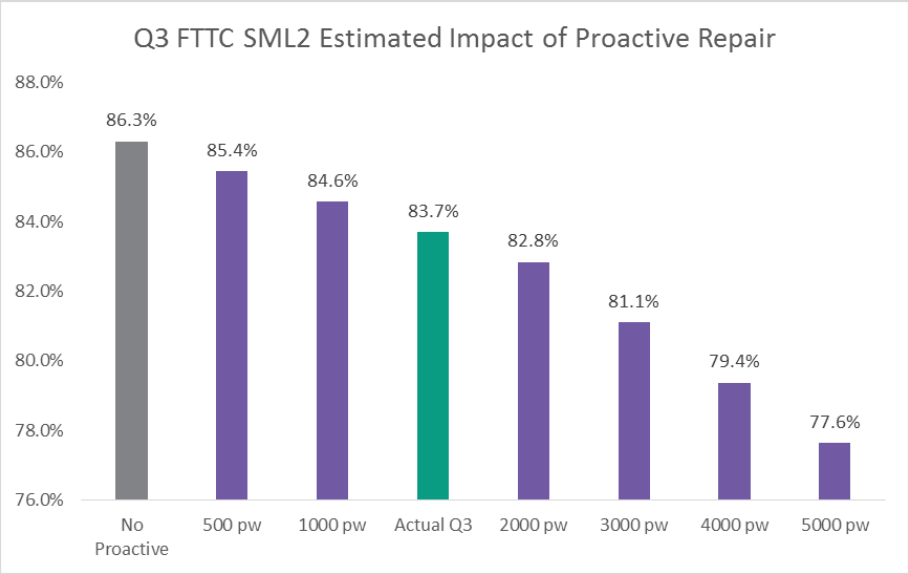
[204] [✂]

[205] [✂]

terms of our ability to deliver against the measures which is no longer correct, given the presence and impacts of proactive testing.

8.120 Openreach has carried out a number of modelling scenarios to understand the cost to deliver proactive repair and maintain our service levels and we believe this could range between £[✂] and £[✂] in additional resource costs over the next 5 years depending on the criteria CPs use to determine a proactive fault. We have modelled the impact that proactive repair has already had on our 2019/20 Q3 FTTC SML2 performance and in addition provided a range of impacts based on volume per week on the assumption we could not resource up quickly enough to deliver the additional volume (see Figure 8.11 below).

Figure 8.11 - Impact on 2019/20 Q3 FTTC SML2 performance due to proactive repair



Source: Openreach analysis

Proactive testing on provision

8.121 Openreach has also become aware that a number of CPs are conducting proactive testing activity on lines post-provision. Each CP is conducting these proactive activities quite differently and all CPs believe their own model is 'the right one'. This includes those CPs who are focusing on ELFs, i.e. within the first 7 or 28 days, and proactively raising faults where they observe conditions on a line.

8.122 Openreach maintains that raising faults in this way remains problematic – the end-customer has not reported an issue and CPs are taking it upon themselves to attempt to seek to 'fix' a perceived issue where it may have no noticeable customer impact, and in similar way to above, attempting to make a judgement on behalf of the end-customer. Openreach has seen clear examples of this, where Openreach engineers have attempted to remedy a CP reported issue, where the end-customer not only has no knowledge of the supposed problem but is sometimes both surprised and concerned that activity is being undertaken on their line without their support. Regardless of the point at which a CP raises a proactive 'fault', whether early life or in life, the same operational, service and economic issues exist.

Proactive repair and managing the QoS standard risk

8.123 Openreach's comments made in this section are made by reference to the impact on the repair QoS standards, but we will be continuing to monitor any broader implications for other provision or repair metrics.

8.124 As matter of principle, **we strongly disagree that proactively submitted faults should form part of scope of the QoS standard** (i.e. be treated the same as reactive faults) because:

a) They are not included in the fault rate forecast on which the QoS standard levels were based;

b) Openreach cannot operationally resource or plan for them;

c) Openreach's performance is essentially being manipulated by CP behaviour; regulation on Openreach should not be susceptible to such effects;

d) A large cohort of the faults being received are not service impacting and the end-customer has experienced no symptom;

e) Openreach has limited options to reject these types of faults once submitted;

f) It is unreasonable for CPs to think that the same service levels can be provided; and

g) The additional and unprecedented volumes come with an associated cost which will need to be recovered.

8.125 As mentioned earlier in this consultation response, Openreach agrees that there should be no further increases to the levels of the QoS standards. Openreach agrees that service is already being delivered at good levels and we support Ofcom's policy proposals to protect these service levels for end-customer during the beginning of a move to full fibre. However, we are facing a reality that we will be unable to maintain service at the same good levels observed and potentially meet the QoS standards unless there is action taken to account for the additional activity and subsequent increase in the fault intake[206].

8.126 Ofcom has proposed to roll-forward the current scheme, so that the QoS standards that are in place during 2020/21 will continue on a year-by-year basis during the period covered by the WFTMR. As noted previously, these levels were determined as a result of an extensive review of the resource levels, cost and glass-ceiling analysis that was conducted during the 2018 WLA review. These levels, and Openreach's ability to meet them, do not envisage proactive testing by CPs. It is therefore right that Ofcom reviews the construct of the scheme in order to account for this impact. We also recognise that given CPs' unpredictable and volatile volumes it would be difficult to know what the right standard should be.

8.127 We are therefore seeking action from Ofcom to ensure that the QoS standard framework remains achievable and proportionate, in light of changes to market conditions. In Table 8.2 below we set out some of the options that Ofcom could take that we have considered which will help to ensure that the framework continues to be achievable, and that Openreach are not unfairly penalised for changes to CP behaviour. Against each option we have set out whether or not we think the approach could be effective.

8.128 Although a regulatory approach does not in itself 'solve' the problem of significantly increased demand for fault repair, it will help to ensure that the regulation imposed is proportionate given the market conditions that exist. Openreach will be continuing to engage with Ofcom on the other available options to managing fault intake such

[206] Ofcom must acknowledge that the rise in the fault intake is due to CP behaviour and not because of a lack of investment in the Openreach network.

that it does not detract from Ofcom's overall policy objectives and that we are able to recover our efficiently incurred costs. We set out later in this response the commercial and contractual options we are currently considering reducing the fault intake. Ofcom should also note that with any of the approaches set out below, Openreach is still exposed to a significant SLG risk under the terms of our contracts with industry.

Table 8.2: Possible approaches to reviewing QoS standards

Approach	Issues	Our current preferred option
Recovering incremental cost of proactive testing via price control	• Not in line with Ofcom's proposed approach to price regulation • Cost impact range is broad, depending on extent and number of CP take up • Likely to encourage more proactive testing if included in price	**No**
Re-consultation after 1 year of WFTMR	• Delaying solution and continuation of regulatory uncertainty	**No**
Delaying implementation of QoS standards	• Regulatory uncertainty, does not address the problem	**No**
Exclusion from measurement – removing proactively / robotically tested faults	• Inability to identify proactively tested faults • Treating proactive and reactive faults differently	**No**
Exclusion from measurement - removing types of faults	• Would require re-calibration of the levels	**No**
Setting a pre-determined fault rate	• Complex to administer • Challenges with excluding faults received after cut-off	**No**
Reducing QoS standard target levels	• Challenging policy decision	**For further evaluation**

Approach	Issues	Our current preferred option
Discount factor / allowance applied at end of compliance year if required	• Further work required on how to determine discount factor	**Yes (preferred)**
Ofcom set out circumstances that would lead to a change in the regulation (direction)	• Circumstances will not be definitive • Delaying solution and continuation of regulatory uncertainty	**For further evaluation**

Source: Openreach

8.129 As can be seen from Table 8.2, Openreach has considered a range of different approaches to mitigating this risk to regulatory compliance arising from proactive repair, such that Ofcom ensures that any standards it imposes is fair and proportionate but also that the incentive properties on Openreach to continue delivering good service remain strong. We have conducted an evaluation against each of the options set out above and indicated whether or not the approach would be effective (or effective enough) at ensuring that the QoS standards reflect current operational conditions.

8.130 Options relating to the implementation timescales of any regulation being imposed have been considered, such as Ofcom reconsulting after 1 year of the WFTMR period or rolling forward the existing measures and removing the QoS standard element – akin to the approach we are proposing in relation to the Ethernet 'Upper Percentile' measure (please see our comments in relation to QoS for business connectivity services below). Our current view is that delaying any decision is likely to create regulatory uncertainty and would be counterproductive at this stage; it would be more helpful to work towards a suitable solution within this market review, but we remain open to similar options in the future if appropriate.

8.131 Openreach has also reviewed options that involve excluding particular cohorts of fault types. However, excluding types of faults from the QoS standard calculation does not mean that the work does not have to be completed and would mean that the overall levels would need to be recalibrated according to the different types of faults. Therefore, our current view is that this would have minimal impact in protecting our regulatory risk.

8.132 Theoretically, Ofcom could adjust the QoS standard levels to account for the fact that Openreach is having to complete a larger volume of repair work (in the same timescales) which is over and above the fault forecast, due to a change in CP behaviour and not due to a lack of investment on Openreach's part. This would involve lowering the required standard in order to enable Openreach to complete the higher volume of work with the same resources. Openreach acknowledges that this would be a complex analytical process to conduct which also could

inject delay into determining the appropriate outcome. We also recognise that from a public policy and perception perspective, lowering the QoS standards at this time may not be optimal[207].

8.133 It would also be possible, in theory, for Ofcom to link any imposed QoS standards specifically to the forecast fault rate. This makes sense in many respects as the fault rate assumptions underpinned the QoS standards that Ofcom mandated in the 2018 WLA. This may, however, be complex to administer in practice in terms of determining which faults were in and out of scope, and as noted above, does not alleviate the need for the work to be completed.

Recommended approach

8.134 As noted, this is a complex area with no easy solution to manage the QoS standard risk. That said, it would be unacceptable to impose regulatory measures that are likely to be unachievable due to external factors, and therefore we are requesting that:

a) Ofcom include a pre-built mechanism ('discount factor') into the QoS standards via the legal instrument; and

b) Ofcom set out the circumstances that would lead to an automatic review of the QoS standard levels, should material circumstances arise.

Discount factor

8.135 Openreach requests that Ofcom include a 'discount factor' or allowance that could be applied to performance at the end of the compliance year if required, to account for the impact of additional fault volumes over and above the fault rate forecast – which was as a result of CP behaviour. This could be similar to the 'high level MBORC' allowance where Openreach is able to select two geographic regions in which to exclude failures that were due to a high level MBORC declaration[208].

8.136 Openreach would prefer this discount factor to be set by reference to a similar approach to forecasting fault rates as was conducted as part of the WLA 2018 modelling. This was seen as an objective and reasonable way of assessing material increases in volumes. Ofcom could pre-determine a forecast fault rate forecast as in the 2018 WLA charge control model. A potential workable process could involve:

a) Through consultation, Ofcom forecasts a reasonable long-term fault rate for all main services in each year of the WFTMR (taking into account improvements through Fault Volume Reduction (FVR) work);

b) In periods where this fault rate is exceeded, Openreach would calculate the impact in terms of the total incremental volume of the period in question;

c) This incremental volume could be used as an input to the cost allocation model (used in the 2018 WLA analysis) to calculate the impact which it has had on service across both SML1 and SML2;

d) This impact should then be used as a discount factor to adjust the QoS standard performance accordingly and assess whether the minimum standards would have been met where the fault rate was not excluded;

[207] We do note that it may be appropriate in the future to lower the QoS standard levels if market conditions change and / or it encourages take up of new services.
[208] Openreach also notes that Ofcom applied a discount to orders that were completed in the first year of the 2016 Business Connectivity Market Review (2016) via a simple mechanism in the legal instrument, where a similar approach could be applied here.

e) Openreach would provide an audit of this process via its end of year compliance assessment.

8.137 Openreach considers that this approach would be effective for the following reasons:

a) It would ensure that the QoS standards are fair and proportionate, and that Openreach has a reasonable chance of meeting the required level, given that the standards already require Openreach to operate at the upper bounds of its possible performance level;

b) Openreach would continue to be incentivised to deliver timely repair performance against all types of faults;

c) There would be no need from a regulatory perspective to differentiate between different types of faults;

d) It would not involve a complex measurement construct to exclude cohorts of faults and therefore true underlying performance could continue to be assessed;

e) Should volumes stabilise due to collective industry action, there would be no requirement to use the mechanism;

f) Regulatory certainty would be clear in terms of the approach taken and practically Ofcom would not be required to take further action at compliance stage in terms of conducting complex assessments; and

g) Openreach would be transparent in the approach taken via its end of year compliance statement.

8.138 Openreach will engage with Ofcom further on the detail of this suggested mechanism, including agreeing what is a reasonable forecast fault rate, the methodology of deriving this fault rate, and implementation.

Circumstances that would lead to an automatic review of the QoS standards

8.139 Earlier in this response we set out a (non-exhaustive) list of circumstances that could occur which would require the QoS standard mechanism or levels to be re-evaluated in light of the new conditions. In the context of proactive repair specifically, in mitigating the regulatory risk Openreach is managing, we request that Ofcom acknowledges that:

a) Proactive testing activity from CPs was not envisaged when setting the QoS standard levels;

b) The levels were set in relation to a forecast fault rate;

c) It would not be proportionate for Openreach to be bound by a regulatory requirement that could be significantly impacted by CP behaviour;

d) There are circumstances that would lead to Ofcom reassessing the QoS standards, including changes in the market and / or policies aimed at downstream markets that could have an impact on Openreach;

e) The "trigger" scenarios referred to above represent specific scenarios that would warrant such an assessment; and

f) There is a need for Ofcom to provide clarity on any approach that would follow, including timescales for engagement.

Mitigating actions

8.140 Notwithstanding the fact that regulatory intervention is required specifically in relation to the QoS standards to ensure that they are proportionate measures, none of the approaches considered in Table 8.2 above will actually or directly reduce the increased volume of faults received, i.e. Openreach's engineers will still be allocated to try to resolve any issues which means more resource to be allocated and more cost incurred.

8.141 Therefore, Openreach will, in parallel, need to take specific actions that will have the outcome of reducing proactive and robotically tested fault volumes. Openreach will need to take action to ensure that we can continue to deliver against all of our service commitments for all of our customers, ensure that we do not incur inefficient costs or excessive resource requirements and that the approach taken is sustainable going forward.[209]

8.142 A 'do nothing' approach is not acceptable in this situation; it is not reasonable for Ofcom or industry to expect Openreach to take on full liability of this shift in CP behaviour. It is clear that some CPs are seeking to drive new revenue streams from this activity but bearing none of the costs and are instead passing the burden of cost and all the risk on to Openreach. Openreach therefore believes that a set of actions to help limit proactive testing to a defined set of scenarios or volumes are required in order for Openreach to continue being able to provide good service for all of industry, and not detract from our other requirements or Ofcom's stated policy objectives. We look for Ofcom's support in this.

8.143 An overview of the actions under consideration is set out in Table 8.3 below.

Table 8.3: potential approaches to managing impact of proactive repair

[✂][210]

8.144 Openreach believes that a combination of these options will be required to implement a sustainable solution that will:

a) Protect the service levels we are able to provide to all customers;

b) Treat our customers fairly and equivalently;

c) Ensure that customers experiencing genuine issues or loss of service are not deprioritised; and

d) Allow us to recover our efficiently incurred costs without having to raise prices for all customers.

Fibre to the Premises (FTTP) Quality of Service

Key points

8.145 This section sets out Openreach's current views on the approaches to provision and repair QoS for FTTP services. Providing excellent customer service is at the heart of everything we do and FTTP is no exception, where it will be a key service that differentiates Openreach in a vibrant market.

[209] [✂]
[210] [✂]

8.146 We agree with Ofcom that it would be premature to impose QoS standards for FTTP[211]. Openreach instead, will consult with its industry customers on a set of arrangements for FTTP service at the right time in the product's development. Following discussions (and likely subsequent formal negotiations) with industry, we would like to produce a joint approach on what a good outcome looks like and a potential implementation timeline and plan. We and our customers are in the best position to determine when the product is sufficiently mature and defined and what an optimum outcome will be.

8.147 We think that this approach is most likely to lead to the best outcome for customers, and that it would be premature to impose QoS standards for FTTP during the WFTMR period because:

8.148 FTTP is a product in its development and build phase. As such, despite being a launched product, we do not know what all the right metrics will be and will not know this fully until the product is consumed at scale by more than one CP and all current re-engineering of product delivery has settled. It is therefore premature to pre-empt what a good outcome is while CPs themselves are not yet fully consuming the product and end-user/consumer demand for ultrafast services is still uncertain;

a) We think that the competitive pressures from alternative network operators mean strong incentive structures already in place in the absence of regulated service standards and no market failure, or risk thereof, exists, so there is no need for regulation;

b) As industry moves on to a full-fibre infrastructure, what quality of service' means will be different to that which applies to the copper network. We would also expect there to be changes in the way that CPs consume Openreach's services which cannot all be determined or quantified fully at this stage[212]; and

c) It is likely that the existing contractual requirements for FTTP will need to be reviewed and therefore it is not the right time to be imposing regulatory service targets. The SLAs and SLGs that are currently in place for FTTP were implemented at a time when a ubiquitous full-fibre network was not envisaged and the product was primarily focussed towards the retail market, and therefore it's right to consider whether these remain appropriate. Given the anticipated need for this review (including the implications for FTTP for Business), it would not be appropriate to impose ex-ante measures.

8.149 With these reasons in mind, Openreach therefore agrees with Ofcom's proposals in not implementing QoS standards (or indeed an alternative QoS framework) on FTTP during the FTMR from April 2021 which will enable alternative approaches to QoS rather than introducing formal regulation.

8.150 In this section we provide more detail on why we believe it would be premature to impose QoS standards on FTTP and our proposed approach to industry engagement on this.

Agreeing service metrics with customers

8.151 Openreach has bold ambitions to increase the FTTP footprint across the UK and is in the process of a national roll out. We have passed 2.6M premises so far and plan to hit 4 million by March 2021 with an aspiration to build to 20 million Total Homes Passed by the mid-to-late 2020s. While these are bold plans, we must remember that FTTP is not ubiquitous and therefore must not be compared to the FTTC or copper network. Unlike these networks, FTTP

[211] Ofcom consultation - Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26, 7 January 2020, 7.52.
[212] For example, understanding how scheduled migrations would work and how this would impact performance metrics.

must be physically built to every premises that will be served, not simply to the local street cabinet where it can then use existing network into each property.

8.152 We must emphasise that build does not necessarily always materialise in actual demand. As CPs begin their thinking about the full set of customer scenarios, build process solutions and variants are being conceived which will significantly change the performance metrics that we will want to monitor and that will determine a good service experience.

8.153 Openreach wants to agree the relevant service metrics for FTTP directly with its customers and we want Ofcom to support this option and enable these discussions to take place at the right stage. Akin to the industry collaboration that has worked well for Physical Infrastructure Access (PIA)[213], Openreach supports Ofcom's proposals to not impose specific measures for FTTP. A process of facilitated discussion that takes place between Openreach and its customers is most likely to produce an optimal set of measures, and therefore Ofcom should not propose a restrictive set of measures or a specific framework.

8.154 Industry-wide programmes such as "Re-imagining Ethernet" and the WLR Withdrawal programme demonstrate that it is now typical for Openreach to lead on consulting with CPs, and through these processes agree and specify courses of action. These processes exist in a number of markets and Ofcom should be encouraging these engagement processes and enabling them to take place for the benefit for the market.

8.155 We are currently determining the structure and design of the process and have engaged with the OTA2, who are prepared to support us. We are in the very early stages of engagement with industry and have set out our initial plans to engage further on this topic. Over the coming months, we will engage and consult with CPs on the approach to QoS for FTTP and this input and feedback will enable us to structure a formal programme of facilitated discussion. Our ambition is that an initial set of provision and repair performance metrics will be agreed for implementation around the start of the WFTMR Period (but which may evolve over time as the product develops further[214)215]. We will continue to engage with Ofcom to discuss key principles of this programme as it develops, including on how Ofcom see their role within this process.

Why QoS standards should not be applied to FTTP

8.156 Openreach plans to deliver excellent customer service for FTTP. We think that regulation is both unnecessary and potentially counterproductive at this stage: there are a number of risks and complex challenges with applying a different QoS standard to FTTP services (or indeed adding it to the scope of the existing QoS standards[216)].

8.157 In Table 8.4 below we set out some of the key reasons that new QoS standards should not be applied to FTTP, or that FTTP services should not be included into the existing QoS standards covering FTTC and MPF. We believe that this is likely to have unintended consequences in both the short and long term and may have the propensity to skew our thinking and approach to network management and the development of capabilities to migrate large

[213] We believe that there are important lessons that can be taken from other product areas and applied to FTTP. For example, industry collaboration has worked well in developing the metrics for our DPA product, Physical Infrastructure Access (PIA), of which Ofcom has retained oversight of the process but where metrics or targets were not mandated. This process has proved to be positive and productive and has allowed industry parties to collectively work through the particular requirements that were identified.
[214] For example, in 2012, the development and launch of the FTTC Self-install product needed to be carefully worked through with CP customers before it became subject to regulatory service standards in 2018.
[215] We are also currently of the view that any measures agreed (preliminary or otherwise) would not automatically become a regulatory requirement as the measures would need a sufficient period of bedding in before they can be considered to be appropriate As this paper illustrate, we are still a considerable period away from being in a position to agree targets with our customers; there needs to be enough flexibility within the process to adapt and evolve the measures as volumes increase and build continues.
[216] As currently required under the Wholesale Local Access 2018.

volumes of customers from copper to fibre efficiently within a relatively quick timeframe as the FTTP network is built.

Table 8.4: reasons why it is premature to impose QoS measures on FTTP

Reason	Detail / examples
Support systems still in development	• Our focus is very much on defining and evolving the support systems required to assure customers of timely and useful updates which can be delivered in a systemised and scalable manner. • As many of the network solutions to deliver FTTP are still relatively immature and will change as the product evolves, our ability to build supporting scale systems and processes for these build solutions is also immature and still in development.
Network topology and delivery processes	• In contrast to copper-based services, FTTP exhibits some key characteristic differences in both product definition and network build solutions. • For example, FTTP has fibre all the way from exchange to premises including the lead-in from the street. This differs from FTTC and MPF where the customer lead-in is copper based. This is a very important difference because FTTP drives a brand-new lead-in which: o Will often need extra civils work and therefore more work to do compared to an MPF, WLR or FTTC job; o Will often need our engineers to safely work at height to remove and replace the copper lead-in with full fibre, including the need to use a Tetra ladder safety system or hoist; and o Will always require the installation of a new demarcation point within the premises and therefore an appointed, hosted visit to install and connect this equipment, known as an optical network terminator (ONT). • MPF and FTTC jobs are therefore typically much simpler and quicker than FTTP jobs. With a large proportion being achieved with a visit to the local street cabinet and no customer visit. This means that delivery processes vary considerably in time and cost
Too early to know what the appropriate measures are	• It is too early to determine what the right *metrics* are (i.e. the individual measures), as these are likely to be different to the metrics that measure performance on copper-based broadband services. • Attempting to implement a target based on an inappropriate metric or measure, for example if a metric originally based on MPF services was applied to FTTP, may mean that the regulation could become unfit for purpose, disproportionate, or unachievable because the wrong aspects of the customer journey are being measured.

Reason	Detail / examples
	• It could also mean that we may not focus on the metrics that are important to our customers' and end users' perception of good service.

Too early to determine "targets"	• Once any metrics have been determined, it is difficult to assess what 'good' performance looks like at this stage.
	• We have not yet reached a 'steady state' where we (or a third party or a regulator) could reasonably determine what an efficient output of operation would look like
	• In terms of 'in-life' performance:
	  ○ There is insufficient volume on the network to assess the capacity management of the network in terms of committed and peak rate speeds.
	  ○ We do not have enough network history to create a statistically relevant mean time between failure metric.
	  ○ We have not yet encountered stress scenarios to prove or legitimise a 'fibre up time' availability metric.
	  ○ There is insufficient industry-wide take-up to be able to report statistically significant failure rates or repeat fault rates.
	• There is also a risk that inappropriate QoS standards lead to inefficient costs incurred by Openreach because of the service level being set at the wrong (i.e. too high) a level. We do not think that this would be appropriate given the growth of the market.

Development of build methods	• Our build methods have changed as we experiment with new components, techniques and processes. We have tried and enhanced various different processes and we continue to experiment and explore new models with CPs. • Until we reach a point where the build process is sufficiently developed and refined to run at full capacity and the highest possible quality, there are likely to be L2C performance impacts as we find the optimal solutions with greater volumes. • Openreach has mainly developed most of our learning to date with only one major CP; with most of the other big CPs coming on board in the next year, we expect to gain much more learning that will drive us to change the delivery processes even more. In this initial learning period, it would only be appropriate to consider what may define 'good' QoS once this initial phase of learning has concluded and develop and evolve these sets of measures during this period.

Reason	Detail / examples
Low volumes	• While we are dealing with relatively low volumes on FTTP services and CPs are not ready to consume, it cannot be appropriate to use these volumes as a base for setting service or performance based on regulatory targets. • When setting *ex ante* regulation, data should be reliable and based on a representative volume. As FTTP is relatively new and still in the early stages of adoption by CP customers, the data is not suitable for this purpose.
Customer experience still being developed	• Our priorities, at this stage in the product's development, are for full scale roll-out and setting the broader customer experience. Imposing a regulatory target at this point could actually be counterproductive if it detracts from this primary focus.
Other forms of "quality of service"	• Openreach acknowledges that Quality of Service does not just relate to the initial delivery of the circuit, which we believe we are managing well with industry without the need of specific regulation. • We are in the process of reviewing other aspects of the product offering over and above the delivery process, e.g. identifying metrics around network stability and reliability. • Our current focus is understanding how these can be impacted by aspects in the both the Openreach *and* CP domain and then defining metrics to monitor relevant performance.
Fault management differences	• Openreach is in the process of investigating what the optimal repair process looks like for FTTP, as this differs significantly to other products due to the nature of the network elements • It is often assumed that fibre infrastructure is less prone to faults than copper due to the absence of some of the characteristics that make copper susceptible to issues, for example distance limitations and moisture ingress. However, there are other issues that we are still learning about that are specific to fibre, such as the fact that it is much more delicate to handle and physically install. • FTTP repair work could also theoretically require a more complex resolution, for example when the fibre had been damaged. • We are investigating how we can upgrade specific components of FTTP equipment to make scale monitoring and management of network performance proactive, without significant service disruption to existing customers. Along with this, we're retro-fitting and rolling out better solutions to make remote testing to pin-point fault location, more easily achieved. All of these are in the early stages with more

Reason	Detail / examples
	sophisticated solutions for performance monitoring still needing to be developed and implemented
Variants to the FTTP provision process	• FTTP comes with specific complexities in determining how we measure the optimal provisioning process as we are still in a significant infrastructure build stage. • While we roll out FTTP, there are numerous different variants of the provisioning (L2C) process[217] and it would not be appropriate to have a measure that grouped all of these together into one single metric, nor would it be appropriate to set measures based on a particular level of build activity because this will change over time. • We are tracking and monitoring a large number of build variants today and we expect these to change (and consolidate) over time.
Resource / skill levels	• The FTTP network is not yet ubiquitous and therefore engineering skill has not yet been rolled out to the full workforce. While this is still the case and training is being rolled out, it is not appropriate to measure task times in the same way as it is for other volume products.

Source: Openreach

Existing incentives to provide high levels of service

8.158 As we have outlined to Ofcom, service is at the heart of Openreach's strategy and engrained within our culture. Delivering at high performance levels is not only an internal ambition based on a desire to deliver an excellent customer experience, but for FTTP in particular it is needed in order for us to remain a key player in what is becoming a much more diverse and competitive market. These are already strong incentives to deliver good service.

Competitive pressure ensures that we need to deliver good service

8.159 The emergence of alt-nets and the availability and take up of Openreach's duct and pole access product mean that there are more FTTP players in the market. We expect each to offer specific service commitments as part of their product offerings and we anticipate that a number of CPs will pursue a multi-vendor strategy for their FTTP services.

8.160 For example, Virgin Media is an established scale ultrafast-capable player with ultrafast network reach of around 15m THP and growing (and high take up in those areas). This shows the existence of competition in the market where Openreach, and its customers, will need to respond with high quality, reliable services.

[217] For example, in relation to whether the site is a new build or not, the degree of and complexity of infrastructure build required, whether network deployment is overhead or underground, internal or external build, business or residential needs, single occupancy or multi occupancy dwellings, permanent or temporary sites. Further detail can be provided on these if required. Some of these do not yet have matured systems or baselined order journey performances. Where this is the case, these types of installation are highly localised today, are manually managed and walked from team to team and are only done under the guise and within the wider context of our proactive plan and build activity without the scrutiny or delivery commitments associated with a specific L2C order.

8.161 Openreach will therefore need to ensure that we provide good service if we are to continue being the preferred choice for CPs, providing us the inherently strong incentive to deliver excellent customer service. The primary policy aim of Ofcom's proposed remedies in the WFTMR is to generate investment and competition in the roll out of high-speed networks. It is in Openreach's commercial interests to deliver high and consistent levels of QoS on FTTP to remain competitive.

8.162 In the event that Ofcom did impose stringent and fixed QoS obligations, due to the existence of other key players within the FTTP market, it could be argued that all operators be subject to any imposed QoS obligations, to ensure a level playing field for all. However, we believe that it would be far more in line with Ofcom's stated public policy aim of creating investment and competition to permit the FTTP market to develop and allow different players to compete on customer service and creating a level playing field with less regulation. Introducing QoS standards on FTTP for Openreach could also theoretically mean that other smaller or new players are not able to compete on service if the standard is set at an unrealistically high level.

Other contractual and regulatory obligations

8.163 Incentives to deliver good service for FTTP already exist in the form of Service Level Agreements (SLAs) and Service Level Guarantee (SLGs) arrangements. We consider that the schemes set up (e.g. the SLA/SLG negotiation framework) work well and we will continue to engage with our customers through the designated forums on these matters[218].

8.164 We note that measures to be agreed with industry are likely to become embedded within our contractual obligations, and therefore there will be underlying obligations to provide services on fair and reasonable terms and conditions and to not depart from the reference offer (i.e. the contract).

8.165 That said, Openreach believes that it is appropriate to review the FTTP contract to ensure that it remains fit for purpose, future-proofed and to consider the relevance of the existing SLAs and applicable SLGs, given that FTTP is no longer a small-scale, niche product, predominantly aimed at the retail market. The SLAs and SLGs that are in place today reflect a provisioning process and product that was not designed with mass-take up volumes in mind and where there was very low demand. With Ofcom's stated policy objectives in mind, it is likely to be the case that the contractual arrangements in place today need to be reviewed to reflect the evolving landscape and large-scale requirements for network build. Today's arrangements do not reflect this.

8.166 Separately and as noted below, we are supportive of the desire for transparency of Openreach's service performance and of service reporting obligations on a general basis. The existing transparency obligations such as the monthly KPI reports will continue to be provided to Ofcom[219], and that Ofcom will retain the ability to intervene on FTTP service should it be considered appropriate to do so in the longer term.

8.167 Because these strong incentive structures are already in place, we do not think that QoS standards are the right mechanism to encourage the FTTP market to develop nor an incentive for Openreach to roll out full fibre at pace, in line with public policy objectives.

[218] Openreach strongly believes that the SLA/SLG negotiation (as set out in the WLA 2018 and BCMR 2019) process has worked well and has encouraged better ways of working between Openreach and its customers. This doesn't remove the regulatory obligations entirely but allows Openreach and CPs to specify agreements, via a facilitated process. We believe that a similar framework could potentially work well in the future for other service-related matters

[219] We note however that if new metrics are developed, we may need to review the KPI set with Ofcom.

Other Quality of Service remedies in the Wholesale Local Access Market

Transparency measures

8.168 Openreach supports Ofcom's transparency measures for WLA markets. Openreach shares Ofcom's transparency objectives and also believe that transparency through the provision of regular Key Performance Indicators (KPIs) is a useful QoS remedy; it is useful for Ofcom to have regular oversight of performance and provides incentives on Openreach to maintain good performance levels.

8.169 Given that Ofcom consider that the KPI reporting regime has been largely successful[220] Openreach is happy for it to continue in its current form if the information continues to be useful. In line with our comments above in relation to FTTP, we believe that it will be necessary to review the KPI requirements for full-fibre products as they develop and metrics are agreed with customers.

Tails report

8.170 Openreach agrees with Ofcom's proposals to amend the tails report from a quarterly to a six-monthly submission. This will align with the tails report provided in relation to Ethernet circuits. Openreach believes that there is a need to review the content of the existing WLA tails report as it is extremely time consuming, manual and burdensome to complete and we do not think that this is a useful use of Openreach resources, nor is it required in order for Ofcom to carry out its duties. We will engage with Ofcom on this matter in more detail later during the consultation period.

Openreach's vision for QoS in WLA markets and future changes (assuming steady state post COVID-19)

Alternative QoS standard structures

8.171 Openreach is pleased that Ofcom are open to alternative QoS frameworks in the future[221] as it is important that regulation can be flexible in a dynamic and fast-paced market. Openreach continues to be open to future alternative structures.

8.172 Given the uncertainty Openreach is are facing in specific areas, for example in relation to proactive testing by CPs, we think it is probably right to maintain the current arrangements at this time, subject to the comments made in this response. We are concerned that unexpected and uncooperative behaviour from our customers could cause major disruptions for end-customers and therefore retaining the stability of the framework is most likely the best outcome at this stage.

8.173 Had there been a period of stability in which we were confident that we could work with our CPs to find a mutually beneficial alternative arrangement, this would be a consideration for us. However, at this stage a consistent approach to reviewing QoS is important for us. As we move through the next market review period and towards a

[220] Ofcom consultation - Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26, 7 January 2020, 7.55

[221] Ofcom consultation - Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26, 7 January 2020, paragraph 7.66.

more advanced switchover position, it is likely that we will want to review the QoS structure for copper-based products and its appropriateness going forward.

8.174 We would also note that as part of the Octagon programme, Openreach is also reviewing what 'quality' means, including defining a new metric that looks at the overall number of 'disappointed customers' and how to reduce this total. This may become a future measure of QoS.

8.175 Openreach is, however, keen to explore other structures in relation to full fibre. It is important that we are able to develop the FTTP product in line with our customers' evolving expectations and deliver it to a high standard in order to encourage take-up. As covered above, it is important to understand that measuring 'quality" on copper-based services may mean something different for FTTP. In order to be successful, Openreach needs to retain flexibility without the restrictions of regulated QoS standards. As stated above, we would like to engage with our CPs specifically on service metrics for FTTP and anticipate being able to negotiate a set of measures that work for the industry.

Quality of Service in the Business Connectivity Market

8.177 In this section, Openreach provides comments on Ofcom's proposals in relation to QoS remedies for business connectivity / leased line services. Ofcom should also be mindful of the comments on COVID-19 provided at the top of the QoS Section.

Key points

8.178 In specifying appropriate QoS regulation for leased lines, Ofcom should note the following context:

a) The service Openreach is now delivering and has delivered for a number of years for leased lines services is in good shape. This is notwithstanding some recent challenges associated with high demand / demand volatility and EMP[222] adoption issues that Openreach has successfully worked through.

b) Any comprehensive evaluation of Openreach's service performance should look at the service improvements Openreach has made since 2016 and should also look beyond just performance against the QoS standards by considering other measures such as customer satisfaction and the quality of customer engagement.

c) Over time, Openreach has laid the foundations for continued good service into the future. This is based on investment in people, systems and processes and in developing a delivery organisation (FND[223]) that is better set up to meet the requirements of customers and end users.

d) The leased lines market is volatile (in terms of order volumes and other factors), and there are a number of changes (e.g. the introduction of DFA and in Area 3 and unrestricted DPA nationally) that will impact leased lines and so will to some extent impact Openreach's ability to deliver against the QoS standards imposed. Given that the WFTMR will set regulation for a 5-year period, and that change during that period is very likely but difficult to forecast with certainty at this stage, Ofcom should stand ready to re-evaluate and reset QoS regulation should this be required. In this regard, Openreach proposes a non-exhaustive set of triggers that, should they arise, should automatically lead to a re-evaluation by Ofcom of the QoS remedies imposed.

8.179 Openreach supports a number of Ofcom's QoS proposals for leased lines:

a) It is right for Ofcom not to continue increasing the target levels associated with the QoS standards. The QoS standards already provide an effective backstop for the delivery of very good service and are already at high target levels. Going further would not be proportionate;

b) It is sensible to keep a level of stability and predictability by not amending the general structure of the QoS standards – e.g. their compliance duration and geographic assessment;

c) This is a volatile and unpredictable market and so it is right that Ofcom continues to structure the regulation in such a way as to enable the measures to be changed at short notice, should this be required;

d) It is right not to extend QoS standards to Optical services. These are relatively small-scale products which are also subject to higher levels of competition, which provides its own strong incentives to deliver good service levels. Further, Openreach service is actually at good levels of overall performance; and

[222] Equivalence Management Platform, Openreach's strategic customer management and ordering system.
[223] Fibre and Network Delivery.

e) It is sensible to continue with the detailed transparency obligations that are currently in place and which provide Ofcom with a comprehensive set of KPIs.

8.180 There are two changes Openreach considers that Ofcom should make to its proposals:

a) The Upper Percentile QoS standard is too subject to market volatility, has a target level that is too tough and in consequence is not proportionate. It should be replaced by a more comprehensive set of transparency arrangements. This will be proportionate given the sensitivity of the Upper Percentile measure to external factors and will not in any way undermine Openreach's continued focus on delivering good service for the most difficult to deliver orders.

b) There should be a clear commitment to re-opening (i.e. reviewing for achievability) the QoS standards if certain circumstances arise. As noted above, Openreach sets out some suggestions in this regard.

8.181 When assessing QoS standard compliance, in circumstances where Openreach was to miss a QoS standard, Ofcom should use a holistic evidence base to determine whether it needed to open an investigation (on grounds of administrative priorities) and, in circumstances where it did decide to open an investigation, whether it was appropriate to impose any further remedies on Openreach. In particular, Ofcom should include in any such assessments an evaluation of the leased lines customer satisfaction surveys that Openreach has now been running for a number or years, in addition to the performance against the QoS standards themselves. This will provide Ofcom with an additional evidence base, more reflective of the customer experience, on which to base such important decisions.

8.182 Finally, Openreach is very concerned that the current unduly low price of the Area 3 DFA remedy proposed by Ofcom will lead to rapid mass migration from installed active services to DFA. This would represent a massive increase in work which would undermine Openreach's ability to meet all the provision QoS standards nationwide. There is no obvious mechanism to insulate the QoS standards from this effect, and so if Ofcom does not significantly alter the price of the DFA remedy to properly reflect the costs incurred in Area 3, it is likely that the leased lines QoS proposals would need to be re-evaluated in the short term in order to account for the impacts of scale active to DFA migration. Openreach provides further comments on this topic in the Sections of this response covering Dark Fibre (in both pricing and non-pricing remedies).

Openreach service performance

8.183 Openreach recognises that at the start of financial year 2019/20 Ethernet service performance was variable, due to factors including demand volatility followed by a period of unexpectedly high demand plus some issues associated with EMP adoption. However, in the second half of the year Openreach not only stabilised performance and brought QoS standard performance back to some of the best levels seen but has hit record levels of throughput too, i.e. the volumes of circuits delivered. This has been reflected in Openreach's customer satisfaction scores, where spot month NPS has also seen a record high levels in January 2020, February 2020 and March 2020, combined with 12 months rolling average score of +33.1 (a score above 30 is considered to be excellent). This is a good quantitative demonstration of customers' satisfaction with the overall service that Openreach is providing.

8.184 Looking with a more "macro" lens, Ethernet performance has significantly improved over the period when QoS standards have been in place. The performance charts provided below illustrate the strong progress in improving overall Ethernet service since 2016 when the QoS standards (then called MSLs) were first introduced. In all the

measures a significant improvement in performance can be seen over time, and service has never fallen back to the levels that were previously seen pre-2016. As such, Openreach acknowledges that QoS standards have played a part in incentivising a higher level of customer service.

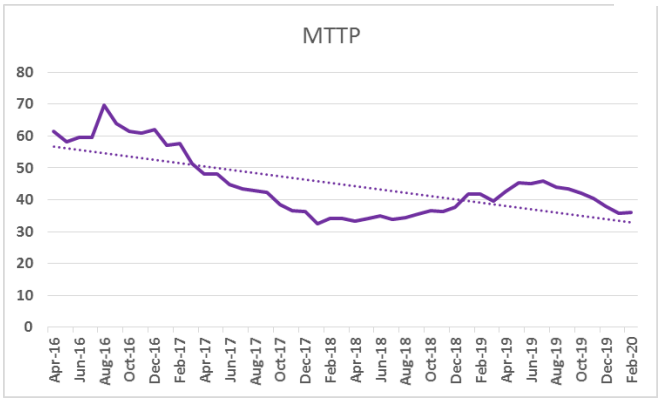
Delivery times (Mean time to provide)

8.185 There has been an improvement in Mean Time to Provide (MTTP) since the 2016 BCMR (see Figure 8.12 below). Openreach recognises that performance in 2016 was unacceptable and customers waited too long for their orders to be delivered; however, from 2017 onwards there has been an improvement in MTTP, and customer circuits are being delivered significantly quicker than before. Although there was a small "blip" in MTTP performance in H1 of 2019/20, this has been recovered, and at the time of writing Openreach has been delivering MTTP of c. 36 working days, broadly in line with previous periods of best ever performance[224].

Workstack age

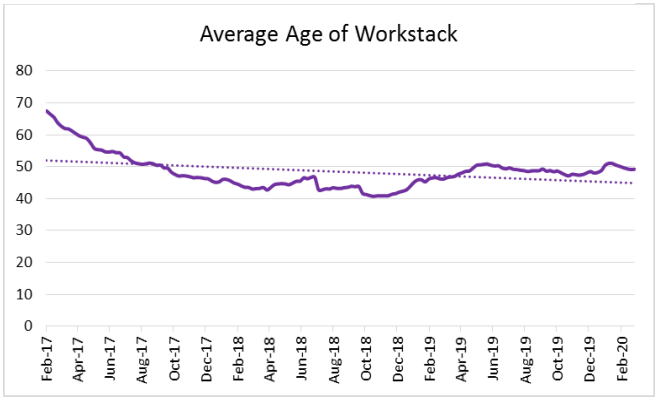
8.186 The Age of Workstack measures the average age of all the open orders within the workstack and helps to demonstrate that Openreach are not just delivering the "easier" circuits, but rather have improved delivery across a range of circuits of varying complexity (see Figure 8.13 below). As Openreach has improved the overall health of the workstack, and reduced the average delivery times for orders, there are fewer aged orders waiting a disproportionately long time for their order to be completed, and the overall age of the workstack is stable at c. 49 working days.

Figure 8.12: Mean time to provide



Source: Openreach analysis

Figure 8.13: Average age of workstack



Source: Openreach analysis

Aged (Tail) orders

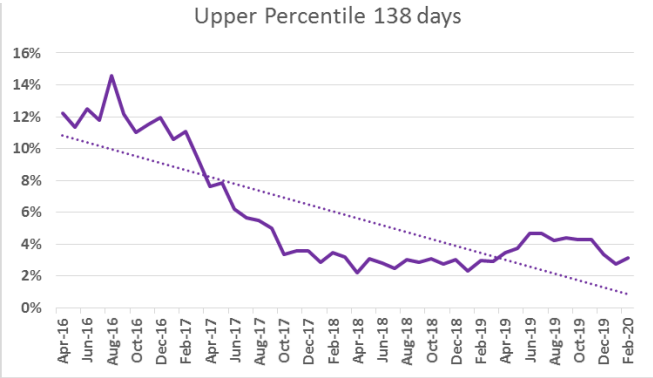
8.187 When MSLs were first introduced in 2016, a significant proportion (>12%) of Openreach's Ethernet completions were orders which had taken over 6 months to deliver. However, there has been a significant reduction in the number of aged orders that Openreach completes (see Figure 8.14 below). Again, in H1 of 2019/20, while there

[224] It should be noted that, because of the extended duration for some Ethernet orders, performance blips may necessarily take a number of months to be fully worked through.

was a short period of time where there was a higher volume of aged orders being completed, this was never at the same levels as 2016, and has been addressed.

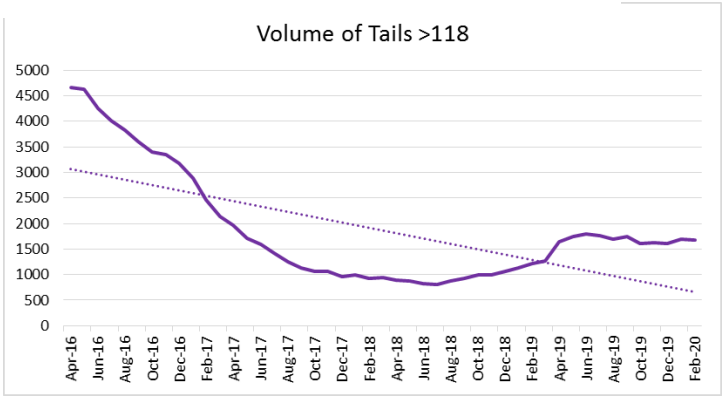
8.188 When looking at the volume of orders in Openreach's workstack which are over 138 days old (see Figure 8.14 below), there are significantly fewer tails compared to 2016, and Openreach is holding a healthy, and stable, aged order workstack.

Figure 8.14: Tail Performance



Source: Openreach analysis

Figure 8.15: Tail Volumes



Source: Openreach analysis

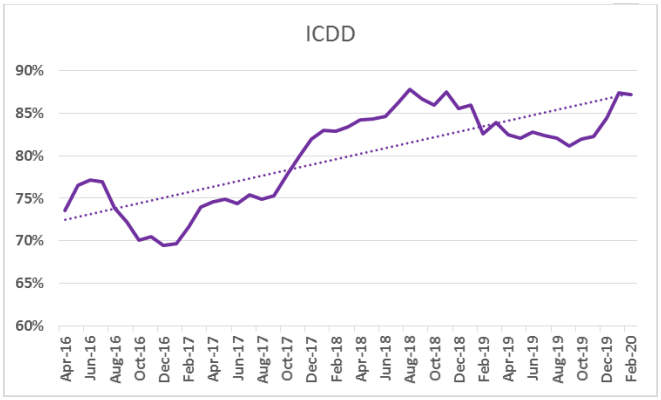
Date Certainty

8.189 Openreach is providing better date certainty to our customers (see Figure 8.16 below). This means that we deliver orders on or before the date we say we will. Although there was a slight drop in certainty performance in H1 2019/20, Openreach has worked hard to put in place the transformational actions required to improve date certainty for our customers. This has resulted in a sharp recovery in certainty performance, and at the time of writing Openreach has been consistently achieving date certainty of 85%.

Crosslink

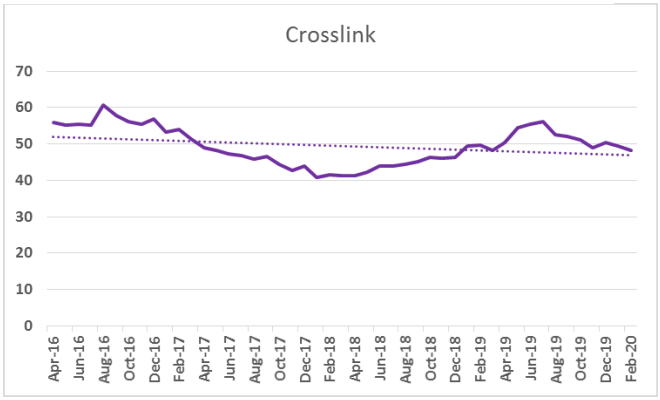
8.190 Crosslink performance has been consistent (see Figure 8.17 below), and Openreach has been performing under the QoS standard limit set by Ofcom. As noted elsewhere in this response, this particular QoS standard is rather unusual in that it was implemented to prevent Openreach "gaming" in relation to the Certainty QoS standard, rather than as a desired outcome in its own right.

Figure 8.16: Certainty performance



Source: Openreach analysis

Figure 8.17: Crosslink performance



Source: Openreach analysis

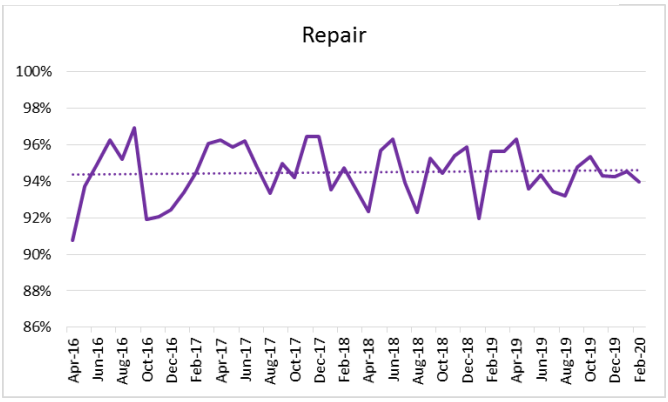
Repair

8.191 Repair performance has been consistently strong (see Figure 8.18 below), with a visible reduction in the spot weekly volatility of the measure, and quicker recovery from incidents. Performance has at times been impacted by MBORC incidents, and the troughs in the chart are typically associated with MBORC-type events. Overall, since 2016, Openreach has successfully exceeded this measure, and repair is performing well.

Ethernet completions (throughput)

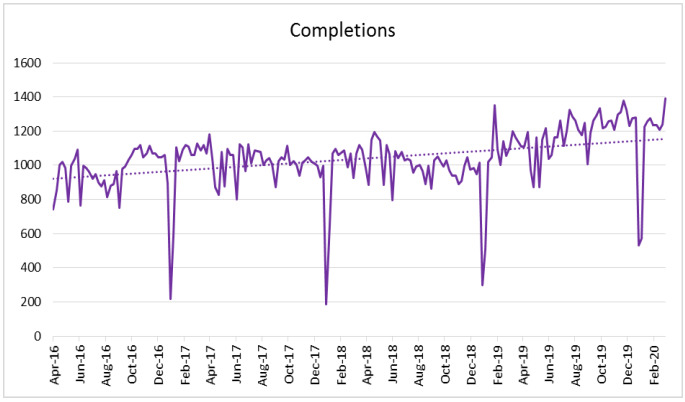
8.192 One of the key metrics in assessing customer experience is throughput (i.e. the number of Ethernet circuits delivered in a given period). Customers place importance and value on this as a metric of performance because higher completions generally lead to increased revenue. Completions have been trending upwards since 2016, with year on year completions growing by c.15% from 2018 to 2019 (see Figure 8.19 and Table 8.5 below). Increasing throughput means that Openreach are able to successfully meet customer demand, and this has been recognised in the feedback that we have received through customer surveys.

Figure 8.18: Repair performance



Source: Openreach analysis

Figure 8.19: Completions since April 2016



Source: Openreach analysis

Table 8.5 - overall Ethernet completions for 2018 and 2019

Calendar Year	Overall Completions
2018	51,696
2019	59,852

Source: Openreach analysis

Customer satisfaction

8.193 Alongside the data points which look at Openreach's operational performance, it is important to consider the customer perception of Openreach's performance. Over the last year Openreach has seen consistently increasing customer satisfaction scores alongside an improving NPS.

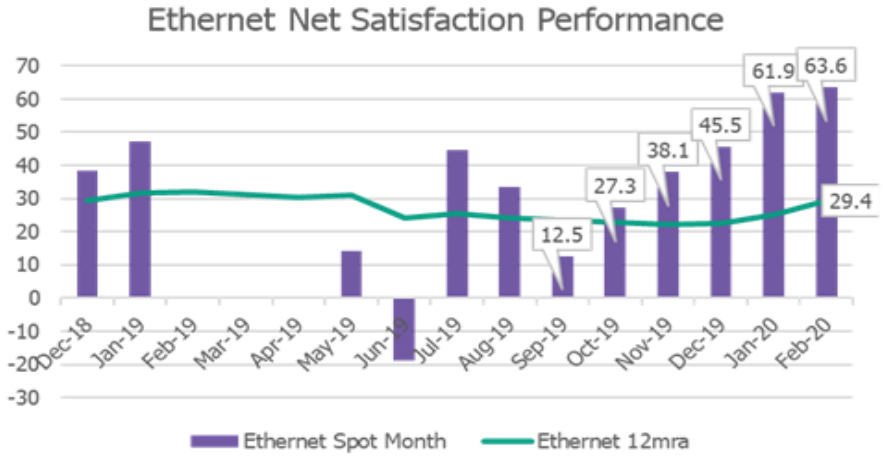
8.194 Openreach conducts a monthly "customer perception survey" specifically for the Ethernet portfolio. Individual CP customer contacts are surveyed no more than twice a year (to prevent potential bias and "survey fatigue") and are sent a link in an email to complete an online survey. CPs are asked a number of questions about the various interactions they have with Openreach through the Ethernet journey. The survey is used to help Openreach understand if Ethernet delivery improvements have resulted in an improved customer experience through the eyes of CP customers themselves. Through this exercise Openreach gains insight and understanding into areas where Openreach is performing well and also areas where further improvements are needed.

8.195 The current survey asks customers how satisfied they are with Openreach using a 0-10 scale. A score is calculated using a traditional "Net Promoter" measurement (i.e. subtract the % of people scoring 0-6 from those scoring 9 and 10). Scores can range from -100 to +100, with anything above 0 considered good, and anything above +30 considered excellent. The survey results are un-weighted (i.e. every customer has an equal voice).

8.196 For each survey we calculate a "spot month" NPS. This score is made up of the survey results in that month. This shows us how customers are feeling at a particular point in time. In addition, Openreach also calculates the "12 month rolling average" score. This averages the scores over the current month, with the previous 11 months. This provides Openreach with an indication of how customer scores are trending over time.

8.197 In January 2020, February 2020 and March 2020, Openreach hit a record high on Ethernet NPS of +61.9, +63.6 and 87.5 respectively (see Figure 8.20). This highlights that customers believe that Openreach is delivering a good (and improving) level of service on our Ethernet products.

Figure 8.20: Ethernet NPS



Source: Openreach analysis of customer satisfaction results

8.198 In addition, through the various feedback loops that exist, Openreach has received comments from customers that outline the improvements that customers have seen in service through 2019/20 and how they feel about Ethernet performance. While Openreach has some way to go before consistently receiving excellent customer feedback, which is what it is aiming for, the scale of the improvement has been very encouraging.

Comments on the QoS standards

Scope and structure

8.199 With the exception of the Upper Percentile QoS standard, on which Openreach provides further comments below, Openreach is, in the main, supportive of the QoS standard proposals made by Ofcom for leased lines. In Openreach's view, the QoS standards are largely fit for purpose – Openreach is now consistently delivering very good levels of service for leased lines, as evidenced in a number of different performance metrics as discussed above (including customer satisfaction). In these circumstances it is broadly right that Ofcom seeks to maintain the existing QoS standard structures.

8.200 A summary of Openreach's position in relation to Ofcom's proposals is set out below in Table **8.6: summary of Openreach's position on QoS standard proposals for leased lines**8.6 below.

Table 8.6: summary of Openreach's position on QoS standard proposals for leased lines

Item	Ofcom current position	Openreach position
Compliance period	Annual	Support
Compliance geography	Area 2 and Area 3	Support
Compliance assessment if QoS standards missed	Investigation	Ensure customer satisfaction is included in any assessment of compliance failure
Compliance national or regional	National	Support
Product scope	EAD, EBD, Cablelink and Dark Fibre	Support DFA obligation should not come in straight away
MTTP QoS standard	No more than 38 WD	Support
Upper Percentile QoS standard	No more than 3% in more than 133 WD	Do not support. Replacement remedy proposed
Certainty QoS standard	At least 86%	Support
Crosslink QoS standard	No more than 53 WD.	Ofcom should explore arrangement based on KPIs.
Repair QoS standard	At least 94%	Support

Source: Openreach

8.201 We provide further detail on these topics below.

Compliance period

8.202 Openreach supports the continuation of an annual compliance assessment for the QoS standards imposed. Annual compliance has generally worked well since the QoS standards were first imposed in BCMR, WLA and Narrowband markets,[225] are supported by most stakeholders and Openreach sees no good reason to change this. Please note that as discussed above, the first year of the WFTMR may also be subject to the impact of COVID-19. This will need further review at the point in time when the impacts of COVID-19 are better understood.

8.203 In circumstances where an annual compliance period is not possible (for example, if Ofcom was late in issuing the WFTMR Statement, such as occurred in the 2019 BCMR), Openreach considers that sub-annual compliance periods are problematic, in that they tend to amplify any delivery issues including seasonal factors, and give Openreach less time to recover from those difficulties, should they exist[226]. Therefore, in circumstances where the option is a sub-annual compliance period, Openreach recommends that a longer compliance period be adopted by adding the sub-annual compliance period to the subsequent annual compliance period.[227] With the exception of this scenario Openreach supports annual compliance periods as the norm.

[225] Fixed Access Market Review 2014 and Business Connectivity Market Review 2016.
[226] Openreach considers that this effect has been a factor during compliance period 2019/20, which is a 9-month compliance period due to the later than planned start of the BCMR.
[227] For example, if the first compliance period was 8 months, this would be added to the subsequent compliance period of 12 months to make a 20-month compliance period.

Compliance geography

8.204 Openreach supports Ofcom's proposals in terms of the geographies to which the QoS standards should apply i.e. Area 2 and Area 3 only.

8.205 Further, Openreach believes that it is right that Ofcom does not impose QoS standards in HNR areas. This is a continuation of the existing regulatory approach, which has proved to be effective. Openreach notes, for example, that its performance in the HNR area has been generally good (consistent with performance in other SMP areas), that greater competition in HNR areas itself provides good incentives for Openreach to deliver good service (in order to remain commercially competitive) and that in any event Openreach is subject to a detailed set of KPIs in HNR areas that enables performance to be carefully tracked. As a matter of operational practice Openreach does not differentiate between HNR and other areas in terms of the service it seeks to provide.

Compliance assessment

8.206 When Ofcom assesses compliance with the QoS standards, in circumstances where Openreach was to miss a QoS standard, it is important that Ofcom assesses a robust and diverse evidence base when making important decisions such as whether to open an investigation, and whether to impose further measures on Openreach in circumstances where an investigation had been conducted.

8.207 In this regard, it is important that Ofcom base any such assessment on more than solely the performance against the QoS standards, as this would not create a full picture as to the state of the overall service delivered by Openreach, and the experience of Openreach's customers.

8.208 Although compliance assessments are necessarily case specific, Openreach does consider that in all such cases, Ofcom should include it its evidence base an assessment of Openreach's customer satisfaction results for the compliance period in question.

8.209 Openreach has been running the customer satisfaction surveys for Ethernet for several years now, and they are completed by a large number of customers who represent all different CP types and sizes. This is therefore a very credible information source that provides relevant feedback into what Openreach's customers think about the service that Openreach is providing to them. As the survey is updated monthly, it is also an effective means to assess what is important to customers at a particular point in time – i.e. it is a data sources that will remain relevant over time.

8.210 Openreach considers that by including an assessment of customer satisfaction in any compliance assessments, Ofcom will get a better view of the overall state of Openreach performance (which is about more than QoS standard performance, important though that is) and through this improve the quality of its decision making.

Product scope

8.211 Ofcom is proposing to add DFA to the list of products already in scope for QoS standards (EAD, EBD, Cablelink and IEC dark fibre).

8.212 Openreach considers that this approach is sensible and will ensure that the principal active products together with Ofcom's proposed dark fibre remedies will all be covered by QoS standards.

8.213 It is right, as Ofcom propose, to measure compliance for the various products as part of a single "bucket". This will reduce the risk of compliance results being distorted by being associated with very small sample sizes.

8.214 Openreach also supports the proposal to set the repair QoS standards by reference to the SLA for the products. This enables, where needed, the product repair SLAs to be set differently if this is appropriate given the underlying features of the product (for example, the SLA for dark fibre products needs to be significantly longer than for active products given the technical and operational process differences between the product groups).

8.215 However, Openreach does not agree that QoS standard and SLG remedies should be imposed on the DFA remedy immediately after the product becomes available to purchase. Openreach considers that it is right for the DFA product to be allowed to 'bed in' for a period, during which operational processes can be tested with CPs. This type of 'soft launch' is quite standard for new product launches – and provides an important phase in the lifecycle of the product during which issues can be identified early in a live environment, thereby enabling targeted improvements to be made ahead of full launch, to the benefit of all stakeholders. Openreach does not consider that it is appropriate or proportionate for Ofcom to immediately impose all remedies on a product at a stage in its lifecycle when it hasn't even been tested in a live environment.

8.216 This approach also runs counter to the approach that Ofcom took, for example, with the DF IEC remedy in the 2019 BCMR, where QoS standards were not imposed until year 2, and where SLG payments were introduced 9 months after the product was made available to purchase.[228] Openreach notes that there has been no evidence that Ofcom's approach resulted in unacceptable performance for the DF IEC product during the period of time in which the QoS standards have not been in place. Openreach also notes that DFA will also be subject, from day 1, to a detailed set of KPI and SMP remedies including no undue discrimination and equal treatment obligations that will provide adequate transparency and protection during the earliest phase of the product's life. Openreach therefore urges Ofcom to rethink this particular proposal; Ofcom should only mandate QoS standards and SLG payments to come into effect when the product is fully launched in June 2022.

8.217 Further comments on DFA implementation are provided in the Dark Fibre and Leased Lines (non-pricing remedies) Section of this response.

Optical products

8.218 Openreach supports the Ofcom proposal not to impose QoS standards on Optical products[229]. This is a continuation of the policy that Ofcom has adopted since 2016, and that has worked effectively to date.

8.219 Optical products are relatively low volume (<10% of current overall eased line completions) high value services and occupy the most competitive part (product-wise) of the leased lines market. There is therefore already a competitive incentive in place on Openreach to provide good service in order to improve the commercial attractiveness of the product.

8.220 Openreach's service performance for Optical products is also at good levels. Openreach acknowledges that some of the service updates that have been presented at the Ethernet Service Forum seem to indicate that Optical performance has dropped. [✂]

8.221 Table 8.7 below shows the open workstack for [✂][230].

[229] Covering OSA and OSEA.
[230] Tail defined as 138 working days old.

Table 8.7: Optical open workstack at the end of February 2020

[✂]

8.222 Finally, Openreach notes that Optical products are already subject to KPI obligations, and this will continue to ensure that there is continued effective oversight of service performance going forward.

MTTP QoS standard

8.223 The MTTP QoS standard remains an important measure of Openreach's performance as it places incentives on Openreach to deliver circuits quickly (which is important to stakeholders). It also incentivises Openreach, where possible, to minimise the number of tail circuits in the provision workstack since those types of circuits can have a significant impact on the MTTP compliance performance.

8.224 Openreach does not support any further reduction to the MTTP target of no more than 38 working days. The existing target is already tough (see above for Openreach performance over time), any further reduction would make the QoS standard disproportionate.

Certainty QoS standard

8.225 The Certainty QoS standard remains an important measure of Openreach's performance as it places incentives on Openreach to deliver circuits on or before the first installation date quoted to customer (which historically has been the single most important thing for end customers in relation to the provision of leased line services[231]).

8.226 Openreach does not support any further increase to the certainty target of at least 86% of circuits delivered on or within the iCCD. As with the MTTP QoS standard, the existing target is already tough (see above for Openreach performance over time), and any further increase would make the QoS standard disproportionate.

Crosslink QoS standard

8.227 The Crosslink QoS standard was put in place by Ofcom initially in the 2016 BCMR in order to prevent Openreach from "gaming" the Certainty QoS standard by offering unduly conservative iCCDs which it would consistently be able to hit (but which would offer little value to CPs in terms of providing certainty of when the circuit would actually be delivered).

8.228 Openreach questions whether it is necessary to maintain this particular measure as a QoS standard. Unlike the other QoS standards, the Crosslink measure is not targeting a particular outcome (such as speed and certainty) but is there as a preventative measure (in essence to stop Openreach gaming the Certainty QoS standard by offering unduly conservative installation dates). In addition, Openreach has consistently met this measure across all regulated periods (see Figure 8.17). Given this, and under the premise of simplifying regulation where possible, Openreach considers it may be appropriate for Ofcom to simply maintain Crosslink as a KPI that can be used to track Openreach's performance, with the option for Ofcom to intervene in the unlikely event that should be necessary.

Repair QoS standard

8.229 The repair QoS standard remains an important measure of Openreach's performance as it places incentives on Openreach to fix as many circuits as possible within the agreed product SLAs.

[231] A report for Ofcom by BDRC: Quality of Service - Ethernet Leased Lines 2014.

8.230 Openreach would not support any further increase to the repair target of at least 94% of circuits to be fixed within the SLA. As with the MTTP and Certainty QoS standard, the existing target is already tough (see above for Openreach performance over time), and any further increase would make the QoS standard disproportionate.

8.231 Openreach notes that we have had previous conversations with Ofcom about changing the repair measure to only include faults which required physical engineering activity (i.e. excluding electronic faults). However, given the complexity in re-baselining and calculating the measure, and in the absence of any concerns raised by wider stakeholders, Openreach does not believe that it is sensible to make any changes to the calculation methodology for this measure at this point in time. That said, should the mix of faults change (e.g. lower proportion of electronic faults), Ofcom would need to re-evaluate the QoS standard, as the existing measures could become impossible to meet in those circumstances. This point is expanded on in the section below that deals with "triggers."

8.232 It is right the QoS standard is set by reference to the respective repair SLA for the products. This enables individual product SLAs to reflect the technical and operational attributes of the product in question where, for example, a longer repair SLA is required for the dark fibre products due to differences in fault diagnostic processes versus the active leased lines products.

8.233 As set out Openreach's response to the 2019 BCMR,[232] Openreach continues to question why Ofcom makes zero allowance for the repair QoS standard for MBORC. It is very clear from history that when MBORC incidents occur, these negatively affect Openreach's performance against the QoS standard.

8.234 Introducing an allowance to exclude repairs linked to events covered by MBORC is necessary when Openreach's overall performance is impacted by unforeseen events that have negative consequences for service performance. In the 2019 BCMR Final Statement[233] Ofcom argued that it had not seen any evidence to suggest that MBORC events for Ethernet will increase and hence, it considered that there was no substantive basis of a "cautionary" MBORC allowance. Ofcom noted that if more extreme events were to occur, it could consider an appropriate response to take, such as to take any such MBORC delays into account in any compliance assessment or enforcement considerations it might open were Openreach fail its Repair Standard.

8.235 In Openreach's view, it is not appropriate for Openreach to have to justify its (lack of) performance against the QoS standards due to MBORC as a mitigation in the context of an investigation. This is because:

8.236 MBORC events can have major consequences on the delivery of Ethernet. For example, the recent incident at Ponders End[234;]

8.237 The quality of Openreach's service is partly assessed against the QoS standards and to rely on orders affected by MBORC events in the assessment of Openreach's performance does not give an accurate reflection of Openreach performance; and

8.238 An investigation triggers bad publicity, industry involvement and work for Ofcom and Openreach which would be avoided if orders affected by MBORC were excluded for the QoS standard calculation.

[232] Openreach response to Ofcom's Business Connectivity Review (2019) Consultation, dated 18 January 2019, paragraph 133.
[233] BCMR 2019 Final Statement, paragraph 15.108 of Volume 2.
[234] Overview provided to Ofcom at a meeting on 18 December 2019 to discuss Ethernet service.

The Upper Percentile QoS standard

Issues with the QoS standard

8.239 This QoS standard deals with a small percentage of a what is already a relatively (e.g. compared to the volumes covered by the QoS standards for GEA-FTTC and MPF) small number of circuits in the first place.

8.240 The circuits covered by the Upper Percentile QoS standard also tend to be those with the most complex delivery attributes, including contributing factors that are not fully within Openreach's ability to control such as traffic management (TM) and wayleaves.

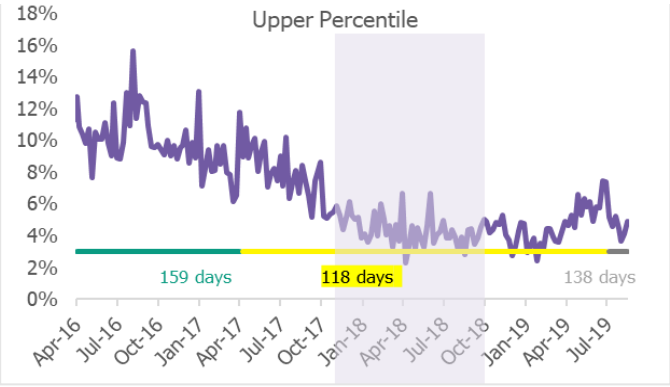
8.241 These attributes mean in practice that this measure is very susceptible to market fluctuations such as demand volatility, or changes in the incidence of root causes of delay such as TM. In consequence, experience has shown that meeting (or coming close to meeting) this measure can be as much down to "luck" (in terms of the nature of the prevailing conditions in the market) as down to genuine underlying Openreach performance.

8.242 Further, the Upper Percentile QoS standard targets that Ofcom has imposed over time have also tended to be at or beyond "stretch" rather than "good backstop" performance levels. Openreach should have a fair chance to meet the QoS standard imposed. On this point we refer Ofcom again to the additional comments made in this regard in Openreach's response to the 2019 BCMR[235].

8.243 In consequence, Openreach has consistently been unable to achieve the Upper Percentile QoS standard target, even when we have been delivering excellent service. As shown in Figure 8.14 and Figure 8.15 above, Openreach's tail circuit performance has significantly improved to be at consistently good levels. This has included making good overall reductions to average workstack age and number of tail circuits (see Figure 8.22).

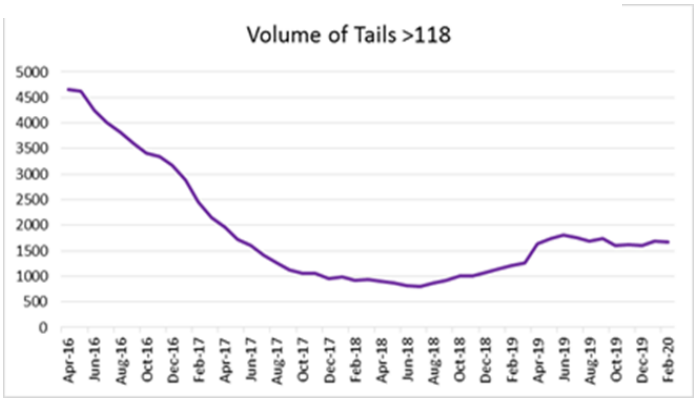
8.244 Despite this, as shown in Figure 8.21 below Openreach has consistently missed the Upper Percentile QoS standard. This has been true even during the period (marked in the shaded area) when Openreach was delivering best ever recorded levels of performance.

Figure 8.21: Upper Percentile QoS standard performance since introduction



Source: Openreach analysis

Figure 8.22: Number of tail circuits (by reference to circuits >118 working days old)



Source: Openreach analysis

[235] On 12 December 2018 Openreach provided to Ofcom a technical background paper on the Upper Percentile QoS standard.

8.245 Although Ofcom reviewed and slightly amended the target levels in the 2019 BCMR, with the benefit of experience (since 2016) Openreach considers that the current specification of the remedy is not practical or proportionate and needs to change.

Openreach's track record shows consistent focus on tails performance

8.246 To be clear, Openreach supports the Ofcom objectives to deliver good service for circuits with the most complex delivery requirements, and where possible to limit the number of such circuits. However, we believe that these objectives can be achieved with a different / more proportionate and practical set of remedies, and that making that change will in no way undermine the good performance Openreach is already delivering in relation to tail circuits.

8.247 Openreach has consistently sought to deliver good service for tail circuits, and Openreach's track record and overall performance supports this. Openreach continues to have in place initiatives to maintain focus and drive good tail circuit performance going forward.

8.248 For example, Openreach continues to run tails clearance programmes with the operational teams for example, setting targets to reduce the tail. Separately, Upper Percentile performance and tails workstack levels are two of Openreach's key measures that are shared with CP customers at the Ethernet Service Forum. Openreach is highly transparent about tails performance with customers. There have also been regular Ethernet reviews with the Openreach CEO, which include deep dives into tails performance. High levels of customer engagement will remain in place whether a QoS standard is there or not, and this will continue to provide its own independent incentive for delivery of good service.

8.249 Openreach's track record also shows that we've done the right things for CPs, even when that has compromised QoS standard compliance. For example, in compliance period 2016/17 when Openreach very narrowly missed the Upper Percentile MSL (as it was then called) by c. 90 circuits, Openreach could have successfully met the MSL by deliberately not closing those c.90 circuits.[236] Openreach elected not to do that as it would not have been the right thing to do for customers.

8.250 Openreach also provides very detailed reporting information setting out its performance via KPIs and the tails report and will continue to do this going forward.

Existing transparency obligations are strong

8.251 Ahead of assessing the options available (in terms of regulatory remedies for tail circuits), it is worth recapping the existing transparency obligations that exist for tail circuits, and which Openreach fully expects will continue in any future arrangement.

8.252 A strong set of transparency measures has been developed since 2016, and these have been amended and added to in order to ensure that they provide useful and informative insight into Openreach's tails performance, and the potential factors influencing it.

8.253 Table 8.8 below summarises the transparency information that is provided to Ofcom periodically. This shows that Openreach produces a monthly set of KPIs covering both "lead" (i.e. covering performance for open provision orders) and "lag" (covering performance for closed orders) indicators. In addition, Openreach provides to Ofcom

[236] This is a perverse feature given that MSLs (and now QoS standards) measure compliance on closed orders, that has been particularly apparent with the Upper Percentile measure.

every six months a "tails report" which supplements the detailed KPI information by providing granular insight into specific tail orders along with further analysis such as the age distribution of closed / open orders over time.

Table 8.8: Summary of transparency information provided to Ofcom

KPI	Summary	Order status
E	Upper percentile - % orders over 138	Closed
G	Monitoring the tail - Average age of closed orders over 138 days	Closed
H (i)	Monitoring the tail – Percentage of open orders over 138 days	Open
H (ii)	Monitoring the tail - Average age of open orders over 138 days	Open
I	Tail extremities – The TTP of the order at the 97th percentile	Closed
	Six-monthly Tails report with detailed case studies	Closed

Source: Openreach

8.254 In addition, Openreach provides regular updates on a number of these measures to CPs at the monthly Ethernet Service Forum.

Options evaluation

8.255 A summary of the options evaluated is provided in Table 8.9 below.

Table 8.9: QoS remedy options for tail circuits *Source: Openreach*

Option	Comments	Recommend?
Maintain existing arrangements.	Maintains remedy that isn't a fair test of Openreach performance.	x
Reduce QoS standard target.	Problems remain with picking the right target level.	x
Target action ("enhanced oversight").	Proportionate whilst maintaining strong incentives on Openreach. Transparent and straightforward to implement.	Recommended
Disaggregation.	Complex to administer, setting the right targets would be challenging.	x
Extend compliance period.	Annual compliance periods are probably right – this was more an option vs. sub-annual period.	x
Remove QoS standard and rely on existing transparency measures.	Remedies already in place. Target action option may offer greater assurance to stakeholders.	Second choice

8.256 As set out in Table 8.9 above, Openreach considers that the best option to move to is to adopt what Ofcom terms in the Consultation as "Target action" (referred to here by Openreach as "enhanced oversight." Further detail on this preferred option is provided below.

8.257 Openreach also considers that it would be feasible for Ofcom to remove the QoS standard and rely on existing transparency measures. However, Openreach recognises that stakeholders may seek greater assurance of Ofcom oversight in circumstances where the QoS standard itself is removed, and so the Target action option is set out as the recommended option.

8.258 The options that are not recommended are:

a) Maintaining the existing arrangements. For the reasons summarised above, Openreach considers that the existing measure doesn't inherently work as a QoS standard, and so is not proportionate. It is therefore appropriate to move entirely away from this construct;

b) Similarly, simply reducing the QoS standard (i.e. making the target level less onerous) would not get around the difficulties associated with picking a good target level, given the level to which this measure is subject to market fluctuations;

c) The "disaggregation" option (i.e. removing factors that are not fully within Openreach's control such as wayleaves and TM from the measure and setting a QoS standard on what is left) could feasibly make matters worse by creating a construct that would be highly complex in nature, and that would present additional difficulties establishing what the right targets should be; or

d) Finally, while extending the duration period could in theory help reduce the sensitivity of the measure to market volatility, in Openreach's view (and that of other stakeholders) annual compliance assessments is about right. Openreach's previous request for a longer compliance period was in the circumstances where the alternative was a sub-annual compliance period (which Openreach continues to consider to be a highly undesirable outcome). Openreach considers that in normal circumstances, annual compliance period should apply. Further, this option does not address the inherent problems with the Upper Percentile QoS standard in the first place.

Recommendation

8.259 Openreach considers that Ofcom should adopt the "Target outcome" / enhanced oversight option. The features of taking this option are that:

a) The Upper Percentile QoS standard would be removed;

b) Openreach would be tracked against a "threshold" level of performance that is made available to stakeholders via an appropriate KPI;

c) Openreach would propose the threshold performance level via a set of voluntary commitments that it would publicly commit to;

d) The "threshold" level of performance would be set at around no more than 5.5% of circuits closed in more than 133 working days (the latter is aligned to the number of days in the QoS standard that will exist in 2020/21). This level would be based on an evaluation of historic performance, with an allowance made for market volatility. See Figure 8.23 below which shows the historic performance and demonstrates when performance dipped slightly in H1 of 2019/20 the measure almost breached the 5.5% threshold that would automatically trigger a number of voluntary commitments, as discussed below:

   (i) A formal performance review against the threshold level would take place every 6 months (Ofcom would also be able to monitor performance through the monthly KPIs);

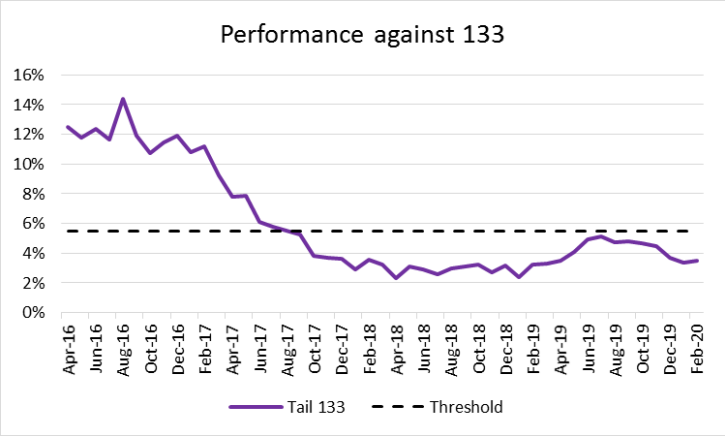
   (ii) If Openreach performance fell below desired levels on average over any 6-month period this would trigger an automatic requirement for Openreach to (a) meet with a senior Ofcom team with executive level representation from Openreach setting out the rationale for the performance levels together with

plans to address any shortfall; and (b) write to Ofcom covering the same matters (this written update could be made available to other stakeholders also if so desired);[237]

(iii) These requirements to meet with Ofcom and provide a written update would remain in place until Openreach 6-monthly performance (measured as an average over the 6-month period) was within required backstop levels; and

(iv) As noted, existing transparency measures would remain in place, including the detailed 6-monthly tails report.

Figure 8.23 - Performance against 133 working days



Source: Openreach analysis

8.260 If Ofcom wished, the recommended approach outlined above could be supplemented by an assessment of Openreach's customer satisfaction performance, as a "second test" that the overall levels of service being provided by Openreach was at levels considered acceptable by Openreach's customers. In this regard, we would note that, given the type of business Openreach operates in, any NPS which was positive would be considered to be good, anything better than +20 extremely good, and anything better than +30 excellent.

8.261 In summary, Openreach considers that this suggestion would be a practical and proportionate remedy to deal with tail circuits and would in no way lead to any reduction in performance from Openreach. In particular the benefits would be that:

a) The approach is straightforward to administer;

b) It offers transparency to stakeholders;

c) There are continued incentives on Openreach to ensure that performance is consistently under control (including reputational incentives);

d) It would be backed up by a voluntary commitment from Openreach;

e) It would reduce the risk of failure due to factors that are nothing to do with underlying Openreach performance; and

[237] A useful analogy is that where the governor of the Bank of England is formally required to write to the chancellor in circumstances where interest rates are outside of certain desired levels.

f) It would make use of existing transparency remedies (e.g. the 6 monthly tails report that was developed following the 2019 BCMR).

8.262 Clearly, Ofcom would retain the powers to intervene further, should it consider that this was merited by the circumstances. Openreach urges Ofcom to adopt a different approach and change the remedy for dealing with Upper Percentile circuits to the one suggested here.

Comments on market "triggers"

8.263 The WFTMR is the first time that Ofcom has imposed such a lengthy (5-year) regulatory settlement. This, combined with the dynamic nature of the leased lines market means that it is quite possible that, during the period covered by the WFTMR, market conditions will change in such a way that some the QoS remedies imposed, in particular the QoS standards, become inappropriate or impossible to meet and so need to be changed.

8.264 This is because there is an implicit assumption in Ofcom's proposals that the operational conditions that Openreach is facing remain in some kind of "steady state." In addition to the potential triggers set out below by Openreach, we also request that Ofcom make explicit these currently implicit assumptions. If Ofcom were to do this, the underlying assumptions used could themselves become additional triggers for consideration.

8.265 Ofcom has imposed the QoS standards by reference to a Direction. This means that, should it be necessary, Ofcom can change the QoS remedies imposed during the period covered by the WFTMR.

8.266 While it is credible to predict that future changes in market conditions will lead to the need to change QoS remedies, it is very difficult to predict with high confidence precisely how this will happen, over what timescales.

8.267 Openreach therefore sets out below a non-exhaustive list of potential market changes which, should they materially arise either singly or in combination with other factors, could lead to a need to re-evaluate the QoS remedies imposed. Openreach would like Ofcom to clearly signal that, should such factors arise in future that meant the ex-ante QoS remedies imposed were no longer appropriate, it would automatically take action to change those remedies.

8.268 Openreach is particularly concerned to ensure that it is not subject to QoS standards that, due to changes in market conditions, become impossible to meet. This would leave Openreach vulnerable to potential non-compliance with the imposed QoS standards, but in relation to remedies that had become disproportionate.

Large scale active to DFA migration in Area 3

8.269 As discussed in detail in other Sections of this response (in particular under the Sections dealing with dark fibre pricing and non-pricing remedies), Openreach is very concerned at the approach currently proposed by Ofcom in relation to the pricing of the DFA remedy in Area 3. Openreach considers that Ofcom has not properly evaluated the relevant costs of delivery for DFA and in consequence the pricing proposed (both the start prices and the CPI-X gradient) are / produce prices that are far too low.

8.270 In consequence of the DFA pricing, there is a high risk that, in addition to new business moving to DFA, the existing base of active Ethernet circuits in Area 3 (c.[✂] in total) will move to DFA within a rapid (3-5 year) period.

8.271 In order to avoid downtime during technology change scenarios, CPs will almost always use a "provide and cease" approach in such migrations, and this means that, on top of existing operational work, this issue would lead to a

significant increase in new provide jobs and cease jobs for Openreach engineers each year. In addition, these additional circuits would be in Area 3, which is broadly more rural than Area 1 and Area 2, and therefore likely to be more complex to deliver.

8.272 Such an uplift in demand is not part of Openreach's planning assumptions and would have a huge negative impact on Openreach's ability to deliver against all provision QoS standards across the UK (not just in Area 3) due the resource required to meet the demand. In addition, as the QoS measures are a set of "lag" metrics, this may not immediately show in the performance of the QoS measures, even though the overall workstack health has significantly worsened due to a change in market dynamics (either demand or complexity).As proposed in other Sections of our consultation response (see dark fibre pricing and non-pricing remedies Sections), the optimal solution to tackle this risk is for Ofcom to conduct a re-evaluation of the relevant costs and in consequence make changes to the DFA price.

8.273 Openreach has explored the possibility of developing a mechanism that would be built into the QoS standards and that would automatically adjust the measures if certain parameters (e.g. demand levels) were to go outside of a certain range, but there are so many potential scenarios that would need to be modelled as to make this a very problematic exercise. Openreach therefore considers that we will need to monitor rates of migration in Area 3. If levels are significant (due to the price proposed), it is likely that this would undermine Openreach's ability to meet all of the provision QoS standards, and that in those circumstances Ofcom would need to reconsult and reset the QoS standards to reflect the actual operational conditions faced.

Market demand

8.274 If market demand was materially higher than the Openreach forecast it is likely that Openreach would not have the appropriate resource levels, meaning throughput will not be able to keep up with customer demand, which in-turn could impact the QoS standards.

8.275 Examples of "material change" in demand could be a similar scenario to the "demand shock" which impacted Openreach from September 2018 onwards, as highlighted in Figure 8.24 below. Whereas pre-September 2018 the average weekly intake was [✂], post-September the average weekly intake was [✂]. This reflects average weekly increase of [✂] orders (c. 23% increase).

8.276 Demand volatility is even more pronounced at a regional level. This makes it extremely difficult to determine where to recruit additional resource to meet demand. Figure 8.25 below shows the average number of orders placed in each area by week (solid bar) and also the minimum and maximum number of orders received in that area (lines) over the period of a year.

Figure 8.24: Ethernet demand since 2016

[✂]

Figure 2.25: Number of orders received by area manager by week (November 2018 to November 2019)

[✂]

Product mix changes

8.277 There may be changes in the market which could lead to the inherent difficulty of the QoS standards increasing, rendering them impossible to hit (and so making them disproportionate).

8.278 For example, if DPA were to cannibalise a significant proportion of the more straightforward to deliver Ethernet circuits, this could leave the remaining leased line base to which QoS standards did apply containing a higher proportion of more complex orders, thereby rendering the QoS standards more difficult to meet.

8.279 Examples of material changes in product mix that would likely lead to a need to review the QoS standards imposed would be (i) a material reduction to the proportion of "Quick Win" type order (associated with the most straightforward to deliver leased lines circuits) or (ii) a material change in the proportion of the more complex leased lines orders within the population of circuits to which QoS standards apply.

Wayleaves and Traffic Management

8.280 There are different root causes that can cause delay to the delivery of leased lines services. Changes in the incidence of such root causes e.g. how often they occur, and when they do occur, how extreme they are, will therefore impact how difficult the QoS standards are to meet. Predominant in these root causes are wayleaves, TM and requirements for civils build.

8.281 These factors are only partially within Openreach's ability to control, and any increase to either the incidence of them occurring / their average duration when they do occur would make the QoS standards more difficult to meet. Examples of material changes would therefore be a material change / increase in the compound impacts of changes to the incidence / and or degree of such factors. This could, for example, be driven by changes in legislation affecting TM and Wayleaves.

Repair

8.282 Openreach's repair performance has been consistently high over time, and this has led to Ofcom imposing a very high level (94%) for the repair QoS standard in order that Openreach maintains the high-performance levels it was already delivering.

8.283 Underneath the headline performance, Openreach deals with different types of faults. For example, "electronic" faults for the active products tend to have an extremely high clear rate while "fibre" faults tend to be much more challenging (require more work to detect and more engineering work to clear) and so have a much lower success rate against the SLA. This means that, should the balance of the fault types change (e.g. a lower proportion of electronic faults driven by changes in CP behaviour), the QoS standard could become impossible to hit, but without any real change in the level of service being provided by Openreach.

8.284 The repair QoS standard is set by reference to the prevailing product SLA, and Ofcom rightly allows the SLAs to be different if this is needed to reflect underlying product differences (e.g. between active and dark fibre leased lines variants). While the dark fibre products (IEC and DFA) will have longer repair SLAs than the active products, there is also a risk, associated with the immaturity of these products, that the SLAs are still too short and do not fully

account for the underlying challenges associated with the products (which may not become evident until the products are at scale).

8.285 For repair examples of material changes would be a material change in proportion of the types of repair jobs received and a need to amend the SLA to reflect the operational challenges posed by a particular dark fibre products variant.

Transformation activities such as Re-imagining Ethernet Provision (REP)

8.286 It is possible that industry transformation projects could lead to underlying changes to the way in which Openreach delivers service for leased lines. For example, Openreach and industry are currently working on REP, which envisages making transformational changes to the provision processes used for EAD, to the benefit of industry[238].

8.287 The current status of REP is that Openreach is due to launch a trial in Q1 2020/21 to test a number of underlying assumptions e.g. in relation to the date management approach proposed in REP. The precise timing for the rollout of REP is therefore currently TBC.

8.288 It is envisaged that, when implemented, REP will improve overall service for CPs and end-customers by, for example, moving to a simpler ruleset for date management and allowing Openreach to set more bespoke iCCDs based on the characteristics of a given circuit and customer requested dates.

8.289 It is also possible that REP could radically change how performance is measured, and it is this factor that could require some review of the QoS standards in future, to ensure that the QoS standards and the Openreach processes for delivering leased lines provision remained congruent. Ofcom rightly acknowledges the potential for REP to drive change in paragraph 7.69 of the Consultation.

Comments on Ofcom's KPI proposals for leased lines

8.290 Openreach supports the Ofcom KPI proposals for leased lines services. Openreach and Ofcom have worked collectively over the previous two BCMRs to successfully develop and then refine the KPIs to create what is now a strong set of measures which provide a comprehensive insight into Openreach's provision and repair performance.

8.291 Openreach proposes some very minor changes to enhance the KPIs proposed[239]:

- KPI "K" (Mean time to issue initial contractual delivery dates). This should be changed so that it excludes CP delay, making it align with KPI "L" (Performance in issuing initial contractual delivery dates).
- KPI "S" (Performance against final CDD). Currently this KPI is removing all CP delay. Openreach proposes this a change to the calculation, so the measure simply compares the completion date to the final CDD date. This measure assesses performance against the last CCD that Openreach provides, so removing customer delay distorts performance and makes the output potentially misleading.

Further Openreach comments

8.292 Ofcom make two assertions in the Consultation which Openreach does not agree with, and we put this on record below.

[238] It is envisaged that REP would be extended to other lease lines products in due course if it proves successful with EAD.
[239] Openreach has previously raised both these points with Ofcom in the context of the 2019 BCMR.

8.293 In volume 3 of the Consultation Ofcom states in section 7.11 "We are concerned that, in the absence of appropriate ex ante regulation, in the markets we find BT to have SMP, Openreach would have the ability and incentive to provide poor quality provisioning and repairs services, to the detriment of downstream service providers (including BT's downstream business) and end-users".

8.294 Ofcom then goes on to say in section 7.28 Ofcom that "In the lacuna period following the expiry of the 2017 Temporary Conditions on 31 March 2019, Openreach's performance against three standards declined relative to performance in 2018, particularly against the Upper Percentile (see Figure 7.2).174 However, the decline in performance against the new standards continued into the subsequent review period that started on 1 July 2019".

8.295 Openreach would like to state that it has no incentive or intention to provide poor quality provisioning and repair service to customers. The service performance graphs set out above demonstrate clearly the levels of improvement seen to overall Ethernet service since 2016, which have been maintained for customers. Where there was a dip in performance, which Openreach recognises did occur in H1 2019/20, this was quickly addressed, and service never fully 'slipped'.

8.296 In addition, the blip in performance in 2019 was not linked to the lacuna period but rather was a series of contributory factors, including higher, un-forecast demand since September 2018, and exacerbated by a change in our IT systems to EMP (Equivalence Management Platform).

Quality of Service in the Physical Infrastructure Access market

8.298 We are fully supportive of Ofcom's approach not to impose specific QoS standards[240] or specific KPIs for PIA services and completely concur with Ofcom's reasoning as set out in paragraphs 7.13, 7.58 and 7.59. The current volumes are significantly below the future anticipated demand for the product, and therefore it is essential that large scale operational experience[241] of the product is gained prior to deciding whether such standards need to be imposed at all, or if they are, to impose QoS standards set at an appropriate and achievable level.

8.299 This approach is fully justifiable even though the PIA product has been available since 2010. Since then it has been subject to continuous change. In particular the launch of the WLA PIA product on 1 April 2019 and the PIMR unrestricted PIA (uPIA) product on 1 August 2019 materially impacted Openreach and PIA customers operational systems and processes because of the introduction of the new Network Adjustment (NA) obligations and through the significant extension of the product scope from Next Generation Access (NGA) only usage, to 'Mixed' usage and then 'Unrestricted' usage within a matter of months.

8.300 The existing high levels of achievement against existing Network Adjustment SLAs also points to this being the right approach (please see Table 6.1 in Section 6 above). Openreach resourced its PIA operations in line with the forecast demand which is higher than that which has materialised to date and therefore we have not gathered sufficient operational experience to judge what would be an appropriate level for long term sustainable targets with high PIA demand. Also, it is expected that the existing very high levels of performance would normalise to some degree in-line with overall Openreach levels when higher PIA demand materialises and Openreach resourcing levels are matched and optimised for the medium to long term.

8.301 Further, we note that the way CPs intend to consume the PIA product is shifting substantially. CPs are now carrying out circa 55% of all NAs for themselves, via Self-Provide Orders (SPO), and this is expected to increase as Openreach reclassifies further overhead NAs from Openreach only delivery to SPO delivery. Additionally, there are two other major changes which will also impact both Openreach and CP performance, these being the further expansion of the 'Path to Collaboration' (PTC) framework[242] and also the gradual introduction of the new Openreach Network Services Agreement (ONSA) - i.e. the new contractual framework that Openreach has introduced for working with its civil engineering partners.

8.302 The PTC process will materially change the extent to which Openreach is required to validate NA orders, and ONSA will significantly improve Openreach's ability to deliver greater certainty on the Customer Committed Date (CCD) for Openreach delivered NAs. This degree of change is expected to continue with additional further major systems and process developments (e.g. APIs, bulk data download and upload etc.) continuing to be prioritised with CPs and expected for delivery during 2020/21 and the next control period.

8.303 Therefore, given the level of these recent and future anticipated changes, and the expected increase in the take-up of PIA, we agree Ofcom's two stage approach is well suited to this evolving product:

a) Firstly, Ofcom are establishing the relevant SMP condition via the WFTMR process should they need to intervene further, and

[240] Also referred to as Minimum Service Levels (MSLs).
[241] This would include large scale volume use but also experience of the growth in multiple CP use of the same infrastructure which will add further complexity to Openreach and CP processes.
[242] Where the responsibility and need for Openreach to validate NAs orders is substantially reduced, and transfers to CPs that can evidence that they are validating NAs correctly.

b) Secondly, by Ofcom moving into a monitoring phase to explore whether any further steps are required. This allows for a suitable period of time to understand if QoS standards are required, and if they are, what would be the appropriate target levels.

8.304 This is the correct and proportionate approach and will enable us to continue to work openly with the OTA, PIA customers and Ofcom to ensure a sustainable and good quality of service going forward.

8.305 Finally, with respect to PIA-specific KPIs, we agree with Ofcom's approach not to propose specific PIA KPIs at this time, because Openreach and industry have already agreed a wide-ranging set of KPIs which are voluntarily reported to all parties (including Ofcom) on a monthly or quarterly basis as required. The two categories of KPIs are:

a) Operational KPIs (also referred to as service performance KPIs), which measure various aspects of the PIA product's performance, and each CP's use of PIA;

b) No Undue Discrimination (NUD) KPIs, which compare PIA metrics to equivalent Openreach 'own-use' products (e.g. Fibre Cities/Towns programme and/or Ethernet operations).

8.306 Openreach has worked extensively with stakeholders to produce this range of KPIs, and we are committed to continuing to work with stakeholders to improve and enhance these reports.[243] To date, as noted above, PIA performance is at a very high level both for operational and NUD KPIs, and therefore there is no obvious need for any intervention. Additionally, Openreach's continued commitment to openness and transparency will enable Ofcom and industry to continue to monitor Openreach's progress against the KPIs, and exploration of the case for QoS standards on PIA products in the future, should concerns arise.

[243] To date the natural focus has been on KPIs applying to Openreach but in due course there may also be a case to discuss whether PIA customers may also need to produce appropriate metrics themselves to better enable safe and efficient industry wide multi-CP working.

General comments about Ofcom's proposed approach to QoS (applicable to WLA, Leased Lines and PIA markets)

Quality of Service SMP Condition and setting Quality of Services remedies via direction

8.307 The comments provided below assumes steady state operational conditions. Ofcom should also take notes of the comments on COVID-19 provided at the top of this section.

8.308 Openreach is supportive of Ofcom's proposals to impose an SMP Condition, via which directions would be used to impose any QoS requirements.

8.309 Setting QoS standards and reporting requirements via direction gives Ofcom the flexibility to amend the regulation if required by the market, for example if market conditions change such that the regulation set becomes out of date.

8.310 As set out throughout this response, there are a number of factors that may require Ofcom to reassess the appropriateness and proportionality of the QoS remedies imposed at a later stage, to determine whether in fact the regulation is still achievable or relevant. It is therefore important for Openreach to understand the circumstances and process by which Ofcom would undertake such an assessment.

8.311 Although we have observed examples of Ofcom amending the QoS directions in the past (for example, realigning the QoS standards by reference to the Service Maintenance Levels used by CPs[244] and more recently (concluding in 2020) the waiver to exclude bulk order migrations from the QoS standard calculation, there have been other examples where we considered that the regulation needed to be updated and it has been more challenging. For example, Openreach has been lobbying since 2017 that the Ethernet QoS standard relating to the "Upper Percentile" limit is not a suitable metric to set a standard against because it is too sensitive to external factors.

8.312 We are pleased that in this consultation, Ofcom has accepted that the Upper Percentile measure needs to be reviewed and has proposed some alternative options to ensure continued focus on the circuits that take the longest to deliver.

8.313 Openreach takes any SMP requirement extremely seriously which is why it is important for us to identify where the regulation may not be proportionate, and where Ofcom's timely intervention is necessary and where the process for doing so is clear.

8.314 It would be useful if Ofcom were to be clearer around the circumstances in which Ofcom would review the QoS regulation. On this basis, we have provided a number of assumptions on which the QoS standards (for both business connectivity and wholesale local access markets) were based. We request that Ofcom explicitly acknowledge these assumptions in setting future regulation and confirm that if there is a deviation from these assumptions, this would initiate a formal process including reassessing the QoS standards for proportionality.

[244] Quality of Service for WLR and MPF; Directions and Consents relating to the minimum standards and KPIs imposed in the 2014 Fixed Access Market Reviews – 19 October 2016.

Comments on Ofcom's SLA and SLG proposals

8.315 Openreach supports the proposals set out by Ofcom in relation to SLA and SLG arrangements. In particular, the process for the industry negotiation of SLA and SLG arrangements that Ofcom established first in 2014 in WLA markets, and then adopted in 2016 in leased lines markets has been effective and should be allowed to continue.

8.316 It is also right that Ofcom requires Openreach to include certain SLAs and SLGs in its Reference Offers for specified products but does not seek to adjudicate what the specific SLA and SLG terms should be. Openreach notes, and accepts, that the SLA and SLG terms set for products would in any event be subject to fair and reasonable obligations.

9. Pricing Remedies

Key points

9.1 Openreach shares Ofcom's goal of supporting investment and competition in ultrafast services. Ofcom's consultation provides much of the clarity and investment certainty needed by infrastructure builders like Openreach.

9.2 As already outlined in our responses to section 2 and 3 of the consultation, we strongly support Ofcom's proposal to index prices in Area 2 and its preference to adopt the same approach in Area 3, subject to an adequate commitment to build by Openreach. Further, in our responses to section 2 and 3 of the consultation, we also lay out our objection to the introduction of Dark Fibre Access in Area 3.

9.3 A key overriding concern in relation to Ofcom's volume 4 proposals relates to the service volume forecasts (and corresponding cost forecasts) underpinning Ofcom's CPI-X modelling and its forecasts of investment in PIA assets. These estimates are based on out of date Openreach forecasts and, in the case of PIA in particular, an unrepresentative base year (2017/18), all of which should be refreshed with the most up to date information.

9.4 A significant future expansion of FTTP coverage by Openreach, all other things equal, should logically result in higher Dark Fibre Access prices in Area 3 (through substitution effects) and higher PIA prices nationally (more investment in PIA assets). Currently there is a massive degree of uncertainty about the future and the disruption caused by the COVID 19 crisis has delayed further announcements by Openreach in relation to its plans for full fibre roll out. When such plans become available, the volume and cost impacts must be reflected in Ofcom's proposals for PIA and, moreover, Dark Fibre prices.

PIA charges

9.5 We welcome Ofcom's objective that PIA charges should reflect expected future costs.

9.6 In the consultation Ofcom proposes to more than halve pole prices and slightly increase duct prices. Openreach considers the adjustment to the poles asset valuation, which results in the large poles price reduction is unnecessary and that Ofcom should maintain its WLA 2018 valuation as it more closely reflects the ongoing costs of poles.

9.7 Although we are currently unable to state with certainty the extent to which Openreach will expand its plans to deploy its very high bandwidth broadband network, we nevertheless explain why, on the basis that Ofcom has consulted, its approach understates future costs and that the proposed PIA prices on that basis should be higher by correcting for the following:

a) The starting value of physical infrastructure assets in place today is too low;

b) Ofcom's forecast of Poles investment during the charge control period is wrong and should increase, based on more up to date Openreach plans; and

c) Ofcom's forecast of the expected levels of operating costs is based on out of date information which does not adequately account for increases in these costs as the PIA service matures. Consequently, its forecasts in this respect are understated, for example the expected levels of wayleaves costs and productisation costs

do not reflect current plans. We would ask that Ofcom reflects Openreach's current forecast and estimates of these costs in its proposals.

9.8 The impact of these three adjustments to Ofcom's proposed prices are significant - see table 9.1 below

Table 9.1: Impact of corrections on Ofcom's proposed PIA prices

PIA product	Ofcom Start Prices	Corrected Start prices	Ofcom Glide	Corrected Glide
	£ / unit	£ / unit	CPI + X%	CPI + X%
Duct and Chambers				
Spine duct – single bore	£0.30	£0.31	+ 1.9%	+ 1.3%
Spine duct – 2 bores	£0.19	£0.20	- 2.0%	- 2.5%
Spine duct – 3+ bores	£0.14	£0.15	- 2.0%	- 2.5%
Joint box entries	£2.14	£2.23	+ 0.8%	+ 0.2%
Manhole entries	£8.87	£9.25	+ 0.4%	- 0.2%
Simplified underground lead-in	£9.67	£10.09	+ 0.9%	+ 0.3%
Poles				
Pole Multi-end-user attachment	£4.02	£9.27	- 1.6%	- 2.1%
Pole for Single-end-user attachment	£1.63	£3.76	- 1.5%	- 2.0%
Pole top equipment	£1.22	£2.81	- 1.6%	- 2.0%
Cable up a pole (per cable)	£0.79	£1.82	- 1.3%	- 1.8%

Source: Openreach analysis

9.9 In addition to the concerns above about Ofcom's cost modelling, the other key concern we have is with the PIA pricing approach and structure.

9.10 Ofcom considers the proposed current structure, which is based on the current utilisation of Openreach's duct and poles network by copper and fibre cables, as a good proxy for a value-based pricing approach.

9.11 Openreach disagrees that current utilisation is a good proxy for value. On that basis we propose that during the control period PIA prices should glide to an allocation of PIA costs which better reflects future use of the network. We base our proposal on Ofcom's thinking as outlined in Annex 17 of the consultation. This would be consistent with Ofcom's objectives that PIA prices reflect an assessment of "how competing telecoms providers might use the physical infrastructure over the medium term, the opportunity to earn revenues related to that usage, and the consequential impact on Openreach's opportunity to earn revenues from its own network" and further, supports Ofcom's ambition for 'stable prices' and the avoidance of abrupt changes to prices in future.

Ex-post approach RAB model

9.12 As already outlined above, we share Ofcom's preference to adopt indexed prices in Area 3, but its assessment of the potential over-recovery[245] that might arise appears to be significantly overstated.

9.13 Openreach considers that Ofcom's MPF/FTTC modelling assumptions could be improved, especially in relation to:

a) FTTC starting prices which do not reflect expected discounts and are therefore too high;

b) Forecast unit cost efficiencies which do not reflect recent unit costs movements and are therefore too high;

c) Its approach to holding gains which results in costs being counted twice; and

d) Its approach to the RAV in relation to PIA assets where the level of the adjustment should be expected to reduce in size significantly between 2017/18 and 2025/26 but instead increases in Ofcom's cost forecast.

9.14 In combination, correcting for the above factors would result in a range of X for FTTC of +3.5% to –5.75% with a mid-point of -1.25% rather than the consultation range of -5.75% to -15% with a midpoint of -10.5%.

9.15 In relation to the K factor (the price uplift to legacy services to make up the FTTP returns shortfall) we consider that it is systemically understated for the following reasons:

a) Even in Ofcom's high-cost K estimate, we think Ofcom understates supply costs compared to our business model. In particular, Openreach does not agree with Ofcom's assumption that in Area 3 provision costs will average £200 and we believe the cost is likely to be considerably higher than this;

b) We do not consider it a realistic assumption that all copper customers in Area 3 would pay the uplift for 20 years;

c) If Openreach builds to the extent allowed for in Ofcom's model, Ofcom does not allow for any loss of customers to Alt Nets (i.e. a loss of uplift revenue). Openreach will not be in receipt of the K uplifts from these customers;

d) Ofcom's cost model ought to reflect the cost of the delay between expenditure on building the new network and then the prior recording of the build, both of which occur before Openreach is in receipt of the revenue benefit from the uplift;

e) We note that the lower bound estimate of the K is based on an incremental FTTP revenue of £4 per line which does not appear plausible; and

f) Finally, Ofcom should calibrate its estimate of the value of K to future updates to Openreach's FTTP build plans to ensure that the incremental assessment underpinning the value of the K factor fully takes into account lost economies of scale in supplying FTTC.

Dark Fibre Access

9.16 As outlined above, Openreach disagrees that Dark Fibre Access is a proportionate or appropriate remedy in Area 3. Notwithstanding that view, we have concerns regarding the prices Ofcom propose for this service.

[245] Ofcom WFTMR consultation A16, paragraph A16.13

9.17 We have concerns with Ofcom's cost modelling for DFA and IECDF in both its CPI-X cost model and its Dark Fibre cost model. Openreach considers that the proposed Dark Fibre prices are too low to ensure recovery of Openreach's efficiently incurred costs and in particular:

a) CPI-X modelling: we set out a number of the concerns with, and suggested corrections to, Ofcom's CPI-X modelling in our response to question 3.1; a number of the suggested corrections should be made to ensure the Dark Fibre prices are reasonable and appropriate. In particular, the efficiency assumption is too high and not consistent with the most up to date cost information, the Other telecoms WACC of 7.9% should be used and Ofcom's calculations in relation to the WES MEA adjustments, the PIA RAV and SLG costs should be corrected.

b) Dark Fibre Modelling: There are four key areas that Ofcom should address:

(i) Openreach does not consider the costs and volumes from the CLA (a non-SMP market) should feature at all in estimating the start price for DFA in Area 3;

(ii) Ofcom should more properly use an Area 3 specific unit cost of supplying DFA rather than a national average unit cost estimate to set the price of DFA. This would avoid customers in the economically separate Area 2, HNR and CLA cross-subsidising customers in Area 3;

(iii) Unit EAD 1Gbit/s Local access costs are not a good proxy for the unit cost of an access segment. Ofcom should consider the cost of an average access segment and include all Ethernet product variants in its estimate;

(iv) A very high level of migration demand is expected given the proposed price of DFA, which would more than [✂] connection demand. Ofcom has not adequately considered the cost of migrations. Further, Ofcom have not considered the feasibility of meeting expected demand for migrations to DFA and the opportunity costs involved (please see more detail response to question 2.4); and

(v) Migration to DFA causes stranding of costs and the price should contain an allowance to recover these costs.

9.18 For IEC services, many of the above issues also apply and result in a proposed price that would result in Openreach being unable to recover its efficiently incurred costs.

9.19 For the reasons laid out in this response we consider that more appropriate start prices and X values for Dark Fibre would be as outlined in table 9.2 below:

Table 9.2: Openreach proposed DF pricing

	Local Access Connection	Local Access Rentals	Inter-exchange Connection	Inter-exchange Rentals	Inter-exchange per KM
Start Charges (£)					
Ofcom proposed start charges	1419.00	701.00	322.00	20.00	0.15
Openreach proposed start charges	1524.49	1084.33	332.22	34.84	0.16

Value of X					
Ofcom proposed X	-2.50%	-7.00%	-7.40%	-5.80%	-4.20%
Openreach proposed X	3.71%	-1.48%	-1.39%	-3.66%	-3.70%

Source: Openreach analysis of Ofcom modelling

Other considerations

9.20 We deal with a number of other issues in the response, including DFA patch panel prices, DFA testing prices costs, ancillary services prices, basket design and legal instrument queries.

9.21 In a number of areas, the drafting in the legal instrument is unclear and has not been clarified by Ofcom during consultation. We list out where we remain uncertain as to the specific proposals from Ofcom and where we require clarification. We intend to deal with these points once Ofcom has clarified its proposals.

PIA pricing

Question 5.1: Do you agree with our proposals relating to calculating PIA rental charges?

9.22 Physical Infrastructure Access is still in its infancy as a regulatory remedy. Ofcom originally introduced PIA in the 2010 WLA with the intention of supporting the deployment of fibre,[246] but unrestricted usage of PIA only began in August 2019. Since then we have seen a significant increase in interest from CPs. Many CPs are now in the process of developing plans to use PIA to assist them in building fibre networks to serve residential and business customers alike.[247]

9.23 We agree with Ofcom's PIA pricing objectives of ensuring that we are able to recover efficiently incurred costs while at the same time ensuring a level playing field between CPs using PIA and our own roll out of a fibre network to serve the country's need for very high bandwidth broadband.[248] We also acknowledge that price stability[249] i.e. confidence about the future PIA price trajectory, is important to encourage the use of PIA when building these networks.

9.24 We note that in the market review Ofcom provisionally concludes that we have SMP in the national market for Physical Infrastructure Access. It reaches this conclusion after deciding that physical infrastructure belonging to utilities, such as electricity, water and gas, and other telecommunication providers, such as Virgin Media, would not be as useful to a fibre network provider in constructing its infrastructure. Among other things, Ofcom highlights the fact that our network, unlike Virgin's, is ubiquitous and, unlike the utilities' networks, is designed specifically for telecommunication purposes. Therefore, Ofcom finds that our investment in our physical infrastructure, built up over very many years is of uniquely great importance and value to the roll-out of very high-speed broadband across the country. The broad logic is that competing ultrafast-capable access networks can be efficiently deployed by sharing access to Openreach's existing physical infrastructure network with the costs of continuing to provide that infrastructure being shared between network builders on an ongoing basis.

9.25 But our physical infrastructure network can and is being bypassed wholly or on a selective basis by builders of ultrafast-capable networks. Firstly, Alt Nets may use DPA selectively, combining its use with self-build depending on their network topology and the cost of DPA as compared to the cost of self-build. Secondly, Alt Nets may not use DPA at all in some areas and fully bypass the Openreach network.

9.26 The reality of full network bypass means the access obligation to Openreach ducts and poles (which for example does not apply to Virgin Media or other competitors who build their own network) creates incentives for access seekers to use access to Openreach ducts and poles selectively (in combination with self-build) to facilitate market entry. In turn, this could not only put Openreach's share of active lines at risk, but also create significant challenges in ensuring cost recovery for Openreach's ongoing supply of physical infrastructure.

9.27 There are also other characteristics of our physical infrastructure that differ from the 'natural monopoly' properties of other utilities such as electricity and water distribution, for example:

a) The building of competing fibre network and alternative technology such as mobile and Wi-Fi means there are less end-user premises willing to take service from fixed networks that use our network and

[246] Ofcom WLA Review of the Wholesale Local Access Market 2010, paragraph 1.23
[247] Openreach has received many Notices of Intent from CPs.
[248] Ofcom WFTMR consultation Volume 4, paragraph 5.9
[249] Ofcom WFTMR consultation Volume 4, paragraphs 5.74(b) and 5.77

b) The current pricing structure for PIA is based on a price per unit of infrastructure, but costs are recovered from end-users as a cost per connected premise.

9.28 Today little is known for certain about how other network builders may use PIA in the time period up to 2026 and we recognise that Ofcom would require more evidence to reflect such risks in its regulated prices. However, Ofcom should signal that if selective use of the PI network becomes a material risk to cost recovery (in particular where it leads to partial coverage of exchange areas and therefore is not aligned with Ofcom's policy objectives for FTTP build at scale) it will review its pricing regime to ensure Openreach can continue to recover its efficiently incurred investment fairly.

9.29 Further, there is a very high degree of uncertainty about the future and Ofcom has had to make assumptions about these very uncertain parameters in order to set a forward-looking price. On that basis, the proposed PIA regime potentially risks costs and prices materially diverging. In these circumstances we consider it would be reasonable for Ofcom to explicitly acknowledge that if this risk crystallises it will review its pricing regime to ensure it continues to meet its regulatory objectives.

9.30 For Openreach to be able to recover its efficiently incurred costs for physical infrastructure, the mechanism for pricing needs to be sustainable over the long term. Acting now to address the key issues we highlight with respect to Ofcom's pricing approach is preferable to addressing them in the next review, in order to avoid future significant abrupt changes to prices. Openreach considers there are two key factors Ofcom must address when setting PIA prices in this review:

a) Prices should be based on an accurate view of future costs that will be incurred as the PIA network is used to build ultrafast-capable access networks by Openreach and others. This should include any investment Openreach forecasts it will make in its physical infrastructure driven by its own fibre build (when such a forecast becomes available, insofar as the infrastructure created can be used by third parties), as well as investment in adjusting our network for CPs deploying networks using PIA; and

b) Prices should reflect a fair allocation of costs between Openreach and Alt Nets which mirrors the value to be obtained from using PIA for the deployment of ultrafast-capable networks.

9.31 Ofcom's assumption for investment in duct assets looks broadly reasonable based on the committed roll out of FTTP in 2019, but it does not allow for the considerable additional investment required to achieve our recently announced ambition of building to 20m homes by the mid to late 2020's. Such an investment is likely to require billions of pounds of incremental infrastructure investment which will automatically become available to CPs, albeit much of it might not be in areas in which they wish to invest. Based on Ofcom's current methodology of one national price, this investment should be included in the regulatory cost base.

9.32 At the current stage of fibre network build, there is however uncertainty around the level of future investment in our physical infrastructure, and how that infrastructure will be used for building fibre networks. The current COVID 19 crisis contributes to uncertainty over precise build plans. This creates a number of challenges for Ofcom in designing a price control to last until 2025/26 which adequately takes the two factors above into account. Openreach considers that before Ofcom finalises its decisions in relation to PIA prices it must reflect the most likely future deployment plans, especially Openreach's plans, to reduce the risk that the PIA prices proposed in the final statement do not meet Ofcom's objectives.

9.33 In summary the rest of this section of our response deals with the following points:

a) Ofcom should not adjust the Poles asset valuation as proposed but rather it should adopt the same approach it has taken to the valuation of duct services. We propose that Ofcom carry forward the 2018 WLA asset valuation for poles and only use the new information (regarding poles volumes, costs and asset lives) for the valuation of additional poles added since March 2018. This would be consistent with its approach to the duct valuation and its objectives for PIA prices more generally;

b) Although we are currently unable to state with certainty the extent to which Openreach will expand its plans to deploy its ultrafast-capable full-fibre network, we nevertheless explain why, even on the basis that Ofcom has consulted, its approach understates future costs and that the proposed PIA prices on that basis should be higher:

   (i) The starting value of physical infrastructure assets in place today is understated. Financial year 2017/18 was not a representative base for expected costs for Poles, especially in relation to pole testing costs. We provide evidence below that these costs will increase significantly above the level assumed by Ofcom in its modelling.

   (ii) More up-to-date plans for Openreach's further investment in poles are not incorporated in Ofcom's cost forecast. We set out below that Ofcom has underestimated the investment required in the ongoing testing and replacement of our aging pole network. This is because Ofcom has based its start position on the 2017/18 RFS. However, the investment in that year was not typical of our ongoing requirement to keep the network safe and will be much higher than Ofcom forecast.

   (iii) Operating costs are understated. We set out below how Ofcom has understated the expected levels of operating costs, for example expected wayleaves costs and productisation costs as the PIA service matures. If Ofcom were to forecast costs using the most up to date information these issues would be partly mitigated.

9.34 We have updated Ofcom's PIA costs models to account for these factors and the impact of these corrections to proposed starting charges and X's are summarised in Table 9.3 below:

Table 9.3: Corrections to Ofcom's proposed prices

PIA product	Ofcom Start Prices	Corrected Start prices	Ofcom Glide	Corrected Glide
	£ / unit	£ / unit	CPI + X%	CPI + X%
Duct and Chambers				
Spine duct – single bore	£0.30	£0.31	+ 1.9%	+ 1.3%
Spine duct – 2 bores	£0.19	£0.20	- 2.0%	- 2.5%
Spine duct – 3+ bores	£0.14	£0.15	- 2.0%	- 2.5%
Joint box entries	£2.14	£2.23	+ 0.8%	+ 0.2%
Manhole entries	£8.87	£9.25	+ 0.4%	- 0.2%
Simplified underground lead-in	£9.67	£10.09	+ 0.9%	+ 0.3%
Poles				
Pole Multi-end-user attachment	£4.02	£9.27	- 1.6%	- 2.1%
Pole for Single-end-user attachment	£1.63	£3.76	- 1.5%	- 2.0%
Pole top equipment	£1.22	£2.81	- 1.6%	- 2.0%
Cable up a pole (per cable)	£0.79	£1.82	- 1.3%	- 1.8%

Source: Openreach analysis

9.35 Further, we explain why a change to how Ofcom allocates PIA costs in its pricing approach is necessary and would better reflect the future value to be obtained from using PIA for the deployment of ultrafast-capable access networks. The impact of adopting this approach is shown in Table 9.4 below.

Table 9.4: Corrected PIA prices adjusted for expected future network use[250]

	Corrected price in 2025/26	Cost allocation within PIA price	Corrected price adjusted for fairer allocation	Cost allocation within PIA price	Corrected glide	Openreach proposed glide
	£/ unit	Ratio %	£/ unit	Ratio %	CPI + X%	CPI + X%
Duct and Chambers						
Spine duct – single bore	£0.36	50%	£0.36	50%	1.3%	1.3%
Spine duct – 2 bores	£0.19	19%	£0.34	33%	-2.5%	11.8%
Spine duct – 3+ bores	£0.14	9%	£0.54	33%	-2.5%	35.8%
Joint box entries	£2.44	29%	£3.90	46%	0.2%	12.7%
Manhole entries	£9.95	7%	£50.70	33%	-0.2%	50.0%
Simplified underground lead-in	£11.06	90%	£11.06	90%	0.3%	0.3%

Source: Openreach analysis

[250] Note that joint boxes and manholes are priced per entry and we have assumed that CPs use each entry twice i.e. once in and once out.

Ofcom's forecasting approach – Asset values, Network adjustments, Poles and Duct costs

9.36 Ofcom have proposed a cost-based charge control approach to PIA prices. Ofcom's methodology for the calculation of the cost-based prices is based on the same model developed to set maximum prices in the 2018 WLA but refreshed with our latest asset inventories data and financial data from the 2017/18 RFS. The 2018 WLA model was based on a specific point in time, the 2016/17 RFS, with the maximum prices being indexed by CPI until 2020/21. In contrast, the WFTMR model is based on a more traditional price control methodology, whereby Ofcom models the forward-looking costs of the PIA network components using their own assumptions about forward volumes and costs.

9.37 Ofcom's price control model uses the following broad methodology:

a) Step 1: Ofcom calculates a regulated base cost at a 'point in time' to which it applies the lower regulatory 'copper WACC' of 7.1% in 2020 (7.9% in 2018). Ofcom then derives forward-looking costs based on its assumptions of how volumes and capital investment will grow over the period; these assumptions are based on trend analysis.

b) Step 2: Ofcom divides the regulatory cost base into network components based on volumes and the relative value of each network component.

c) Step 3: Ofcom divides the network component costs by a utilisation factor which is based on the latest current occupancy rates derived from our inventories as at June 2019.

9.38 These steps were followed for each of the cost components that they identify. Below we comment specifically on Ofcom's forecast costs for:

a) Asset costs for poles;

b) Network adjustments;

c) Productisation costs;

d) Poles - capital and operating costs; and

e) Duct - capital and operating costs.

Poles asset costs

9.39 These costs include the asset values, depreciation costs and operating costs incurred in running our duct and pole infrastructure. The base year costs in the FTMR model are taken from the 2017/18 RFS. The forward-looking volumes and capital investment are derived by Ofcom based on a trend analysis over the last three years.

9.40 Ofcom have long required Openreach to value its infrastructure assets on a CCA basis using the principles of Financial Capital Maintenance (FCM). Under this method our cost recovery for each of our investments is deferred to the second half of its asset life. There are large values of efficiently incurred historical investment. In these circumstances, all other factors being equal, we would expect our cost base to increase with RPI each year.

9.41 We do not currently account for poles as a separate asset class; we have historically capitalised them as a cost required to bring cables into service and Ofcom created a new passive poles asset for the purpose of PIA. In the course of creating this new asset, Ofcom used information from our systems to examine the relative age of our

poles and the asset category under which they were originally booked. They conclude that half of the poles are older than the asset lives of the cable assets under which they are capitalised. On that basis Ofcom propose to significantly reduce the asset valuation that it assumed in 2018 WLA. We understand that Ofcom propose this reduction in order to ensure Openreach does not over-recover these costs[251]. This results in a c.65% reduction in starting poles prices.

9.42 We do not agree with the 65% proposed start charge reduction for poles because:

a) This does not reflect the economic value of poles and runs the risk of distorting investment and competition;

b) Implementing the reduction as a start charge adjustment rather than a glide is not necessary or proportionate;

c) Our current Poles prices compare well internationally; and

d) Using a similar approach to the one adopted by Ofcom for valuing duct assets would be more consistent and would avoid adverse consequences.

9.43 For these reasons we propose that Ofcom adopt a similar approach to the one it adopts for the valuation of duct assets and that, on that basis, Ofcom carries forward the 2018 WLA asset valuation for poles and only uses the new poles information (regarding poles volumes, costs and asset lives) for the valuation of additional poles added since March 2018.

9.44 In a report for Ofcom in 2010, Analysys Mason set out alternative methodologies for valuing our duct assets[252]. In our view, this sets out relevant factors that Ofcom ought to consider when setting the regulated prices for poles.

9.45 Analysys Mason's key findings are that asset valuations based on replacement cost methodologies have a number of strengths, i.e. "*they provide efficient market entry signals, do not disincentivise efficient investment by BT, are relatively practical and robust, and can be sufficiently transparent and stable. They are also consistent with past regulatory decisions. Replacement cost methodologies are therefore preferred*." Analysys Mason also find that indexing is an appropriate way to update existing valuations.

9.46 Ofcom's proposed approach would create a major gap between the accounting treatment which is used to set the regulated prices and the economic cost of the poles. We consider that such a change would not be in end-customers' interests. It would give rise to 'allocative inefficiency' by distorting competition, because it would distort CPs' 'build or buy' and 'poles or duct' decisions for physical infrastructure. This price distortion could have potential knock-on impacts to the wholesale market and so be inconsistent with Ofcom's goal of supporting investment in fibre networks through promoting network competition.

9.47 In this regard, Ofcom should consider the lesson from the water sector where history has shown that infrastructure competition has been made virtually impossible where regulated prices are set below their Modern Equivalent Asset Value (MEAV)[253].

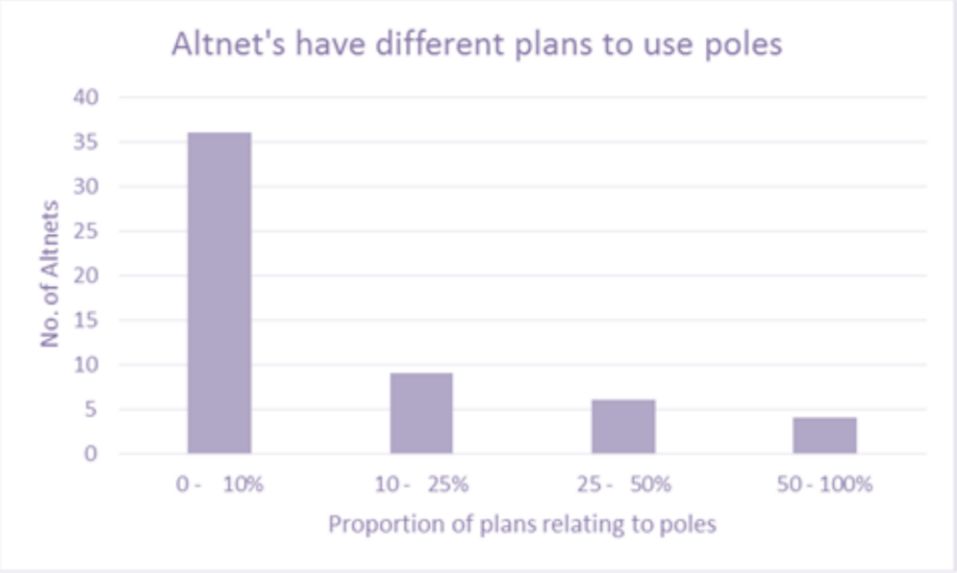
9.48 Further, different CPs will use our infrastructure in different ways. CPs provide us with information on how many poles and duct kms they have currently utilised and plan to utilise over the next two years. This information is

[251] Ofcom WFTMR consultation Volume 4, paragraph 3.45
[252] Analysys Mason, *'Alternative methodologies for the valuation of BT"s duct assets – Public version';* 2 March 2010
[253] In the water industry the discount to replacement cost at which companies were sold at privatisation (the so called 'RCV discount') meant asset prices were so low that competition and entry was made virtually impossible.

collated and shared each quarter with Ofcom in the PIMR Openreach usage report. We have taken the information provided to Ofcom for 31 March 2020 and added an average price per km of duct and per pole. From this analysis we can derive the proportion of CPs' PIA plans that relate to poles and to duct based on the revenue we expect to receive once those plans complete. It clearly shows that Ofcom's proposed reduction to poles prices will benefit some CPs to a greater extent than others.

9.49 Figure 9.1 below demonstrates that for circa 35 CPs, up to 10% of their PIA plans rely on poles whereas there are circa 5 CPs where more than 50% of their plans rely on poles.

Figure 9.1: Different use of poles



Source: PIMR usage report and Openreach analysis

9.50 The potential customer detriment is compounded by Ofcom's proposed approach to implement the change through a one-off starting charge adjustment (SCA). Ofcom acknowledge that glidepaths, '*avoid discontinuities in charges over time and lead to a more stable and predictable background against which investment and other decisions may be taken and this is also consistent with its objective of encouraging full fibre investment*'.[254]

9.51 A further consideration is how our poles product and prices benchmark internationally. Prior to Ofcom publishing the WFTMR consultation, Openreach commissioned Analysys Mason to compare our PIA product against DPA offers in four leading European benchmark countries. This report finds that the Openreach PIA product compares well with offers in the other benchmarked countries both for quality and for price. In particular, it finds that in 2019 the Openreach prices for the use of poles were central in the range of prices compared with the other benchmarked countries. Therefore, we consider that the current poles prices, i.e. prior to any start charge reduction proposed by Ofcom, are already at an appropriate level and reasonably reflect the value of these types of assets.

[254] Ofcom WFTMR consultation Volume 4, paragraph 3.19

9.52 Conversely, Ofcom's current proposals to reduce the Openreach prices for the use of poles by c65% would make the UK prices an outlier in the international comparisons, i.e. the price would be below the minimum value of the range of the benchmarked countries by c50%.

9.53 We would be pleased to discuss this benchmarking report with Ofcom as it strongly indicates that our PIA product is of high quality and good value. Further, the findings do not suggest there is strong justification for either a large reduction in the price of poles or if a reduction were to occur that it should be applied as start charge reduction.

9.54 Lastly, our pole assets are currently accounted for in conjunction with our cable assets, primarily copper cables. The construction of an asset valuation for poles is primarily a question of deciding how the existing asset base is allocated between copper cables and poles.

9.55 Ofcom address a similar issue for the attribution of the duct regulatory cost base between different duct PIA services, e.g. splitting out duct value into separate values for spine duct single bore, spine duct dual bore etc. In that assessment Ofcom finds, "*Openreach's recent assessment of the attribution, although based on more robust data, was very different to the attribution we used in the WLA 2018. As a result, using Openreach's latest cost attribution would lead to significant changes in prices for some services, notably for single bore and 3+ bore duct.*"[255]

9.56 On that basis and for the valuation of duct assets Ofcom propose `*to apply the "old" attribution used to set charges in the 2018 WLA to costs associated with assets installed up to 31 March 2018. We propose to apply Openreach's revised attribution to assets installed after 31 March 2018 we believe this provides a more robust view of its forward-looking incremental costs".*'[256]

9.57 We consider it would be entirely consistent with Ofcom's general approach to the valuation of PIA assets and pricing of PIA services, and its approach to the valuation of duct assets and pricing of duct services in particular, to adopt a similar approach to the poles asset valuation. Therefore, our proposal is that Ofcom carry forward the 2018 WLA asset valuation for poles and only use the new information (regarding poles volumes, costs and asset lives) for the valuation of additional poles added since March 2018.

9.58 For the reasons outlined above, Openreach believes it would support Ofcom's objectives to adopt this approach and this would undo the very large proposed start price reduction on poles.

Network adjustment costs

9.59 These costs represent the capital expenditure required to adjust our infrastructure to enable the deployment of new cables for both Alt Net fibre networks and for all Openreach cables networks, including access fibre, inter-exchange fibre and copper cables.

9.60 The regulatory direction to account for network adjustments in the RFS started on 1 April 2019, so no separate network adjustments were recorded in the 2017/18 RFS.

a) For the forward-looking network adjustments costs incurred to allow CPs to build their fibre networks using our infrastructure, Ofcom has adopted a similar approach as in the 2018 WLA - £67.74 per premise passed by the CP (with an allowance for inflation).

[255] Ofcom WFTMR consultation Volume 4, paragraph 5.19
[256] Ofcom WFTMR consultation Volume 4, paragraph 5.23

b) For forward looking network adjustments costs incurred by Openreach building its own network, Ofcom has not included any incremental capital expenditure as they assume these costs have already been captured in their assessment of our forward-looking asset costs.

9.61 We do not agree with this assumption. Around half of such expenditure is capitalised along with the cable investment, since these costs are considered to be a cost of bringing the cable asset into service. To align with Ofcom's approach, this capitalised expenditure should have been included in the duct valuation. In short, Ofcom has underestimated our investment in network adjustments as it has erroneously assumed all such investment has been captured in our duct infrastructure capital expenditure in the RFS.

9.62 Openreach proposes that the capital allowances Ofcom make for network adjustment costs are uplifted to correct this error.

Productisation costs

9.63 These are the costs incurred by Openreach in order to make PIA available to CPs and include costs incurred in setting up and managing the PIA product and processing individual PIA orders. Ofcom has not allowed for any incremental costs over and above the 2017/18 RFS because it believes the 2017/18 RFS includes all expected future productisation costs. This is not the case.

9.64 In 2017/18 the PIA product was nascent and was supported by a small number of people. Since 2017/18 the product has changed and developed, in particular, since March 2018:

a) Openreach launched a major enhancement to the PIA product in April 2019 with significant new network adjustment obligations (implementing the WLA Final Statement); and

b) In August 2019 the product was further enhanced to extend the scope of the product to 'unrestricted' usage, implementing the findings of the Physical Infrastructure Market Review (PIMR).

This has led to a significant increase in the volumes of enquiries, Notices of Intent and orders.

9.65 At the same time, Alt Nets have improved their funding and roll out ambitions, which has also generated more work and activity to support the service.

9.66 The upshot is that we have assigned more people to manage the product and handle customer enquiries and orders. The 2017/18 RFS costs associated with these activities were £[✂]m. We expect these costs to increase to over £[✂]m in the final year of the charge control period.

9.67 On the basis of the above, Ofcom should base its forecast of productisation costs on the Openreach forecast rather than assume there is no increase in these costs from 2017/18. This will result in an increase in operating costs for PIA.

Poles operating costs

9.68 These costs include the costs of pole testing and overheads associated with the testing of poles and with operating the assets. We believe Ofcom have significantly underestimated these costs.

9.69 [✂]. It is important that poles are tested regularly to keep the infrastructure safe [✂]. [✂] we intend to test [✂] poles per year during the charge control period.

9.70 On the basis of the above, Openreach does not consider the 2017/18 RFS pole testing costs are a good starting point for forecasting expected pole testing costs during the charge control period. Openreach proposes that Ofcom use the management plan[257] for pole testing to forecast this cost (see Table 9.5 below), which will result in a significant increase in its estimate of the operating costs for poles. We will be pleased to provide Ofcom with the latest forecasts for pole testing that under-pins our current Medium-Term Plan (MTP).

Table 9.5: Ofcom vs Openreach Poles operating costs forecast

[✂]

Poles capital expenditure

9.71 Ofcom has calculated their own forecast of our investment in poles. Ofcom assumes that all poles investment will be for new poles based on a 1% annual growth rate in the size of the footprint, or 38,000 poles per year. They make no allowance for replacement of defective poles. We have found no justification for the forecast in the consultation document.

9.72 We expect that the annual growth rate will be about [✂] of Ofcom's estimate, based on an extrapolation of previous growth, or a requirement for about [✂] new poles. Further, unlike Ofcom, we have a substantial forecast for replacement poles.

9.73 To estimate the forecast for replacement poles, we have sampled the number of defective poles found per test performed. As previously stated, we have estimated the number of tests we expect to do at [✂] per annum. On that basis our medium-term plan predicts we will need to replace [✂] poles per annum during the charge control period.

9.74 We consider Openreach's forecast approach is more robust compared to Ofcom's approach. On that basis we would propose Ofcom replace its forecast of poles build with the Openreach forecast[258] (see Table 9.6 below). This will result in a significant increase in forecast poles capital expenditure. We will be pleased to provide Ofcom with the latest forecasts for pole capital expenditure that under-pins our current MTP.

Table 9.6: Ofcom vs Openreach Poles replacement capital expenditure forecast

[✂]

Duct and Chambers – operating costs

9.75 These are pay and non-pay costs and include Openreach and Corporate overheads and a small amount of costs directly related to provision of services to CPs (Productisation costs).

9.76 We consider that Ofcom have underestimated these costs as they have based them on costs seen in the 2017/18 RFS:

a) As CPs become more advanced in their requirement for PIA services, so we are increasing the resource assigned to managing and meeting their requirements. Therefore, these costs need to be assessed based on a forward-looking basis (similar to the approach adopted by Ofcom in its 2018 WLA model).

[257] These forecasts are our most up to date view based on committed plans, they do not include the impact of the recently announced FTTP ambition.
[258] These forecasts are our most up to date view based on committed plans, they do not include the impact of the recently announced FTTP ambition.

b) We did not previously include wayleaves as a cost of providing infrastructure. However, having secured permission to house infrastructure on third party property, that infrastructure becomes available for use by all cables without additional permissions being required and therefore becomes available to CPs using PIA. We consider these costs should therefore be reflected in the PIA prices. Further, on that basis we have proposed an RFS methodology change in the 2020 Change Control Notification to account for the cost of wayleaves against our passive infrastructure network, rather than the active cable network. On that basis we consider Ofcom should make an allowance for wayleaves costs in the duct and footway box operating costs.

Duct and Chambers – capital costs

9.77 We believe Ofcom's approach provides a reasonable estimate of the capital expenditure included in the MTP submitted to Ofcom but, as noted previously, it does not include further substantial additional investment should we expand our plans to roll-out FTTP at scale. For completeness, we also consider that Ofcom's estimates of the starting asset valuation and forecast of depreciation are reasonable.

Allocation of PIA costs in the price

9.78 We agree with Ofcom that PIA prices should reflect an assessment of "*how competing telecoms providers might use the physical infrastructure over the medium term, the opportunity to earn revenues related to that usage, and the consequential impact on Openreach's opportunity to earn revenues from its own network*".[259] Openreach interprets this as meaning that PIA prices should reflect some assessment of the value to be obtained from our infrastructure network to PIA users, as well as Openreach.

9.79 As a proxy for this, Ofcom proposes that for most components the proportion of these costs to allocate to PIA prices is based on current utilisation of these assets by Openreach in supplying our portfolio of active copper and fibre-based network services and that the utilisation factors should be updated from the WLA 2018. In the longer-term we expect full fibre networks to substitute our existing copper-based network access services and the utilisation of our physical assets and the way those assets are used and generate value will radically change over time. Once all services are provided from full fibre networks, the utilisation factors for physical infrastructure network assets will be significantly lower than at present as they will no longer reflect the use of the physical network by larger copper cables. For that reason, we do not consider Ofcom's approach to allocating the share of costs to be recovered via PIA charges provides a reasonable long-term mechanism to support full cost recovery for the physical infrastructure assets.

9.80 A key part of Ofcom's pricing model is to split the costs of infrastructure into network components and then to calculate the price based on the cross-sectional area of the cables currently using the network. But as stated above, much of the current utilisation of our network is made by our copper cables. Eventually, these cables will be replaced by fibre network cables that use less duct space. In the meantime, our utilisation of the network is increasing as we run fibre and copper networks concurrently within our infrastructure and Ofcom has updated the utilisation with the latest information from our infrastructure inventories. This reduces the unit costs for many PIA network components in the short run, but in the longer term there will inevitably need to be an increase in the share of total PIA costs recoverable from fibre networks once we start migrating customers away from the copper-based services and begin retiring the existing copper cables.

[259] Ofcom WFTMR consultation Volume 4, paragraph 5.26

9.81 As a result, for some components our current network utilisation does not reflect our '*opportunity to earn revenues from … [our] network*'[260] and the opportunities will diverge further over time as we roll out more fibre. Under the current Ofcom allocation proposals, we are being asked to contribute an increasing share of duct cost as our duct occupancy increases in the transition to full fibre, even though our share of value (in terms of the proportion of customers served or the potential to connect customers) remains unchanged.

9.82 Once Openreach decommissions copper, if left unchanged, Ofcom's allocation methodology would result in a sudden reduction in utilisation and, therefore, in the share of cost allocated to Openreach services. In order to avoid an abrupt increase in price Openreach would propose that Ofcom glide to a cost share based on a future fibre use of Openreach's physical infrastructure as that would supports Ofcom's ambition for 'stable prices'. As a result, the Alt Net contribution would need to increase sharply, with a corresponding increase in PIA prices.

9.83 In order to ensure that Ofcom's charge control adequately reflects its regulatory objectives, it should review the allocation of costs for the common components in our duct network. In our view, a fairer allocation of cost to third party users of physical infrastructure should be based on the number of network operators expected to serve customers in an area, i.e. a value-based approach, based on expected future use of duct.

9.84 For example, we could adopt Ofcom's thinking in this respect[261] where the market is split between three rival networks. In that case, the costs would be allocated one third each for dual and multi-bore duct and manholes and 46% for joint boxes.[262] Single bore duct (50%) and lead-ins (90%) allocations would remain unchanged and as currently proposed by Ofcom.

9.85 On that basis, Table 9.4 above illustrates the impact on Ofcom's proposed 2025/26 prices of gliding to a fairer allocation of costs.

Implementation of Charge Control

9.86 We believe the list of network adjustment services in the legal instrument should be updated to reflect the current product offering when the final statement is issued. We note some items such as earth spikes have been withdrawn, while some new items are being developed to launch in 2020/21 to reflect the requirements of CPs as PIA moves to a scale product.

[260] Ofcom WFTMR consultation Volume 4, paragraph 5.26
[261] Modelling for Ofcom's 'base case' assumes 'the market is evenly split amongst three rival networks'. Ofcom WFTMR consultation Annex 17, paragraph A17.93.
[262] Note 46% is a weighted average derived from single (50%), dual (33%) and multibore (33%) duct.

FTTC, MPF & LL pricing - CPI Indexation

Question 1.1: Do you agree with our proposals for charge controlling WLA and LL access services in Area 2?

9.87 In Area 2 Ofcom is proposing:

a) a charge control on MPF, FTTC 40/10 and leased line rental charges, inflation-adjusted from 2021 levels;

b) pricing flexibility, subject to a fair and reasonable condition, on rental charges for higher bandwidth WLA services; and

c) a charge control on FTTP 40/10 rental charges where a copper based 40/10 service is not available, set at a premium of £1.50-£1.85 to the proposed regulated FTTC 40/10 price.

9.88 Ofcom describes this approach as maintaining pricing continuity, with the primary objective of supporting network competition and promoting investment. Ofcom recognises that lower prices would provide greater "protection for customers" and would support retail competition (via resale) but has attached a higher weight to the longer-term considerations and the anticipated benefits from new services and increased network competition. This is consistent with government's view as set out in its Statement of Strategic Priorities.[263]

9.89 Openreach supports this pivot to a regulatory regime which gives more weight to investment and network competition and believes this is vital if the UK is to benefit from the widespread availability of full fibre. The fundamental consideration is that adequate price levels are an absolute requirement for incentivising investment in new networks, and depressing existing regulated prices to a view of Openreach's "efficient costs" would impede Openreach (and Alt Nets) being able to commit large sums to investment given that, as Ofcom recognises, mass market demand for ultrafast services is largely yet to materialise.

9.90 Openreach is responding positively to this revised regulatory regime under which there is a stronger commercial case to invest.

We agree with pricing flexibility for services above 40/10

9.91 Openreach is of the view that regulation of a 40/10 product offers sufficient consumer protection, both as a direct control and as an indirect control for higher speed services. To minimise market uncertainty caused by possible future regulatory actions, and therefore better promote network competition and investment, Openreach believes that pricing flexibility for services other than at 40/10 ought to be applied for at least two charge control periods. Openreach's views on this matter are laid out in Section 3 above.

CPI indexation and FTTP Price premium

9.92 We agree with the proposal to

a) index prices at CPI in Area 2; and

b) to set a modest premium for FTTP 40/10 rental charges where a copper based 40/10 service is not available. However, the price premium proposed by Ofcom is too low.

[263] Department for Digital, Culture, Media & Sport, 18 July 2019. Statement of Strategic Priorities for telecommunications, the management of radio spectrum, and postal services. p18, paragraph 18

9.93 More details of our response can be found in sections 2 and 3 above.

Leased Lines in Area 2

9.94 We support Ofcom's proposals for pricing continuity on charge-controlled items at CPI-0%. This does not necessarily mean that prices will be kept constant in real terms, as competitive pressures will mean that prices may need to reduce in order to respond to existing competitors and new entrants. This applies both in Area 2 (where competition will be boosted by PIA) and Area 3. Dark fibre will be relevant for active Ethernet demand in both areas because only one end needs to be in Area 3 for DFA to be used and it will therefore impact volumes in Area 2.

9.95 In addition, margins on leased lines services up to 1Gbit/s are already low[264] and further reductions would not be justified on a cost basis.

9.96 In relation to Very High Bandwidth (VHB) services, we also support Ofcom's proposals to avoid overlapping regulation of charge controls and a fair and reasonable condition[265]; a charge control is a more restrictive remedy so an additional fair and reasonable condition would be unnecessary and disproportionate, and a further condition could create unwarranted compliance disputes.

9.97 Openreach also supports the application of a fair and reasonable obligation in HNR areas, although we disagree that Ofcom has identified the true extent of HNR as set out in section 7 above.

9.98 We support the use of prior year weights for the basket controls, because this is the only practical approach to setting weights which would allow us to comply with the price control. We also continue to support the principle of broad baskets as it provides some flexibility to meet differing customer priorities. However, we would request that Optical Services are removed from the Ethernet Services basket control. [✂]. We would appreciate if Optical Services could be in a separate basket (as we have for VHB today), so that the remaining Ethernet services can be subject to an operational basket control. This would still provide the same level of protection to customers, whilst avoiding undue administrative issues. An alternative would be to use a revenue not sourced from the RFS (which Ofcom may consider as the reconciliation to the regulatory financial statements has not been explicitly mentioned in the consultation document). We would welcome further discussions with Ofcom on this point.

9.99 We do not understand the rationale for main link to have a CPI-0% sub cap. Ofcom has not explained why the competition concerns are greater for main link or that their competition concern here outweighs the benefits of broad baskets that they prefer more generally. We believe this measure is unnecessary as:

a) DFA main link will in any case exert a pull downwards on these prices;

b) The proposed sub cap would lock in historic prices; and

c) There is no historic behaviour to indicate we would make a sharp price increase which would justify the need for such a tight sub cap and we have no plans to do this.

9.100 Openreach consider that a less restrictive sub cap of e.g. CPI+3% might allow a small increase in nominal prices of c.5% but still avoid a "*sharp price increase*" [266] which appears to be Ofcom's key justification for this measure. We

[264] BT Regulatory Financial Statements 2018/19.
[265] Ofcom WFTMR consultation Volume 4 paragraph 1.120.
[266] Ofcom WFTMR consultation Volume 4 paragraph 3.72

would ask Ofcom to remove this restriction or, if not, make it more consistent with its approach of adopting broad baskets and relax it.

9.101 Ofcom have different regulation for the Ethernet Services basket (which allows price increases to rebalance within the basket) and the sub cap on ancillary items. Where we have an ancillary charge that is set in reference to a rental or connection charge, we are concerned that the CPI-0% cap on ancillaries would create a restriction on the basket item it links to. For example, early termination charges are set at X% of rental charges, and the ancillaries cap of CPI-0% would limit price increases. However, the rental charge itself should be able to increase by more than CPI-0% and still comply with the basket. Similarly, cancellation charges are set at X% of connection, and the ancillaries cap could be seen as creating a constraint on the connection price in the Ethernet basket. We would therefore request that Ofcom are explicit that ancillaries' charges that are explicitly defined on the price list as referring to another product price are not covered by the ancillaries cap.

9.102 Across all charge controls for the WFMTR Ofcom have included a new request that compliance statements should be accompanied by a statement from an independent third party such as our external auditors of the Regulatory Financial Statements. We do not oppose this proposal but think that Ofcom needs to consider details of the implementation.

a) This would be a finding on performance of tests and not an audit opinion.

b) Our external auditors would like to engage with Ofcom to agree the scope of the tests (in a similar process to how the tests for Solus Voice were agreed) to ensure they can provide the right level of assurance. We feel this will be important to explore the best approach to take.

c) Crucially, this will take time to deliver (at least six weeks for 100% substantive checks) and can only start once Openreach has already concluded its internal checks and governance. Based on this our external auditors believe a submission deadline of end of August would be more reasonable and realistic, though an end of July deadline (alongside the RFS) could be a possible though challenging deadline. The current compliance submission deadline of the end of June would not be possible in any circumstances.

d) External auditors are restricted by regulation from undertaking non-audit advisory work (which this would count as) except in exceptional circumstances. In order to qualify we would need a statement from Ofcom for our audit and risk board that it requires our external auditors to complete this work in order for it to be approved i.e. a clear statement from Ofcom that this non-audit advisory work has been requested by them so that we can demonstrate there is no conflict of interest with the broader audit work.

Ex-post approach RAB model – FTTC, MPF & LL Pricing

Question 2.1: Do you agree that a RAB based control will achieve our objective in Area 3?

9.103 Ofcom explains that under a RAB approach there would be a common cost pool which would be recovered across all of the firm's services. As a consequence, a supplier could recover the costs of one service (e.g. Service A) across multiple services (e.g. Service A and Service B).[267] A RAB approach could be implemented in different ways and Ofcom distinguishes between a forecast approach and a post-build approach. The former requires a commitment to build to a certain level, whereas the post-build approach is a form of incentive for building and one to which Openreach may choose whether or not to respond.

9.104 Openreach very much believes that the forecast approach is to be preferred. This would provide certainty that investment will be made, whereas the post-build approach could fail to generate either any, or any more than minimal, investment in Area 3. We explain this further below.

9.105 The forecast approach can be implemented by extending the indexation approach proposed for Area 2 into Area 3, so there would continue to be uniform pricing across the UK for copper access services and GEA, and the only geographical difference would be that in Area 3 indexation would be accompanied by a planned, and committed, level of build in the area.

9.106 The forecast approach would have the further benefit that the extent of coverage outside the build area can be identified, and government planning to address these remaining premises can begin.

Question 2.2: Do you agree that is appropriate to impose a post-build RAB charge control in Area 3?

9.107 Openreach does not support the suggested post-build approach, especially at the K uplifts outlined by Ofcom which will not provide adequate incentives for the widespread build out of FTTP, even at the top of the range. We explain this further in our response to Question 2.3 below.

Question 2.3: Do you have any comments on our proposed design and method for calculating the proposed post-build RAB charge controls?

9.108 As Ofcom explains, "*[T]he K factor represents the mark-up to allow recovery of fibre investment costs and its application would vary each year depending on whether Openreach achieves pre-specified investment delivery targets*." [268] Ofcom has published a proposed schedule for the K factor by premises covered in Table A18.4, showing an annual uplift of up to £5.40 per customer for a 1 million build and up to £27 per customer for a 5 million build.

9.109 Whilst we agree with Ofcom's general methodological approach to assessing the K factor (being the difference between incremental fibre costs and incremental revenues), we have a number of concerns about the way in which the methodology has been applied.

9.110 The value of the K critically depends on the outputs of Ofcom's costs modelling. Even in Ofcom's high cost case we think Ofcom understates supply costs compared to our business model. It is important to recognise that Ofcom have conducted a desk-based exercise that attempts to forecast how networks could be deployed in any area of

[267] Ofcom WFTMR consultation Volume 4, paragraph 2.19
[268] Ofcom WFTMR consultation Volume 4 paragraph 2.25

the UK – going well beyond areas where Openreach or other builders have deployed. While a desk-based approach can be taken to estimate build design and associated costs, network builders would always follow-up such desk-based assessments with detailed local surveys before finalising specific deployment plans for an area. Plans and cost estimates may be further iterated once build in an area is underway. This is why network builders will tend to allow for some contingency around build costs assumed in investment plans built on desk-based assessments. Therefore, as well as testing the reasonableness of its assumptions on build design with Openreach and other network builders, Ofcom should look to factor uncertainties into its modelling by allowing contingency costs as well in order to avoid outputs being skewed by assumptions around build design and build cost that are not achievable in the real world.

9.111 In particular, Openreach does not agree with Ofcom's assumption that in Area 3 provision costs will average £200 and we believe the cost is likely to be considerably higher than this.

9.112 We note further that the K depends on the uplift being in place for 20 years, but Ofcom provides no assurance that this will be the case. We consider that Ofcom should consider calculating the K over a shorter period which is commensurate with the assurance it feels able to give, such as over 10 years.

9.113 A further complication is that Openreach may not be the supplier of all customers in Area 3 over the assessment period. Any loss of customers will imply a loss of uplift revenue and so Openreach will not be in receipt of the K uplifts from these customers. We invite Ofcom to consider how this risk might be mitigated.

9.114 There is also a need to ensure that Ofcom has factored in the cost of the delay between expenditure on building the new network and then the prior recording of the build, both of which occur before Openreach is in receipt of the revenue benefit from the uplift. We believe Ofcom's cost model ought to reflect these factors, which would increase the K.

9.115 Finally, we note that the lower bound estimate of the K is based on an incremental FTTP revenue of £4 per line. Given a premium on the anchor service of say £1.75 per line, if half of customers use the 40/10 anchor product, the £4 assumption implies those on higher bandwidths will pay on average £6.25 more than they would pay on FTTC. We do not consider that this is realistic until demand is proven, and Ofcom itself notes that, in respect of Area 3, "*Openreach's ability to charge more for fibre services* [than for existing services] *will be limited*".[269]

The inter-relationship between K and level of cost efficiencies on FTTC

9.116 Openreach understands that one of the reasons for the X range for FTTC of -5.75% to -15% is that Ofcom projects high volume growth in the "no full fibre investment" counterfactual – that is, the price control which might be set if Openreach did not invest. The volume growth leads to scale economies and hence lower unit prices.

9.117 However, Ofcom then uses these projections in a hypothetical world where Openreach does invest, thus arriving at CPI-X+K. The reality is that if we do invest in full fibre, Ofcom's K estimates ought also to recognise that to the extent that Openreach does build widely in Area 3 then there will be another cost (i.e. the lost economies of scale) which is not recognised. Ofcom intends to pass through cost savings which result from economies of scale in providing FTTC services via the CPI-X control on FTTC. However, with a significant build programme, Openreach will not be able to realise these gains. In setting a price control which includes these scale economies, Ofcom

[269] Ofcom WFTMR consultation Volume 4 paragraph 2.25

would be requiring Openreach to give to customers something which Openreach would not have the ability to realise.

9.118 Our concern is that the incremental assessment may not take this into account. In terms of Ofcom's Figure A18.1, the fibre shortfall is not just "*build cost less incremental revenue*" but also lost economies of scale in supplying FTTC. Put simply, there cannot be a world in which there is both high FTTC volumes (delivering scale economies) and widespread FTTP, yet the calculation of the K assumes that this can be the case. Prices would, in effect, be reflecting scale economies which, if we invest heavily in Area 3, we have no ability to realise.

Question 3.1: Do you agree with our proposals in relation to charge control design and implementation?

Proposed CPI-X control on MPF and GEA

9.119 Ofcom proposes to set the price of both MPF and FTTC services at their forecast of unit costs at the end of the forthcoming charge control period (based on national costs) by adjusting prices to cost gradually using a glide path. As part of this, Ofcom proposes to remove the HON cost adjustment from the charge control for MPF and GEA 40/10; and to bring GEA charges at higher bandwidths within the charge control. Ofcom estimates that this will be achieved by a proposed -X of CPI for MPF SML1 rentals (so that prices are held flat in nominal terms) whilst FTTC prices reduce in real terms by between -5.75% to -15.0%.

9.120 Whilst Openreach does not agree with the proposed Xs (as explained below) we agree with Ofcom that charge controls should be extended to last for 5 years. This will reduce the level of regulatory uncertainty and provide a more stable environment for investment. We believe that Ofcom should go further than this though and, at least in principle, set out its approach beyond this period given that investment time horizons are many times longer than 5 years.

Area 2

9.121 We also agree with keeping price ceilings for MPF, GEA FTTC 40/10 and Leased Lines constant in real terms. Further detail of our reasoning is outlined in sections 2 and 3 above.

Area 3

9.122 Ofcom proposes to set the price of MPF and FTTC services at their forecast of unit costs at the end of the forthcoming charge control period (based on national costs) by adjusting prices to cost gradually using a glidepath. As part of this, Ofcom proposes to remove the HON cost adjustment from the charge control for MPF and GEA 40/10; and to bring GEA charges at higher bandwidths within the charge control. Ofcom estimates that this will be achieved by a proposed -X of CPI for MPF SML1 rentals (so that prices are held flat in nominal terms) whilst FTTC prices reduce in real terms by between -5.75% to -15.0%.

9.123 Openreach supports the use of longer duration of charge controls, if any are imposed, and the use of a glidepath. However, we believe that the transition between technologies, and the heavy investment of very long-lived assets, raises issues which extend beyond one charge control period. For example, Ofcom's estimate of the K factor relies on assumptions about indexation being in place, and of value to Openreach, over 20 years. Similarly, the early retirement of copper assets requires consideration of very long-term trends. In addition, as we explain below, we question whether it is right to concentrate on a single "target year" (2025/26) given that volumes and technologies are in such a state of flux.

9.124 If a 5-year charge control is introduced, we have serious concerns about the extent of the FTTC price reductions which Ofcom considers are justified. In particular, the following assumptions are important drivers of the lower prices in Area 3 which we consider unjustified:

a) FTTC starting prices;

b) Forecast unit cost efficiencies;

c) Approach to holding gains; and

d) PIA RAV – understatement of costs.

9.125 Taking the above into account we estimate that a more reasonable range for the FTTC X would be +3.5% to -5.75% with a mid-point of -1.25%.

9.126 We also believe that Ofcom's forecast volumes of FTTC are overstated, which would further impact the FTTC X.

FTTC starting prices

9.127 Ofcom propose that the starting price for the cost-based charge control for FTTC rentals in Area 3 is to be based on the "headline price". The headline price is calculated as follows:

a) In 2019/20, the WLA headline price is the average of the price per the Openreach price list as at 31 March 2019 and the price at the end of the year, by reducing the year start price by the relevant CPI-X control for 2019/20.

b) In 2020/21, the headline price is the average of the 2019/20 year-end price and the price at the end of the year, by reducing the year start price by the relevant CPI-X control for 2020/21.

9.128 Crucially, this headline price explicitly excludes any volume related discounts that are in place.

9.129 We do not agree that the headline price Ofcom proposed is the correct starting price for the cost-based charge control for FTTC rentals because approximately [✂] of our FTTC rentals in Area 3 already have discounts applied. Any discounts must therefore be applied when calculating the glidepath for the FTTC Area 3 charge control. Were Ofcom not to do this, it would set a control which would be intended to forecast the headline prices to be aligned to cost when actual prices are significantly lower than the headline price, and hence would be well below cost.

9.130 The blended price across all bandwidths to be used at the start of the charge control period, including appropriate discounts, is £[✂] per annum. This would have the effect of reducing the expected revenues by £[✂]m and the value of X would reduce (i.e. become less negative) by [✂]%.

Forecast unit cost efficiencies

9.131 Ofcom state in the WFTMR consultation that they "*consider that the evidence and analysis we used to support our assumptions in the 2019 BCMR Statement and 2018 WLA Statement, continue to provide an appropriate basis to inform our modelling. It is unlikely that there is significant new information available which would materially affect the efficiency ranges*". For WLA, Ofcom assumed operating cost efficiencies would be 3.5% to 6.5% per year.[270]

[270] Ofcom WFTMR consultation Annex 16, paragraph A16.81(b)

9.132 Whilst Ofcom have stated that they "*do not consider that a full update of the efficiency analysis for this Consultation would be appropriate given how recently we have estimated BT's future efficiency*", they also add that, "*if further data becomes available that will materially change our view on efficiency, we will update our estimates*".[271]

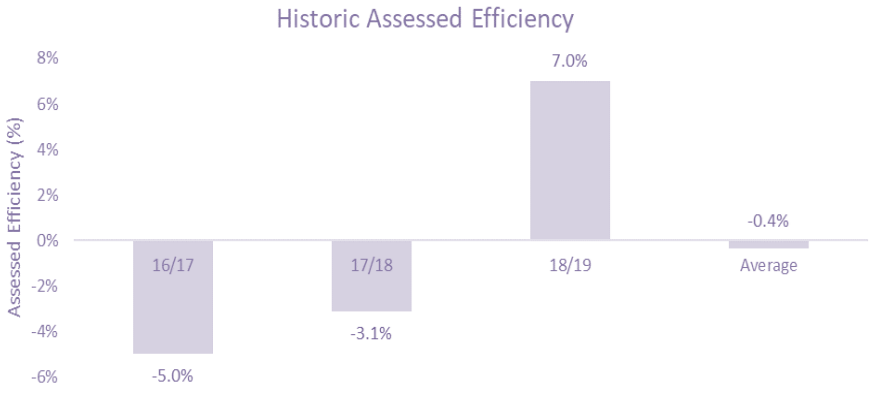
9.133 Openreach believe it is important that Ofcom consider the results of more up to date analysis. We have conducted an updated analysis of historic efficiency of WFTMR products from 2016/17 to 2018/19. We show below that Ofcom's analysis is not representative of the true efficiency Openreach has delivered in the past or is able to achieve in the future. Openreach believe a more appropriate operating efficiency to be in the range of 0.5% to 3.5% for the reasons explained below.

Pairwise historic analysis

9.134 Pairwise analysis is an HCA operating cost efficiency analysis conducted at component level which we have undertaken over a 3-year period. Openreach have conducted an updated pairwise analysis of historic efficiency of WFTMR products from 2016/17 to 2018/19. We take the prior year restated RFS data to eliminate methodology changes, and apply volume growth, CVEs (pay and non-pay) and inflation (pay and non-pay). We then compare this outcome to current year published RFS data.

9.135 As shown in Figure 9.2 below, this analysis shows a falling efficiency trend which would, at best, place our operating efficiency at the lower end of Ofcom's suggested range. Additionally, we note that in 2018/19 there is a substantial increase in costs compared to what is predicted by Ofcom, leading to an increase in unit costs of 7.0% reflecting higher labour costs, general management costs and FTTP rollout. These additions would not have previously been considered in the 2019 BCMR Statement and 2018 WLA Statement.

Figure 9.2: Efficiency trends from Openreach's pairwise analysis



Source: Openreach analysis of BT RFS cost data

9.136 The increase in costs in 2018/19 is primarily due to significantly higher labour costs in Openreach (pay, overtime and subcontractors) resulting from increases in engineering workforce to support customer demand and deliver service levels. There have been various reasons for these workforce increases which are broken down as follows:

a) Minimum service level obligation ([≫] new hires)

[271] Ofcom WFTMR consultation Annex 16, paragraph A16.80

b) Fibre infrastructure build ([✂] new hires)

c) Poles testers (health and safety) ([✂] new hires)

d) Civil Engineering ([✂] new hires)

e) PIA for Fibre Network Delivery ([✂] new hires)

9.137 These [✂] new hires represented an increase of [✂]% in Openreach's workforce.

Forecast labour plans

9.138 We have also reviewed the 2019/20 TLR (Total Labour Resource) and TLC (Total Labour Cost) plans, and the increase in labour costs is set to continue with [✂] new hires being planned in this year[272]. This is broken down as follows:

a) Minimum service level obligation ([✂] new hires);

b) Fibre infrastructure build ([✂] new hires);

c) Poles testers ([✂] new hires);

d) Civil Engineering ([✂] new hires);

e) Fibre cities ([✂] new hires); and

f) PIA for FND ([✂] new hires).

9.139 Looking further ahead to 2020/21 – 2023/24, the trend of increased hires is not forecast to continue and as a result we forecast a resumption in year-on-year efficiency of c.3.5%. This is also supported by the Price, Volume, Efficiency and Other (PVEO) analysis in the MTP20 over the same period.

9.140 We accept that these new hires are not all associated with MPF/WLR and GEA but they show that, overall, Openreach is experiencing a period of cost increases whilst, as Ofcom shows in the Consultation, the number of lines is expected to fall. Ofcom should also recognise that it has linked fibre prices (via the 40/10 anchor) to those of copper services. If fibre costs are completely ignored in considering prices of copper-based services, but fibre price regulation is based on copper prices, there is a risk that across the two sets of services, costs will not be recovered in total.

9.141 Taking all these factors into account, Openreach believe that an appropriate operating efficiency should be in the range of 0.5% to 3.5% over the charge control period, with a mid-point of 2%. This reflects the range from the pairwise analysis from the last 3 years and our PVEO forecasts. Note this assessment does not factor in the potential adverse effects of Brexit on labour market costs or the COVID 19 crisis on efficiency.

9.142 For every 1% point efficiency reduction, the costs in the FTTC rentals basket in the final year are increased by c£45m, therefore reducing the X (i.e. making it less negative) by 1.25%. Therefore, a reduction from the mid-point of the proposed Ofcom efficiency (from 5.0%) to the mid-point of our proposed efficiency (to 2%) would lead to a less negative value of X by 4%.

[272] Note: these plans have not been updated to take account of the COVID 19 crisis

Holding gains

9.143 In the Top Down model, Ofcom attempts to mirror the Current Cost Accounting treatment of appropriate assets in the Regulatory Financial Statements (RFS). The RFS are prepared under the financial capital maintenance (FCM) convention where changes in asset values in the income statement are recognised as unrealised holding gains or losses.

9.144 In accounting terms, if an asset increases in value, the double-entry in the accounts is a debit to the asset value and a credit to the income statement. It is this credit which is known as the holding gain.

9.145 In Ofcom's Top Down model, appropriate assets are inflated in-line with the FCM convention and this is reflected as a holding gain (i.e. a reduction to the operating costs). However, the holding gain is also subtracted from the Net Replacement Cost (NRC). This is an incorrect treatment as the Net Replacement Cost should reflect the asset value. Subtracting the holding gain reverses the NRC increase for that year.

9.146 Correcting for this increases the costs in the FTTC rentals basket in the final year of the charge control period by £12m, reducing the X (i.e. making it less negative) by 0.5%.

PIA RAV error

9.147 In the top-down CPI-X model, Ofcom now separately identifies PIA and PIA RAV components. Ofcom's standard modelling approach applies to all components, including the PIA RAV components. However, Openreach assert that the application to the RAV components results in a significant understatement of FAC.

9.148 The PIA RAV components contain negative adjustments to Mean Capital Employed and Depreciation. This relates to the fact that Ofcom makes adjustments to pre-1997 duct: Duct built up to 31 July 1997 (pre-97) is at HCA but indexed using RPI from 1 April 2005. Duct built after 31 July 1997 (post-97) is at CCA, meaning that RPI is applied from the date of purchase/installation/go live/registration.

9.149 The RAV adjustment only applies to Duct, as it is the only asset that still has capital employed relating to pre-97 installation (since duct has an asset life of 40 years). The size of the RAV adjustment should get smaller over time, reflecting the fact that more of the pre-97 assets become fully depreciated, and hence fall out of the RAV calculation.

9.150 As Ofcom uses 2017/18 as its base year cost inputs, the RAV adjustment in 2017/18 will reflect duct assets that are older than c. 21 years (and hence have 19 years or less remaining asset life). For the final year of the FTMR modelling (2025/26), the RAV adjustment should relate only to duct assets that are older than 29 years at that time (and hence would have 11 years or less remaining asset life).

9.151 Openreach would therefore expect the size of the (negative) RAV adjustments to reduce in size significantly between 2017/18 and 2025/26. However, this does not happen in Ofcom's model.

9.152 For example, Ofcom's model includes a forecast of steady state capex which is not relevant for the RAV adjustment. The results of Ofcom's modelling show the following unexpected trends:

a) OCM depreciation for the RAV adjustment changes from £[✂]m (2017/18) to £[✂]m (2025/26), whereas by 2025/26 we would expect the OCM deprecation to be in the region of -£30m (based on applying 11/19th to the 2017/18 number);

b) NRC for the RAV adjustment changes from £[✂]m (2017/18) to £[✂]m (2025/26), whereas on the same basis as above, we would expect the NRC in 2025/26 to be in the region of £[✂]m; and

c) Ofcom's model shows fully allocated costs for the RAV adjustment remains broadly flat at around £[✂]m over the forecast period, whereas we would expect the above two changes to result in a fully allocated cost in 2025/26 of about £[✂]m (which is £[✂]m plus WACC x £[✂]m).

9.153 Openreach estimate that the total understatement in FAC over the five years of the charge controls is c£150m. We believe Ofcom should review the application of its standard modelling approach to the PIA RAV components, and ensure there is no additional capex (steady state or volume-driven), such that the model will deliver a steady decline in the size of the RAV adjustment that reflects writing off of pre-97 assets over the forecast period.

9.154 Correcting for this increases the costs in the FTTC rentals basket in the final year by £24m, reducing the X (i.e. making it less negative) by 0.75%.

Forecast volumes

9.155 For the WLA market, Ofcom create their own forecasts and cross check them against those provided by multiple communication providers.[273]

9.156 These forecasts show Openreach lines in total decreasing from 25m in 2018/19 to 22.6m in 2025/26. Of these, FTTP lines are expected to increase from 0.3m to 4.4m, and copper lines to decrease from 24.7m to 18.2m.

9.157 We believe that the forecasts for FTTP are significantly too low and also overstate the number of copper lines at the end of the charge control period.

9.158 We believe it is likely that shortly after this response is submitted, we will be discussing in more detail with Ofcom changes to our FTTP fibre rollout ambitions including expansion of its plan in Area 3. We estimate that every 1 million decrease in copper lines on a national basis results in an increase in unit cost of £10.80 per annum, therefore reducing the X (i.e. making it less negative) by 1.25%.

9.159 Openreach also questions whether Ofcom is right to focus on volumes at a specific year (i.e. 2025/26) in setting charge controls, given that volumes are changing significantly year-by-year. For example, if FTTC volumes are expected to be lower in the years just after 2025/26, then the forecast unit costs will not be appropriate in the first year of the next control, implying that either prices are misaligned with costs or that prices will need to be altered significantly to allow cost recovery.

9.160 We would prefer that Ofcom extended indexation of legacy prices into Area 3. Notwithstanding that, in the current situation, we believe Ofcom ought to take a longer run view of copper volumes and have a pricing regime which is consistent with its objectives for investment in new services. This might mean, for example, that Ofcom uses volumes which are approximately consistent with the general position in the mid-2020s, considering the position both before and after the "target year" and not aiming for the best forecast for that single year. This would avoid Ofcom applying scale economies from FTTC in one review and then in the next having to unwind the economies as FTTC volumes decline (which would cause prices to decline in one period, only to increase in the next). We would be interested in discussing this further with Ofcom.

[273] 2020 Promoting investment and competition in fibre networks: WFTMR consultation, Ofcom WFTMR consultation: Annex 16, paragraph A16.53

Adjustments impacting the cost recovery of leased line services

9.161 In addition, we have identified two further concerns with Ofcom's modelling which impact the cost recovery of leased line services, specifically its:

a) Approach to forecasting SLG Ethernet Provision Costs; and

b) Treatment of MEA services and costs.

Approach to forecasting SLG Ethernet Provision costs

9.162 We believe this approach results in a material understatement of SLG Ethernet Provision costs for two reasons:

a) The volume of Optical service connections should be included in the volume driver (this would be consistent with the fact that SLG costs are allocated to Optical services later in the model). Optical services connections volumes increase significantly over the forecast period. We calculate (using Ofcom's model) that the inclusion of Optical services volumes (alongside EAD and EAD LA volumes) would increase the costs in 2025/26 by c. 25%.

b) The connections volumes should be weighted by average rental price (i.e. to calculate a revenue base) in order to get an accurate driver of forecast SLG costs. Whilst Ofcom's approach includes a factor for changing rental prices, this does not account for the change in the connection volume mix by bandwidth over time. In Ofcom's forecasts, lower bandwidth services (10Mb and 100Mb) are declining as a proportion of the total, whereas higher bandwidth (1Gb, 10Gb and optical) comprise an increasing proportion. The higher bandwidth and optical services have higher rental charges, and as rental charges are the driver of SLG payments, these should be reflected in any forecast of SLG costs. We therefore propose that Ofcom's forecast driver for SLG costs should be based on connection volumes (including optical services) weighted by rental price. If this is adopted, we note that it would be necessary to not apply the further adjustment "Effect of changing rental prices" in the SLG cost forecast (row 6 of worksheet FC.Comp.SLGs).

9.163 We estimate that making both of these changes would increase the total costs of the Ethernet SLG Provision components by c. 40% (c. £4m) in 2025/26. We estimate the additional costs over the five years of the charge control is c. £20m. This would therefore reduce any estimate of Openreach's cost over-recovery over the charge control period. This would in turn be reflected in higher unit costs for many Ethernet services, and would also result in an increase in the component costs used for Dark Fibre Access Connections and Inter Exchange Connections.

Treatment of MEA services and costs

9.164 In Ofcom's top-down CPI-X model, certain legacy Ethernet services (WES and BES) are mapped to "Modern Equivalent Asset (MEA)" services. However, there are legacy components in the model that have not been mapped to the "MEA components", meaning that the costs taken into the service and basket calculations are understated.

9.165 The main example of this is component CO450 (Wholesale Extension Services Fibre). In Ofcom's model, this component has a fully allocated cost in 2017/18 of £[✂]m: this was allocated to a range of WES services. Ofcom's modelling approach is to map each of those WES services to an MEA service (EAD services). Therefore, the volumes of the WES services become zero, and the component volumes for CO450 are also therefore zero.

9.166 However, in the component cost calculations, the model still calculates forecast costs for CO450, with total fully allocated costs of £[✂]m in 2025/26 (cell DJ78 of worksheet FC.Comp.Total). The unit costs are calculated to be zero because the volumes are zero. Hence the subsequent calculations of service costs and the basket calculations omit the costs of this component. We estimate that c. £70m of FAC has been omitted over the five years 2021/22 to 2025/26 (based on Ofcom's model).

9.167 Openreach believes the costs of CO450 are valid for inclusion in the calculation of service costs and the basket calculations, as they contain the fibre costs involved in supporting the WES services. We propose that the costs of this component should be mapped to component CW609 (Ethernet Access Direct Fibre) as an MEA component. This would ensure that the cost of the WES component is matched to the volumes of WES services when the latter are mapped to the MEA services.

Implementation of Charge Controls

Area 2

9.168 The basket design here replicates the status quo and we make no further comments on the basket design in Area 2.

Area 3

9.169 Within Area 3, Ofcom are suggesting that FTTC rentals will be regulated in a basket. The legal instrument covers the 40/10, 55/10 and 80/20 bandwidths. We would appreciate confirmation from Ofcom that these are all the bandwidths they intend to regulate, as the text within the consultation document is less clear than the legal instrument condition. However, as charge controlling higher bandwidths would have a read across to FTTP rentals for higher bandwidths, we believe it is correct to exclude these from the basket.

Charge Controls across Area 2 and Area 3

9.170 We support the continuation of long-agreed principles for appropriate charge controls:

a) The use of glidepaths;

b) The use of prior year weightings;

c) The principle of using broad baskets; and

d) The continued use of deficiency and excess provisions that allow carry forward of under or over compliance to the following year.

9.171 Despite broad agreement, we have a number of concerns with the proposals, which we set out below.

FTTP Connections

9.172 We are unclear on Ofcom's intention for charge controlled FTTP connections, as the legal instrument does not seem to match the text within 6.46 and 6.47 of Volume 4 (although Ofcom have confirmed by email from [✂] on 16/3/20 that the legal instrument is correct). We understand that by referring to "connections to premises that are not new to Openreach", Ofcom is referring to restart and migration only. If Ofcom has something different in mind,

we would be grateful if Ofcom could let us know before issuing the final Statement so we have time to consider and respond.

9.173 For example, Condition 12C.6 (f) suggests a connection price in 2021/22 of £100.46 for premises which are new to Openreach in Area 3.

a) We would strongly support the approach that the first time a premises is connected to FTTP (in Area 2 or Area 3) Openreach should be able to charge for a full price connection, as there is a significant cost to connect the premises to FTTP for the first time (in excess of the price proposed).

b) Where we restart a premise which has an existing FTTP line, and which passes testing in advance, we disagree with a £0 charge for a connection, in any market or situation. This scenario should still allow for a recovery towards the costs of delivery of this product. As a system delivered order it would be expected to have a cost stack similar to a product such as bandwidth modify (currently priced at £5.88).

c) Where we restart a premise where the FTTP line has not been used for a period of time and fails testing, we would need to send an engineer to the premise to investigate the line. In this situation, we believe it would be appropriate to recover this cost, and that this should be priced in line with a new connection (£100.46 for 2021/22).

FTTP product regulation

9.174 Ofcom states at volume 4 paragraph 3.62 that once there has been copper retirement they would charge control FTTP 40/10 rentals (rather than FTTC 40/10 rentals and MPF rentals). When it comes to implementation, Ofcom have regulated the FTTP 40/10 Voice and Data product, and FTTP 40/10 Transition Product in Condition 12C.10. (The same point applies for connections). FTTP voice and data rental (referred to by Openreach as Fibre Voice Access, or FVA) is being withdrawn for new connections from 1 April 2020 and is expected to be withdrawn from support before the WFTMR comes into effect. The Transition product withdrawal is also expected to be complete before the WFMTR comes into effect. We would therefore suggest that Ofcom regulate the FTTP 40/10 data product variant, as this will be the only product variant available moving forward.

Cross Market Ancillary Services

9.175 One benefit of the WFTMR is to take a holistic view of regulation. We therefore think this is a good opportunity to streamline the regulation around accommodation services. We would therefore suggest that the accommodation services covered in condition 12B (co-mingling and tie cable baskets) might be covered in condition 12F. This would remove the need for condition 12F to refer to overlapping services. This would also mirror the regulatory reporting that Ofcom has requested, whereby all accommodation services should be reported together, with no distinction between WLA, BCMR or PIMR market use.

Assurance Requirement

9.176 Across all charge controls for the WFMTR Ofcom have included a new request that compliance statements should be accompanied by a statement from an independent third party such as our external auditors of the Regulatory Financial Statements. We do not oppose this but think that Ofcom need to consider details of the implementation.

a) This would be a finding on performance of tests and not an audit opinion.

b) Our external auditors would like to engage Ofcom to agree the scope of the tests.

c) Crucially, this will take time to deliver (at least six weeks for 100% substantive checks) and can only start once Openreach has already concluded its internal checks and governance. Based on this, our external auditors believe a submission deadline of end of August would be more reasonable and realistic and an end of July deadline (alongside the RFS) would be a very challenging deadline. The current compliance submission deadline of the end of June would not be possible in any circumstances.

d) As external auditors are restricted from non-audit advisory work (which this would count as) we would need a statement from Ofcom for the audit and risk board that they require our external auditors to complete this work for it to be approved.

SOGEA prices

9.177 It is unclear whether SOGEA prices are subject to a fair and reasonable charges obligation or a charge control. In some sections of the consultation document, Ofcom's intent seems less clear as Table 5.3 of Volume 3 shows there being a charge control on Copper based VULA 40/10, which would include SOGEA, given the definition of Copper Based VULA at Volume 3, 5.31.

9.178 However, we believe Ofcom's intent in condition 12C of the legal instrument is clear in that the charge control obligation is only on FTTC 40/10 rentals and that SOGEA 40/10 is not included within the charge control. Further, Volume 4, 3.98 which describes price regulation, is clear that SOGEA is under a fair and reasonable charges obligation. We believe that fair and reasonable charges is the correct price regulation as:

a) It is the current regulation and there is no case to change it;

b) in order to encourage migration from legacy charge-controlled products to SOGEA, we need flexibility on the price of SOGEA that a fair and reasonable charges obligation provides; and

c) the costs of SOGEA are less certain as the product has only recently been launched.

9.179 We believe that SOGEA should be under a fair and reasonable charges obligation rather than a charge control, and that this should be at all volumes. We request that Ofcom make the obligation clear in the final statement.

Dark fibre pricing - Access & Inter-exchange

Question 2.4: Do you agree with our proposals to charge control LL access services and dark fibre in Area 3?

9.180 Ofcom propose to introduce a new obligation to introduce and supply an access dark fibre service in Area 3. We refer to this as the Dark Fibre Access (DFA) service. Notwithstanding our view that the imposition of a dark fibre access obligation is not appropriate or proportionate (described in more detail in section 6 above), we discuss in this section Ofcom's proposed approach to the price control of DFA in Area 3, as well as its price proposals for Inter Exchange Connectivity Dark Fibre (IECDF).

9.181 Ofcom set out at Section 2 of Volume 4 of the Consultation that it is proposing to set a cost-based charge control on DFA in the LL Access Area 3 Market. Annex 19 sets out Ofcom's proposed approach to cost modelling to set the maximum charges that will apply for DFA.

9.182 Ofcom propose that DFA prices are set at cost[274] using a CCA FAC cost standard. Ofcom approach the setting of the key connection and rental charges for DFA in two parts.

a) First, using 2017/18 RFS costs, Ofcom estimate the initial 2021/22 price that Ofcom consider to be appropriate for connections and rentals, using the reported costs for the EAD Local Access 1Gbit/s[275] service as its base.

b) Second, Ofcom forecast these costs to 2025/26 to determine a CPI-X control to apply to the starting charges Ofcom estimated in the first step.[276]

c) It uses inputs from its CPI-X model (this model is the same as the one used to also calculate Xs for FTTC in Area 3) to feed its separate Dark Fibre (DF) model where it calculates the start price and glide for DFA and IECDF.

9.183 Some key concerns we have with Ofcom's cost modelling for DFA relate to Ofcom's modelling approach in both its CPI-X model and its DF model. We have similar concerns in this respect in relation to Ofcom's cost modelling for IECDF.

9.184 Further, and for DFA cost modelling, we also have two other key concerns; that Ofcom has not used the correct geographic costs basis when setting prices; and that Ofcom has omitted significant costs that arise from migration of active services to Dark Fibre.

9.185 Table 9.7 below summarises our comments with regard to these issues:

Table 9.7: Summary of Openreach comments

Category	Issue	Comment
CPI-X modelling	Efficiency	The evidence suggests Ofcom should use an opex efficiency of between 0.5% and 3.5% instead of between 4% and 7%.

[274] Ofcom WFTMR consultation Volume 4, paragraph 2.84, WFTMR
[275] Ofcom WFTMR consultation Annex 19, paragraph A19.20 WFTMR
[276] Ofcom WFTMR consultation Annex 19, paragraph A19.20 and A19.21

Category	Issue	Comment
	Holding Gain / loss	Ofcom should remove double counted holding gains.
	PIA Regulatory Asset Value	Ofcom should reduce the costs removed, its approach is flawed.
	WES component MEA	Legacy components were omitted when performing the MEA adjustment resulting in understated costs.
	SLG driver for Optical Services	Optical services SLGs should be included in Ofcom's forecast.
	WACC @ 7.9%	A 7.9% WACC is more appropriate than 7.1% for DF.
DF modelling values	Correct cost per local end	Ofcom should not use EAD LA reported unit costs as a proxy for the costs per local end, it should use the average costs.
	System Development	Ofcom's forecast does not reflect the expected costs for DF and is therefore too low.
	Sales & product management	Ofcom's forecast does not reflect the expected costs for DF and is therefore too low.
DFA modelling: omitted costs	Additional Migration costs	Ofcom has omitted any migration costs. It should include migration costs.
	Stranded electronics costs	Ofcom has omitted any stranded costs. It should include stranded costs.
DFA modelling: Geographic basis for cost analysis	Exclude CLA	Ofcom should not include costs for CLA as BT does not have SMP in leased lines services in the CLA.
	Use Area 3 disaggregated costs	Ofcom should use Area 3 costs rather than national costs as the basis of its costings (and price) for DFA in Area 3.

Source: Openreach analysis of Ofcom's cost modelling

9.186 Openreach considers Ofcom's proposals need to be adjusted in line with the reasonable adjustments we propose, and which we describe in more detail below, in order that Openreach can recover its efficiently incurred costs for DFA in Area 3 and IECDF. This would result in higher start charges for DF services and smaller absolute Xs as laid out in the following two tables.

Table 9.8 – Openreach proposed start charges

Start Charges (£)	Local Access Connection	Local Access Rental	Inter-exchange Connection	Inter-exchange Rental	Inter-exchange per Km
Ofcom proposed start charges	**1419.00**	**701.00**	**322.00**	**20.00**	**0.15**
Plus adjustments					
CPI-X modelling	0.42	81.42	0.35	0.29	0.01
DF modelling	9.33	163.60	9.53	14.54	0.00
DFA modelling: omitted costs	0.00	0.00	0.00	0.00	0.00
DFA modelling: Geo costs	95.74	138.31	0.34	0.01	0.00
Openreach proposed start charges	**1524.49**	**1084.33**	**332.22**	**34.84**	**0.16**

Source: Openreach analysis of Ofcom's cost modelling

Table 9.9 – Openreach proposed values of X

Value of X	Local Access Connection	Local Access Rentals	Inter-exchange Connections	Inter-exchange Rentals	Inter-exchange per Km
Ofcom proposed X	**-2.50%**	**-7.00%**	**-7.40%**	**-5.80%**	**-4.20%**
Plus adjustments					
CPI-X modelling	6.06%	1.83%	6.06%	1.12%	0.49%
DF modelling	-0.04%	0.04%	-0.05%	1.02%	0.01%
DFA modelling: omitted costs	0.00%	3.71%	0.00%	0.00%	0.00%
DFA modelling: Geo costs	0.19%	-0.06%	0.00%	0.00%	0.00%
Openreach proposed X	**3.71%**	**-1.48%**	**-1.39%**	**-3.66%**	**-3.70%**

Source: Openreach analysis of Ofcom's cost modelling

9.187 In addition to the above, we have two further concerns regarding the prices of patch panels and testing:

a) The costs Ofcom estimates for the chassis are not up to date and do not reflect the variety of patch panels offered; and

b) The labour costs Ofcom use to price patch panels are based on task times that were developed originally for a national dark fibre access remedy as set out in the 2016 BCMR. The current remedy is not the same, and this results in Ofcom significantly understating these costs.

9.188 Finally, we also highlight a concern that DFA services that migrate from active services will not contribute to the recovery of Non-Domestic Rates (NDR) costs. We estimate that, as a result, an extra c£10m of Non-Domestic Rates (NDR) costs will need to be recovered from the reduced active services circuit base over the charge control period.

9.189 Below we deal with the proposed connections and rental start charges first, the proposed Xs second and finally patch panels and testing prices and non-domestic rates costs.

Dark Fibre Start Charges

9.190 We consider that the proposed start charges for DFA (and IECDF) are too low to ensure cost recovery of Openreach's efficiently incurred costs. In particular:

a) Ofcom uses nationally averaged costs (the unit costs of Area 3, Area 2, HNR areas and CLA combined) to estimate the cost of DFA connections. DFA is a regulated Area 3 remedy only. On that basis:

(i) Openreach does not consider the costs and volumes from the CLA (a non SMP market) should feature at all in estimating the start price for DFA in Area 3; and

(ii) Ofcom should more properly use an Area 3 specific unit cost of supplying DFA rather than a national average unit cost estimate to set the price of DFA. This would avoid customers in the economically separate Area 2, HNR and CLA cross-subsidising customers in Area 3.

Adopting the above would result in a significant increase in the proposed start price to ensure that Openreach recovers its costs of supplying DFA in Area 3.

b) Unit EAD 1Gbit/s Local Access costs are not a good proxy for the cost of an access segment of DFA. Ofcom should consider the cost of an average access segment which includes all Ethernet product variants.

c) In Ofcom's top-down CPI-X model, it aims to map certain legacy Ethernet services (WES and BES) to "Modern Equivalent Asset (MEA)" services. However, there are legacy components in the model that have not been mapped to "MEA components", meaning that the costs taken into the service and basket calculations are understated.

d) The Openreach copper WACC (7.1%) is inappropriate for DFA and IECDF. The Other UK Telecoms WACC (7.9%) should be used instead.

e) We have two concerns regarding Ofcom's modelling treatment of specific Dark Fibre components which result in understated costs and start prices that are too low for DFA and IECDF:

(i) Ofcom assumes that the unit cost of Dark Fibre systems development costs will be [✂]% of the unit cost of active services. We do not agree. The systems development costs for Dark Fibre are likely to be at least the same as for active services; and

(ii) Ofcom have inappropriately applied a scaling factor to the unit costs of shared Openreach Sales and Product Management component which understate the costs of dark fibre start charges.

9.191 Openreach has analysed the above adjustments and the impact on the start charge is summarised in Table 9.10 below.

Table 9.10 – Openreach proposed changes to Ofcom proposed start charges

Start Charges (£)		Local Access Connection	Local Access Rental	Inter-exchange Connection	Inter-exchange Rental	Inter-exchange per Km
Ofcom proposed start charges		1419.00	701.00	322.00	20.00	0.15
CPI-X modelling	WES component MEA	0.00	58.23	0.00	0.00	0.00
	WACC 7.9%	0.42	23.19	0.35	0.29	0.01
DF modelling	Correct cost per local end	0.00	151.00	0.00	0.00	0.00
	System Development	4.97	4.97	4.97	4.97	0.00
	Sales & product mngt	4.36	7.63	4.56	9.57	0.00
DFA modelling: Geo costs	Area 3 geographic costs	95.74	138.31	0.34	0.01	0.00
Openreach proposed start charge		**1524.49**	**1084.33**	**332.22**	**34.84**	**0.16**

Source: Openreach analysis of Ofcom's cost modelling

A national unit cost is not an appropriate basis for estimating the cost of DFA in Area 3

9.192 At volume 3, paragraph 6.29 Ofcom states that it has considered whether the dark fibre remedy would result in an under-recovery of costs for Openreach and considers this risk is low.

9.193 Whilst it is not explicit in the Consultation document, we understand from reviewing Ofcom's modelling and from subsequent discussions[277] with Ofcom that Ofcom bases its cost modelling (both the assessment of the starting charges and the forecast costs of DFA) on Openreach's 2017/18 costs (restated in the 2018/19 RFS) for its EAD LA 1Gbit/s service averaged across the CISBO, Rest of UK, Combined Geographic Markets and Residual (CLA) markets combined.[278] In other words, Ofcom's cost modelling bases its costs estimates of supplying dark fibre on the costs of supplying Ethernet services not just in the LL Access Area 3 Market, but rather the costs of supplying Ethernet in all markets.

9.194 We are concerned that such an approach is inappropriate from an economic and policy perspective and, further, is inconsistent with the legal framework that Ofcom must apply when conducting a market review and more broadly with its legal duties. We set out below; why a national unit cost is not an appropriate basis for estimating the cost of DFA in Area 3; why this matters from an economic and policy perspective; and why we are concerned this is incompatible with Ofcom's legal duties.

[277] Meeting between Ofcom and Openreach on dark fibre pricing, on 27 February 2020.
[278] Ofcom WFTMR consultation Annex 19, paragraph A19.20

CLA costs and volumes should not be included in the DFA cost assessment

9.195 Ofcom has identified the CLA as a market in which no operator is in a position of significant market power, i.e. the market is effectively competitive. Openreach's behaviour in this market is constrained by the competitive conditions of that market.

9.196 It is wholly unreasonable and disproportionate for Ofcom to (i) base any assessment of costs of supply of dark fibre in Area 3 on the costs of supply in a market with such different competitive characteristics that Ofcom has decided it is effectively competitive; and (ii) justify any under-recovery of costs that may arise in SMP markets, by reference to revenues and profits which Openreach makes in a market which Ofcom has identified as effectively competitive (essentially putting it at a disadvantage in that effectively competitive market compared to other market participants).

9.197 On the basis of the above, Ofcom should exclude the CLA costs and volumes from any assessment of DFA unit costs and overall cost recovery.

The basis of Ofcom's market assessment relies on a geographic disaggregation of unit costs of supply

9.198 Ofcom's key justification for proposing a cost-based DFA remedy in Area 3 is that "*BT has the incentive and ability to fix and maintain dark fibre prices in Area 3 at an excessively high level*"[279]; the possibility of excessive pricing is Ofcom's primary focus for proposing a cost-based charge control for DFA in Area 3. Ofcom then goes on to explain, in relation to what it means by a cost-based charge control, that it is "*a charge control that is set with reference to the underlying costs of providing the access circuit.*"[280] In summary, Ofcom considers that a price set for each DFA access circuit that reflects the underlying costs of providing that access circuit is appropriate to ensure prices are not excessive.

9.199 Ofcom explains that "… *leased lines only networks are targeting business users….. they are typically built with the intention of passing sufficiently close to the main business sites in an area (e.g. industrial parks, business districts, mobile masts, etc.) so as to be able to provide connections to business premises in future on demand*".[281]

9.200 In setting the boundary for each of the CLA area, HNR areas, Area 2 and Area 3, Ofcom conduct network reach analysis and conclude that competitive conditions in each of the CLA, HNR areas, Area 2 and Area 3 are sufficiently different in each of these geographic areas to define a separate geographic market in each. The key distinguishing factor in competitive conditions is the number of network operators that can serve business sites in each postcode sector. In its consultation on geographic markets, Ofcom recognise that the viability of build depends critically on-premise density.[282] Leased lines only network builders make their investment decisions based on the difference in cost per premise passed in different geographic areas. Where there is a higher density of business sites, and therefore a lower unit cost of supplying each site, firms are more likely to build leased lines only networks in proximity to the business sites.

9.201 Ofcom proposes that Area 3 is "*a geographic market comprising postcode sectors where there is unlikely to be material commercial deployment by rival networks to BT*"[283]. In essence, it follows from Ofcom's analysis of

[279] Ofcom WFTMR consultation Volume 3, paragraph - 6.69
[280] Ofcom WFTMR consultation Volume 3, paragraph - 6.71
[281] Ofcom WFTMR consultation Volume 2, paragraph – 7.67
[282] It assesses the potential future rollout in a postcode sector by reference to a number of factors including premises density and clustering. Ofcom (2019), "Promoting investment and competition in fibre networks - Approach to geographic markets", 11 December 2018, paragraph 4.19
[283] Ofcom WFTMR consultation Volume 2, paragraph- 7.7(b)(ii)

network reach that the underlying rationale as to why it is not commercially viable to deploy networks in Area 3, but it is commercially viable to deploy networks in, say, the CLA, is because the investor can benefit from significantly better economies of scale compared to Area 3.

9.202 On the basis of the above, the higher unit costs of supply in less dense areas (e.g. Area 3) is fundamental to how Ofcom justifies the market boundaries, its assessment of market power and the appropriateness of its proposed remedies in each market. On that basis, one would expect that this key factor would be reflected not only in its overall assessment of the market and general remedies but, to ensure consistency, it would also be reflected in how it defines specific remedies that are related to those market power and remedies assessments.

9.203 In the case of DFA pricing, Ofcom diverges from the approach they have taken to define the different markets, assess SMP and propose remedies by setting the price of DFA, which is specific to Area 3, on the basis of national costs that do not reflect the cost of supply in Area 3. Ofcom do not justify this divergent approach in any way, nor does Ofcom explain why basing the DFA price on national unit supply costs is more appropriate to meet its objectives.

RFS evidence that costs are different by geography

9.204 Ofcom sets the price of DFA based on its assessment of the unit costs of the access segment of Leased Lines.

9.205 In 2017/18 BT was required to report costs separately in the RFS for leased Lines. These were split into three parts; Rest of UK (broadly equivalent to Area 2 and Area 3 combined, as defined in the consultation), Combined Geography (broadly equivalent to HNR areas as defined in the consultation) and Openreach residual (broadly equivalent to the CLA as defined in the consultation).

9.206 Ofcom relied on these reported cost bases to set charges for Leased Lines historically. We have estimated the difference it would make to the access segment unit cost if Ofcom used:

a) National reported costs excluding CLA: On that basis the unit rental cost of providing the access segment is [✂]% higher than the national average Ofcom use.

b) National reported costs excluding CLA and HNR (i.e. average based on Rest of UK reported costs): On that basis the unit rental cost of providing the access segment for Area 2 and Area 3 combined is [✂]%[284] higher than the national average unit cost Ofcom use.

9.207 Clearly this illustrates that costs for the access segment of Leased Lines do vary by geography and that these geographic variations are substantial.

Openreach supplied Ofcom with Area 3-specific cost information

9.208 Openreach supplied an estimate of the costs of providing access segments in Area 2 and Area 3 in the run up to publication of the consultation.

9.209 Our approach to estimating the Area 3 costs of leased lines, including the fibre access segments which account for a large proportion of the DFA costs, is described below:

a) The starting point for our cost analysis is the national 2017/18 restated RFS data. At an overall level:

[284] Including both CLA and HNR results in a unit cost that is [✂]% higher than if CLA only was excluded.

(i) Total leased lines costs reconcile to the RFS;

(ii) Total volumes reconcile to the RFS;

(iii) Cost attribution levels are as per the RFS.

b) Capital costs were then mapped to exchange areas;

(i) For each physical asset registered in the Fixed Asset Register we were able to identify its location by exchange area, based on its locational marker. Therefore, capital costs for e.g. each fibre cable installed in each exchange area were identified by exchange.

(ii) These physical assets costs map to RFS components.

c) These exchange areas are aligned to Area 2 or Area 3, as provisionally defined by Ofcom in its Remedies consultation[285] and based on Ofcom's definition of postcodes mapped to our exchange areas.

d) We then apportioned these costs to Area 2 and Area 3 on an RFS component basis, i.e. we arrived at an RFS component split by Area 2 and Area 3 exchanges.

e) The resulting geographic RFS component costs were then attributed to services based on RFS usage factors and service volumes (the same basis as Ofcom's cost inputs to their model).

f) For costs which do not have an obvious geographic element to them (e.g. a geographic driver is hard to define for capitalised software or overheads), we did not apply any geographic variation to the component costs.

9.210 In this approach, we made assumptions as to the location of assets and the cost booked in our financial systems for these assets. The fixed asset register contains this information from the time the assets were registered. Further, the vast majority of postcodes reside within the boundaries defined by BT's exchange areas, so the mapping of postcodes to exchange area is aligned with Ofcom's Area 3 boundaries.

9.211 Moreover, it should be noted that the main cost component of a DFA circuit is "Ethernet Access Direct Fibre", which makes up [✂]% of the cost of a DFA circuit (based on Ofcom's analysis of 2017/18 costs). This is made up of the following cost elements:

a) Ethernet Fibre asset costs. This makes up [✂]% of the component's costs. Our approach used cost and geographic details for these Ethernet fibres installed in each exchange area, as recorded in the Fixed Asset Register, to calculate the cost differential.

b) Overheads. These make up [✂]% of the component's costs, and we have not differentiated the unit cost for those circuits in Area 2 and Area 3.

9.212 For these reasons we consider our approach to geographic costing to be robust for the purpose of estimating Area 3 costs for leased lines and the access segment of leased lines in particular. Openreach considers that this methodology should be used to estimate the underlying costs of providing the access segment in Area 3 as it is superior to the approach used by Ofcom in the consultation. On that basis the unit rental cost of providing the access segment in Area 3 is [✂]% higher than Ofcom estimate.

[285] Ofcom WFTMR consultation Volume 2, paragraph- 7.7(b)(ii)

9.213 The very large differences in costs between Area 3 and the national average demonstrate that a DFA price estimated by using a national averaging approach is an inappropriate proxy for, "*a charge control that is set with reference to the underlying costs of providing the access circuit*"[286] in Area 3. As explained further below, a price set with reference to average national unit costs and at the level proposed by Ofcom would not allow Openreach to recover its efficiently incurred costs.

Economic and policy considerations

9.214 Assessing the costs of DFA in Area 3 is also vital for undistorted competition between this new service and Openreach's active services (EAD and OSA Filter connect), and for competition between suppliers using these different options.

9.215 In Annex 13 of the WFTMR consultation, Ofcom set out what they consider to be the benefits of DFA, which are essentially that consumers might benefit from lower costs and from more innovation and service differentiation.

9.216 For cost savings to represent genuine gains in economic efficiency, the lower costs should not arise from an under-estimation of costs. There is no gain in economic efficiency when regulated prices fail to cover service costs, but a transfer from one group of customers to another (those using DFA).

9.217 Further, if there are genuine gains from innovation from DFA, then these should provide a basis for effective competition without there needing to be, in effect, a subsidy for DFA. To the extent that Ofcom is confident there will be valuable service differentiation and scope for innovation, there is no case to provide a further stimulus to demand for DFA by way of a subsidy, as the suggested innovation and differentiation ought to be of sufficient value to customers.

9.218 Not only should that inconsistency be addressed by Ofcom, moreover, in Annex 13, Ofcom also set out why they consider that DFA does not undermine cost recovery. However, this explanation is predicated on prices for DFA being cost-reflective in the first place which, as we explain above, is not the case. Not only will there be no gains to efficiency, but adverse consequences will follow.

9.219 With DFA being priced below cost in Area 3, it will lead to an excessive level of migration away from current services, which will have serious adverse economic consequences for Openreach. In particular, we believe that Openreach will be exposed to significant levels of cost under-recovery which are not just restricted to the service itself. Our analysis suggests, allowing for a reasonable level of migration to DFA, Openreach will suffer at least a c£[≫]m under recovery of FAC (on revenues of c£[≫]m) across the combined Leased Lines and DFA basket at proposed prices. [287] This is because our EAD services that are set at cost reflective prices we will not be able to compete with below-cost DFA prices with EAD services that are set at cost reflective prices, which means our assets will be economically stranded (itself representing an inefficiency). It is not relevant that charge controls offer Openreach pricing flexibility to make good these losses, as Ofcom suggest[288] if the marketplace will not accept the required price levels and we cannot therefore attract sufficient business. Nor is Openreach temporarily protected from significant migration away from existing services by multi-year contracts, [≫].

9.220 This level of adverse impact is unjustified, because the proposed prices do not provide Openreach with a fair opportunity to recover its efficient levels of costs in complying with this new remedy.

[286] Ofcom WFTMR consultation Volume 3, paragraph 6.71
[287] Note: the shortfall was estimated after making allowance for other cost modelling concerns raised in this response.
[288] Ofcom WFTMR consultation Annex 13, paragraph A13.46

Ofcom's legal duties

9.221 Under the Framework Directive, the Access Directive and the Act, and as set out by Ofcom in Annex 5, the regulatory framework requires Ofcom to define markets and conduct a market analyses of identified markets to assess whether any operator in that market has significant market power such that Ofcom should make a market power determination. Where it identifies that an operator does have significant market power and makes a market power determination, Ofcom must then impose appropriate obligations to address concerns arising out of that market power.

9.222 At paragraph A5.39, Ofcom sets out that "[w]hen imposing a specific obligation, the NRA will need to demonstrate that the obligation in question is based on the nature of the problem identified, proportionate and justified in light of the policy objectives as set out in Article 8 of the Framework Directive"[289]. At footnote 22 Ofcom notes that the equivalent requirement in Article 68 of the EECC is that the obligation imposed is based on the nature of the problem identified and proportionate.

9.223 Ofcom has, pursuant to the market review framework summarised in Annex 5, identified the LL Area 3 market as an economically separate market to other markets defined by Ofcom, i.e. Ofcom has identified the prevailing conditions of competition are significantly different in Area 2, the HNR areas and the CLA to warrant identifying each as a distinct economic market.[290] Ofcom has proposed to introduce the DFA remedy in Area 3 only. Unlike other specific access remedies in the LL markets, this is not a remedy that is imposed in each and every market in which Ofcom propose to determine that BT has SMP. However, as set out above, Openreach understands that the price that Ofcom is proposing to set for DFA in Area 3, is based on a cost proxy which uses a national assessment of costs as opposed to an assessment of the costs of supply in the market in which Ofcom is proposing to impose the obligation. In fact, as set out above, the price which Ofcom is proposing is significantly below the FAC costs of supply of a DFA access circuit in Area 3.

9.224 This approach is inconsistent with the market review process required by the regulatory framework in that it goes beyond addressing the competition concern identified by Ofcom on the specific market. When proposing the DFA charge control measures Ofcom has identified as its competition concern that Openreach may have "the incentive and ability to fix and maintain dark fibre prices in Area 3 at an excessively high level". Ofcom has not set out why it is necessary or proportionate to set a price for DFA below the costs of supply in that market and such a control goes far beyond what is required to protect customers and consumers from excessive pricing and cannot be proportionate.

9.225 Finally, we are concerned at the lack of transparency in Ofcom's consultation as to the approach that it has taken to assessing costs to determine the proposed price for DFA.

Unit EAD 1G/bits Local access costs are not a good proxy for the cost of an access segment.

9.226 Ofcom uses the unit RFS cost of an EAD 1G/bits Local Access circuit as a proxy for the unit cost of an access segment. In the RFS, one unit of fibre costs are attributed to Local Access services and two units of fibre costs are attributed to Standard services.

[289] These policy objectives include (a) ensuring that there is no distortion or restriction of competition in the electronic communications sector and (b) encouraging efficient investment in infrastructure and promoting innovation.
[290] As noted above, this identification of different markets is in part due to Ofcom's recognition of the difference in costs to supply in each of the markets.

9.227 EAD standard circuits do not use two units of fibre costs on average. That is because EAD standard circuits are provided in a number of configurations as per the table below:

Table 9.11: EAD standard use scenarios

EAD standard use case configurations	Module/ components
A) Customer site to an exchange other than the local serving exchange	**1 x access segment** 1 x Inter-Exchange segment
B) Exchange to Exchange including inter-exchange connectivity and no customer ends	**No access segment** 1 x Inter-Exchange segment
C) Customer site to another customer site connected by routing through the local serving exchange	**2 x access segment** No Inter-Exchange segment
D) Customer site to another customer site connected by two different exchanges including inter-exchange connectivity	**2 x access segment** 1 x Inter-Exchange segment

Source: Openreach assessment of EAD Product Description

9.228 The implication is that the actual usage for EAD standard services will be less than 2 and much closer to 1. Ofcom has not accounted for this in their cost modelling.

9.229 As an alternative to using EAD Local Access as a proxy for the actual unit cost of an access segment we propose that Ofcom instead use actual data. It is relatively easy to accurately calculate the number of access segments associated with the access fibre costs in the RFS. A superior and more accurate way to then calculate the average cost would be to divide the total costs for access fibre by the total number of access segments.

9.230 We have calculated the impact of this on Ofcom's proxy for the unit cost of access fibre. The result of calculating an accurate value is a 19% increase in the cost.

MEA costs are understated

9.231 In Ofcom's top-down CPI-X model, Ofcom aim to map certain legacy Ethernet services (WES and BES) to "Modern Equivalent Asset (MEA)" services. However, there are legacy components in the model that have not been mapped to "MEA components", meaning that the costs taken into the service and basket calculations are understated.

9.232 The main example of this is component CO450 (Wholesale Extension Services Fibre). In Ofcom's model, this component has a fully allocated cost in 2017/18 of £[✂]m: this was allocated to a range of WES services. Ofcom's modelling approach is to map each of those WES services to an MEA service (EAD services). Therefore, the volumes of the WES services become zero, and the component volumes for CO450 are also therefore zero.

9.233 However, in the component cost calculations, the model still calculates forecast costs for CO450, with total fully allocated costs of £[✂]m in 2025/26 (cell DJ78 of worksheet FC.Comp.Total). The unit costs are calculated to be zero because the volumes are zero. Hence the subsequent calculations of service costs and the basket calculations omit the costs of this component. We estimate that c. £70m of FAC has been omitted over the five years 2021/22 to 2025/26 (based on Ofcom's model).

9.234 Openreach believes the costs of CO450 are valid for inclusion in the calculation of service costs and the basket calculations, as they contain the fibre costs involved in supporting the WES services. We propose that the costs of

this component should be mapped to component CW609 (Ethernet Access Direct Fibre) as an MEA component. This would ensure that the cost of the WES component is matched to the volumes of WES services when the latter are mapped to the MEA services.

The Openreach WACC is inappropriate for Dark Fibre services

9.235 BT has responded to Ofcom's proposals regarding the most appropriate level of WACC for regulated services. Two issues particularly impact Openreach, the use of the "Openreach WACC" for FTTC and for DFA. Full reasoning on these issues is set out in BT's response to the consultation, in their annex on WACC. We urge Ofcom to give the response on these matters full consideration, and only use the "utility WACC" where demand is established and where there is clear evidence that systematic risk is low.

9.236 The Openreach WACC was introduced as a return on Openreach's low risk copper assets, but Ofcom is extending this to recent and new fibre investments which we do not consider is justified. As BT explain, FTTC does have more systematic risk than the older copper services, and this distinction should continue to be recognised in setting the regulatory rate of return. We do question why, when Ofcom is proposing to incentivise investment, it also proposes to make changes which lower returns when the basis for doing so is at best speculative. In our view, such a change sends out a very worrying message to investors generally – that investment in successful services will sooner or later be regulated at the "utility WACC" and, given what Ofcom imposes on Openreach affects returns across all of the market, that their long term upsides are therefore limited.

9.237 An inappropriate use of the "utility WACC" to fibre services also applies to DFA where Ofcom offers no evidence to back up its reasoning. For example, Ofcom states that, "*we anticipate that there is a reasonable likelihood that dark fibre access will be often used to support mobile backhaul (and hence supporting multiple mobile services), we anticipate that dark fibre circuits are likely to face relatively inelastic demand, at least relative to active leased lines.*"[291] That DFA "will often" be used by mobile operators is not sufficient justification. We anticipate that the vast majority of purchases of DFA, perhaps 80% or more, will be in substitution for leased lines used by business customers. In addition, the proposal if implemented would mean that close substitutes (DFA and leased lines) will be controlled at different WACCs, with the obvious consequence being that the service with the lower return (DFA) will tend to be preferred and will over time pull down the return on the other, competing service (leased lines).

Openreach Systems development Ethernet-specific

9.238 Ofcom analysed Openreach systems spend between 2015/16 and 2017/18 and have calculated [✂]% of Openreach Systems and Development costs specifically relate to active services in that period. Ofcom consider the remainder of these component costs will either be Dark Fibre specific or shared across Dark Fibre and active services.

9.239 Ofcom therefore applies a scaling factor of [✂]% to the unit costs of EAD LA 1Gbit/s service in order to estimate the unit costs of Openreach Systems development for DFA.

9.240 We do not consider that [✂]% is an appropriate scaling factor as it is based on an analysis of historic development costs i.e. it is not forward looking. We anticipate we will incur significant additional systems spend to launch and operate DFA during the charge control period. On that basis we consider any estimate of systems development

[291] Ofcom WFTMR consultation Annex 21, paragraph A21.65

cost would need to reflect not just the proportion of historic costs that might be related to DFA but also the expected increase in development costs required for DFA. DFA launch is some time away and we do not currently have a robust estimate of incremental development expenditure.

9.241 On the basis of the above, and in the absence of a robust estimate, we propose that Ofcom assume the development costs for DFA and EAD are the same. Alternatively, once a robust estimate is available, the incremental cost should be added to the proportion of historic cost which is relevant to DFA i.e. the [≫]%.

Sales and product management

9.242 In BT's RFS, Openreach Sales and Product Management costs are attributed to connection, rental and main link services based on a survey of staff in the Openreach Sales and Product Management team. This survey splits each team member's full-time equivalent (FTE) hours between Ethernet services and various other services (e.g. LLU MPF, LLU SMPF, PSTN).

9.243 In the BCMR 2019, Ofcom assumed a split of Openreach Sales and Product Management costs between active Ethernet services and Dark Fibre services using Openreach assumptions relating to the likely split of time between Ethernet and Dark Fibre services in a world where the latter were introduced.

9.244 Ofcom proposed to maintain the same approach for this consultation and therefore applies a scaling factor of 19% to the unit cost of EAD LA 1Gbit/s proxy service in order to calculate the unit costs of Local Access Dark Fibre.

9.245 We have reviewed this information and it was prepared by the managers of each functional area who estimated the people required to support Dark Fibre, relative to Ethernet in total. i.e. the 19% scaling factor Ofcom use is based on absolute terms, as opposed to on a unit basis. We believe this is an unintentional error on Ofcom's part.

9.246 This scaling factor therefore does not consider the relative volumes of Ethernet and Dark Fibre, and therefore does not contain any view of unit costs of Dark Fibre relative to Ethernet. Openreach therefore believes it is not appropriate to apply this scaling factor to unit costs in the way that Ofcom has in its modelling.

9.247 We suggest a more appropriate scaling factor is to consider the relative sales and product management cost to support Dark Fibre and compare this with the relative Dark Fibre circuits.

9.248 At the price Ofcom proposes in its consultation, we estimate 65,000 Dark Fibre circuits will either migrate or be a substitute for current 250,000 active Ethernet circuits. i.e. 65/250 = 26%

9.249 Therefore, the relative cost to support dark fibre over the relative dark fibre circuits to be applied as a more appropriate scaling factor is 19%/26% = 73%

The proposed DFA glides and value of X

9.250 We consider that the proposed value of X for rentals and connections for DFA (and IECDF) are too low to ensure cost recovery of Openreach's efficiently incurred costs. In particular:

9.251 The issues and concerns described above in relation to start charges also have an effect on the proposed values of X for DFA and IECDF services i.e. understated WES component MEA adjustment; inappropriate use of the copper WACC (7.1%) for DF services; the inappropriate use of LA costs per local end for DFA costing; the inappropriate use of nationally averaged costs to calculate the DFA Area 3 cost; and the understated level of Systems

Development and Sales & Product Management costs. Our comments above relating to these factors also apply to Ofcom's calculation of the values of X.

9.252 Our key additional concerns in relation to Ofcom's DFA cost modelling, and the resulting values of X, are the omission by Ofcom of incremental migration costs and stranded asset equipment costs from its DFA cost model. This results in a significant understatement of costs and Openreach considers that Ofcom should include costs to reflect the impact of both of these factors in its proposed values of X.

9.253 We also have a number of additional concerns about the impact of other assumptions underpinning Ofcom's CPI-X modelling and their impact on the proposed value of X for DFA and IECDF. In particular, we consider Ofcom uses an inappropriately high efficiency parameter. Further, we also lay out how Ofcom's approach to the treatment of holding gains / losses and its estimation of the PIA Regulatory Asset Value understates DFA and IECDF costs. Finally, we consider that its approach to estimating SLG costs inappropriately omits Optical Services and thereby also understate DFA and IECDF costs.

9.254 Openreach has analysed the adjustments outlined above and the impact on the proposed values of X are summarised in the table below.

Table 9.12: Openreach proposed values of Xs

Value of X		Local Access Connections	Local Access Rentals	Inter-exchange Connections	Inter-exchange Rentals	Inter-exchange per KM
Ofcom proposed Value of X		**-2.50%**	**-7.00%**	**-7.40%**	**-5.80%**	**-4.20%**
Various	Openreach proposed adjustments (described in relation to start charges section of our response)	0.15%	-0.27%	-0.06%	1.00%	-0.16%
CPI-X model	Holding Gain / loss	0.00%	0.05%	0.00%	0.00%	0.26%
	PIA Regulatory Asset Value	0.00%	0.32%	0.00%	0.00%	0.00%
	SLG driver for Optical Services	0.82%	0.00%	3.42%	0.00%	0.00%
	Efficiency	5.24%	1.71%	2.65%	1.14%	0.40%
DFA modelling: Omitted costs	Additional Migration costs	0.00%	0.95%	0.00%	0.00%	0.00%
	Stranded electronics - direct assets	0.00%	2.29%	0.00%	0.00%	0.00%
	Stranded electronics - indirects	0.00%	0.47%	0.00%	0.00%	0.00%
Openreach proposed Value of X		**3.71%**	**-1.48%**	**-1.39%**	**-3.66%**	**-3.70%**

Source: Openreach analysis of Ofcom's cost modelling

The glide path for DFA rentals

9.255 Ofcom has estimated a separate X for the rate of reductions in connections and rentals which it considers will allow Openreach to recover its costs in supplying DFA. Ofcom has proposed a CPI-2.5% for Connections and CPI-7% on Rentals.

9.256 We strongly disagree that such a level of price reductions can be consistent with cost recovery. We have already laid out above that we consider the start rental charges for DFA should be £1,084. Based on a starting charge of £1,084, the X on DFA rentals ought to be no more than -1.5%.

9.257 We note that, were Ofcom to conclude that the starting charge is lower than we propose, which we do not believe ought to be the case, it will need to reflect the fact that there will be more and faster migration from active services to Dark Fibre services during the charge control period than we have assumed (a lower price will increase migrations). The effect of this will be to increase incurred costs over the period (both from more provide and cease activity and from an increase in the level of unrecovered electronics costs caused by the DFA lower price, both of which are described below). For example, were Ofcom to conclude the start rental charge should be £850, we estimate the X should be no more than +0.5% rather than -1.5%.

9.258 We note that with a much smaller X there will be a clearer alignment between the price control for the DFA rental with that of active business services (for which Ofcom has proposed a CPI-0% control). This will mean that the price of DFA relative to active services will be more stable over the market review period and hence the absolute size of the value-added component of an active service, which is contestable, would also be generally stable. This is in contrast to Ofcom's proposals which would see a widening gap between the DFA rental (decreasing 30% in real terms over the five years) and that for active services, for which there is no rationale.

Unrecovered electronics costs brought about by DFA

9.259 A very significant consequence of Ofcom's proposal to require DFA is that Openreach will lose a large volume of its active services, and these losses to the new DFA product will occur before Openreach has recovered the capital costs it has incurred in providing those active services. The charge control should not preclude recovery of these costs, which relate to the electronics equipment required to provide active services and which have no re-use value.

9.260 This issue is in principle exactly the same as that recognised by Ofcom as impacting copper access services when these are replaced before the end of their economic life. However, despite the comparability, Ofcom makes no recognition of this effect as it specifically relates to dark fibre. We have therefore made an estimate of the size of this effect based on what we consider to be a realistic view of migrations to dark fibre over the market review period. We will be happy to explain to Ofcom our calculations in more detail, but in summary our method is as follows:

a) We assume DFA rentals will reach a share of the market in Area 3 of 61% by the end of the control period;

b) In its charge control modelling, Ofcom's implicit assumption for the asset life for electronics components is approximately 10 years. We assume that assets had been depreciated on average by 50% when migration to DFA begins, and therefore had a remaining asset life of 5 years (consistent with the 10-year asset life in a steady state); and

c) We can estimate unit annual depreciation of electronics components, which is then forgone for the remaining asset life and also the remaining NRC of those components at the time that the active service is lost to DFA. As the market review period progresses, we reduce the remaining asset life at the point of migration which means that circuits which migrate earlier impose more of a cost burden than those which migrate later.

9.261 On this basis, we estimate the value of the loss to Openreach in terms of forgone value to be in total c£[✂]m, including both the direct costs and indirect costs i.e. on a fully allocated cost basis. This reflects an average loss on each migrated circuit of c£[✂].

9.262 To reflect this forgone value in the price control we have estimated the delta on X which recovers the extra cost using as volumes all business services in Area 3 (i.e. including active services and DFA volumes). This recognises that the customers who buy active services implicitly also consume DFA. For indirect costs associated with electronics e.g. general management, insurance, transport and fuel, we have allocated costs across all Area 2 and Area 3 circuits. In this way, we calculated the costs to be recovered specifically from DFA services during the control period amount to c£[✂]m (with the rest of the loss being allocated to active services). In order to recover this amount from DFA services, we calculate that the X rate of decline should be reduced by 2.8%.

Extra engineering cost for provide and cease migrations

9.263 The migration of the existing base from active to DFA in Area 3 will make use (to a very large extent) of the provide and cease process. The extent of this activity will be very costly due to the extent of resources each such migration entails.

9.264 Ofcom's modelling implicitly assumes a steady state rate of churn on a provide and cease basis, i.e. the historic level of migration costs using this process has been recognised. We therefore accept that Ofcom has implicitly made some allowance for this effect in its price control modelling. However, a rate of provide and ceases in excess of the historic rate of churn, which is a consequence of introducing DFA, has not been accounted for by Ofcom. Volumes in excess of the historic churn rate are likely to be significant, as the provide and cease product is the only available process which avoids operational downtime. [292]

9.265 We have made an estimate of the cost of the additional engineering resources for this activity and treated this incremental cash cost as a capital cost and depreciated it over the assumed life of the access fibre asset. The additional fully allocated costs on this basis is approximately £[✂]m over the charge control period, which is equivalent to a delta on the X of 0.95% points.

Efficiency

9.266 For business connectivity services, in 2019 Ofcom assumed operating cost efficiencies would be 4% to 7% per year and has used this assumption for the period to 2025/26.[293] We explain above our response to Question 3.1 why an efficiency target in this range is not reasonable, and why more recent data (which was not available to

[292] We note that in the consultation Ofcom states that it would expect Openreach, "to provide suitable cost-based migration products which should be more attractive to telecoms providers than requesting additional fibre". Any such product would require a break in service to the end customer. Openreach already offers such a fibre re-use process for upgrades which is available at a very substantial discount (in the region of 60%) to the standard connection. However, because this option results in operational downtime, demand to date has been very low. This is strong evidence that a fibre re-use migration service is not likely to be taken up by CPs in any significant volumes, and therefore will not mitigate the requirement for a much higher level of provide and cease migrations than we have seen in the past.

[293] Ofcom WFTMR consultation Annex 16, paragraph A16.81

Ofcom in 2019) points to a more appropriate operating efficiency range of 0.5% to 3.5% over the charge control period. In particular, we refer Ofcom to the updated analysis of historic efficiency of WFTMR products from 2016/17 to 2018/19 in our response to Question 3.1, and our explanation there of our forward-looking management plans.

9.267 In our calculations for the charge control we have therefore used 2.0% as being the mid-point of this range. Compared to an assumption of 5.5% (which is the midpoint of the Ofcom range); this reduces the DFA X by 1.7% points. Note that a change in the annual efficiency assumption has a magnified effect in the price control as in the CPI-X model Ofcom takes eight years of cumulative efficiency into account when setting the five-year control.

Overall effect on the X

9.268 As per Table 9.12, the three changes described above result in an X for DFA rentals which is 5.4% lower than the 7% proposed by Ofcom.

9.269 Note, for consistency we estimated the impact on the values of X of the adjustments we propose to start charges. Further, we have also made a number of smaller adjustments for changes which we have justified, in response to question 3.1 above, specifically to address the Holding gain / loss issue; errors in the calculation of the PIA Regulatory Asset Value; and the inappropriate omission of Optical services SLG when estimating DF SLG costs. The net impact is that the changes which reduce the X and the changes that increase the X approximately cancel each other out.

9.270 We have also conducted a sensitivity analysis to calculate the impact on X of all the above changes if migration rates are higher than we have assumed, consistent with a lower initial price. We find that if migrations reach 74% of all circuits in Area 3 by 2025/26, then the X on rentals ought to be 0.5% to allow for cost recovery, i.e. very close to being fixed in real terms.

The glide path for DFA connections

9.271 We have used our midpoint efficiency of 2.0% to calculate a cost-based charge for DFA connections over the control period, as well as making an adjustment to correct for the SLG driver for Optical Services (described further in response to question 3.1 above). We have also used Area 3 geographic costs as opposed to national costs in the forecast model.

9.272 The result of these changes is to reduce the DFA connections X from negative 2.5% in Ofcom's proposals to plus 3.7%. The vast majority of this change is due to the use of a lower efficiency assumption and the fact that a change in the annual efficiency assumption is concentrated as Ofcom takes eight years of cumulative efficiency into account when setting the five-year control.

Other issues - patch panel and testing

Patch panels

9.273 Ofcom has based its estimate of patch panel costs on cost information supplied by Openreach relating to the 2016 Dark Fibre Access remedy and reflect only a single type of exchange patch panel (24 port rack mounted) and the customer site patch panel (4 port wall-mounted). Looking at the latest costs for the full range of patch panel options that were to be offered to CPs as part of the previous (2016 BCMR) dark fibre draft offer, the figures Ofcom have used appear low.

9.274 Our latest cost for the 24-port rack mounted exchange unit is £[✂] (supplier cost only). There is a vast range of terminating patch panels for use outside of the exchange that range from the £55 Ofcom have used for a 4-port underground fed mounted unit to £[✂] for a 4 port Connectorised block (overhead fed) patch panel. 8 port (from £[✂] to £[✂]), 12 port (£[✂] to £[✂]) and 2-port pole mounted (£[✂]) options were also part of the 2016 product offering. Given we have not yet delivered any DFA circuits, it is not possible to estimate the weighted usage of these different terminating options, however it indicates that Ofcom have under-estimated the costs of patch panels.

9.275 One solution would be to create a separate service for each variant of patch panel so that the price of each type of patch panel reflects the cost of each type of patch panel. This approach would require development of order processes and systems i.e. would cost money and would be complex to operate. Alternatively, we could try to estimate a price based on a weighted average mix of patch panels used by CPs. Without some idea of what the likely demand might be this would potentially not be accurate. On that basis we would like to engage with Ofcom to create a solution that would ensure Openreach recovers its costs but avoids disproportionate development spend.

Labour costs

9.276 We understand Ofcom has taken task times that were developed originally for a national dark fibre access remedy as set out in the 2016 BCMR. However, the current remedy is not the same and this will influence some of the dark fibre specific costs.

9.277 The Continuous End to End Dark Fibre can have a route distance of 86km. For initial testing with the need to travel between the two ends, the initial testing would be more for the Continuous end to end Dark Fibre circuit than a Dark Fibre Access tail. In fact, having estimated the task time our operational team believe that this might be more efficient as a two-person task. Even in this case, they have estimated a total task time of four hours. This would increase the initial testing on a Continuous End to End Dark Fibre to £[✂].

9.278 The patch panel costs also assume a task time for pre-splicing a number of fibres. Given the patch panel is now a one-off charge (not related to the number of circuits), there is no mechanism to recover the costs for splicing subsequent circuits to the patch panel. It is also likely that more ports will be needed as Ofcom expect Dark Fibre to replace active products in Area 3. We would expect a task time of one hour to travel to site (we do not have exchange-based engineers), three hours to install the patch panel and pre splice 12 fibres, and a further hour to splice the remaining 12 fibres. This is a total task time of five hours and increases the labour costs for an exchange patch panel from £[✂] to £[✂], which would increase the annual rental from £86 to £[✂].

9.279 The Right When Tested task time is likely to be longer for Area 3 due to exchanges being more remote and involving longer travel times. Ofcom have used a task time of 4.25 hours for the engineer; however, our Chief Engineers department advise that as an Area 3 specific remedy, this would be more likely to be 6 hours task time due to this longer travel. We calculate that this would increase the starting price to £[✂].

Non-domestic rates (NDR)

9.280 Ofcom has excluded NDR costs in its proposed Dark Fibre prices. There is uncertainty as to when that cost recovery approach will be reflected, if at all, into a change to the NDR costs for BT. Until there is such a change, the reasonable assumption to make is that the NDR bill will remain unchanged and will need to be recovered from active services.

9.281 Due to migration of active services to DFA, the number of Ethernet circuits over which these costs can be recovered will reduce dramatically. We estimate the extra NDR costs that will need to be recovered from active services is ~£[✂]m over the charge control period. Ofcom should recognise this is a cost recovery issue that arises due to its DF proposals.

9.282 Openreach would like to discuss this matter further with Ofcom prior to final statement.

Charge control for Leased Lines in Area 3

9.283 We support Ofcom's proposals for pricing continuity on charge-controlled items at CPI-0%. This does not mean that prices will be kept constant at real terms as competitive pressures will mean that prices need to be reduced in order to respond to existing competitors and new entrants. This applies both in Area 2 (where competition will be boosted by PIA) and Area 3. Dark fibre will be relevant for active Ethernet demand in both areas because only 1 end needs to be in Area 3 for DFA to be used and it will therefore impact volumes in Area 2.

9.284 In addition, margins on leased lines services up to 1Gb/s are already low[294] and further reductions would not be justified on a cost-basis anyway.

9.285 We also support Ofcom's proposals to avoid overlapping regulation of charge controls and a fair and reasonable condition[295]; a charge control is a more restrictive remedy, and a further condition could create unwarranted compliance disputes.

9.286 Openreach also supports the application of a fair and reasonable obligation in HNR areas, although we disagree that Ofcom has identified the true extent of HNR as set out in our response to Volume 2.

9.287 We support the use of prior year weights for the basket controls. We also support the principle of broad baskets. However, we would request that Optical Services are removed from the Ethernet Services basket control. [✂]. We would appreciate if Optical services could be in a separate basket (as we have for VHB today), so that the remaining Ethernet services can be subject to an operational basket control. An alternative would be to use a revenue not sourced from the RFS (which Ofcom may consider as the reconciliation to the regulatory financial statements has not been explicitly mentioned in the consultation document). We would welcome further discussions with Ofcom on this.

9.288 We do not understand the rationale for main link to have a CPI-0% sub cap. DFA main link will exert a pull downwards, and a sub cap of e.g. CPI+3% might allow an increase of c 5%, which would still not be a "sharp price increase" (3.72). There is no historic behaviour to indicate we would make a sharp price increase which would justify the need for such a tight sub cap.

9.289 Ofcom has different regulation for the Ethernet Services basket (which allows price increases to rebalance within the basket) and the sub cap on ancillary items. Where we have an ancillary charge that is set in reference to a rental or connection charge, we are concerned that the CPI-0% cap on ancillaries would create a restriction on the basket item it links to. For example, early termination charges are set at X% of rental charges, and the ancillaries cap of CPI-0% would limit price increases. However, the rental charge itself should be able to increase by more than CPI-0% and still comply with the basket. Similarly, cancellation charges are set at X% of connection, and the ancillaries cap could be seen as creating a constraint on the connection price in the Ethernet basket. We would

[294] BT Plc, 2019 Regulatory Financial Statements (2018/19)
[295] Ofcom WFTMR consultation Volume 4 paragraph 1.120

therefore request that Ofcom are explicit that ancillaries' charges that are explicitly defined on the price list as referring to another product price are not covered by the ancillaries cap.

9.290 Across all charge controls for the WFMTR Ofcom have included a new request that compliance statements should be accompanied by a statement from an independent third party such as our external auditors of the Regulatory Financial Statements. We do not oppose this but think that Ofcom need to consider details of the implementation.

a) This would be a finding on performance of tests and not an audit opinion.

b) Our external auditors would like to engage Ofcom to agree the scope of the tests (in a similar process to how the tests for Solus Voice were agreed).

c) Crucially, this will take time to deliver (at least six weeks for 100% substantive checks) and can only start once Openreach has already concluded its internal checks and governance. Based on this our external auditors believe a submission deadline of end of August would be more reasonable and realistic, though an end of July deadline (alongside the RFS) could be a possible though challenging deadline. The current compliance submission deadline of the end of June would not be possible in any circumstances.

d) As external auditors are restricted from non-audit advisory work (which this would count as) we would need a statement from Ofcom for the audit and risk board that they require our external auditors to complete this work for it to be approved.

Question 4.1: Do you agree with our proposals for charge controlling in the IEC markets?

9.291 Please see our response to question 2.4 above for our comments relating to the starting prices and glide path for Dark Fibre in the IEC market.

9.292 The impact of our proposed amendments, and Openreach's proposed start charge and glidepath for IECDF services are summarised in Tables 9.10 and 9.12 above.

Implementation of Charge Controls

9.293 We support the use of prior year weights for the basket controls. We also support the principle of broad baskets. However, we would request that Optical Services are removed from the Ethernet Services basket control. [✂]. We would appreciate if Optical services could be in a separate basket (as we have for VHB today), so that the remaining Ethernet services can be subject to an operational basket control. An alternative would be to use a revenue not sourced from the RFS (which Ofcom may consider as the reconciliation to the regulatory financial statements has not been explicitly mentioned in the consultation document). We would welcome further discussions with Ofcom on this.

9.294 We do not understand the rationale for main link to have a CPI-0% sub cap. DFA main link will exert a pull downwards, and a sub cap of e.g. CPI+3% might allow an increase of c5%, which would still not be a "sharp price increase" (3.72). There is no historic behaviour to indicate we would make a sharp price increases which would justify the need for such a tight sub cap.

9.295 We agree that there are not currently the volumes to allow basket controls to operate for DFA or DFX, however there would be at some point during the control period.

9.296 We support the continued use of deficiency and excess provisions that allow carry forward of under or over compliance to the following year.

9.297 In terms of the structure of Dark Fibre pricing, Ofcom have separated out the initial testing charge. We appreciate this is to make sure it is charged only once when multiple dark fibre elements are joined as a continuous end to end dark fibre. However, we would intend to incorporate this into the up-front one-off charge for the different dark fibre circuit configurations and not bill as a separate item for simplicity of presentation and billing. We would demonstrate compliance of each charge, and then show how they sum to match the price list entries.

9.298 Across all charge controls for the WFMTR Ofcom have included a new request that compliance statements should be accompanied by a statement from an independent third party such as our external auditors of the Regulatory Financial Statements. We do not oppose this but think that Ofcom need to consider details of the implementation.

a) This would be a finding on performance of tests and not an audit opinion.

b) Our external auditors would like to engage Ofcom to agree the scope of the tests (in a similar process to how the tests for Solus Voice were agreed).

c) Crucially, this will take time to deliver (at least six weeks for 100% substantive checks) and can only start once Openreach has already concluded its internal checks and governance. Based on this our external auditors believe a submission deadline of end of August would be more reasonable and realistic, though an end of July deadline (alongside the RFS) could be a possible though challenging deadline. The current compliance submission deadline of the end of June would not be possible in any circumstances.

d) As external auditors are restricted from non-audit advisory work (which this would count as) we would need a statement from Ofcom for the audit and risk board that they require our external auditors to complete this work for it to be approved.

Ancillaries pricing

Question 6.1: Do you agree with our proposed approach to charge controls for ancillaries?

Question 6.2: Do you agree with our proposals for fair and reasonable obligations for ancillaries not covered by a charge control

Charge Controls

9.299 We support the setting of the charge controls at CPI-0%. These are intended to be cost-based charge controls, and many of these items are driven by labour costs, which tend to increase in excess of inflation. One would expect there to be some efficiency in the overheads over time, however, which would mitigate the increase in labour costs to an extent and therefore an increase in line with CPI is reasonable.

9.300 Further, there are a number of ancillary products for which Openreach would argue the prices need to increase to cover current costs. To give a couple of examples, Time Related Charges for the WLA market were reported in the 2018/19 Regulatory Financial Statements as £34.6m fully allocated cost, compared to £28.9m of revenue; and Special Fault Investigation was reported with £41.3m fully allocated cost compared to £23.6m of revenue.

9.301 We have a number of specific challenges or concerns regarding Ofcom's proposals:

9.302 VULA CP to CP migration. Ofcom currently charge control CP to CP migration at their estimate of a LRIC, as set in the 2018 WLA, and propose that moving forward this would be able to increase in line with CPI. We have three issues with the charge control for this price:

a) There are different activities (and costs) involved in a switch from FTTC to FTTP, as compared to a FTTC to FTTC or FTTP to FTTP migration. Openreach considers the latter two types to be analogous with current migration services. Switching from FTTC to FTTP is not a migration in the sense that FTTP must be installed to the premise to allow switching and we understand that Ofcom's proposed VULA CP to CP migration prices aim to only regulate the price of either a migration from FTTC to FTTC or a migration from FTTP to FTTP. Ofcom should therefore make the definition explicitly clear that the scope of the migration obligation refers only to migrations within FTTP, or migrations within FTTC, and not to a migration between VULA products. The price should not apply to a migration from one CP on VULA FTTC to another CP on VULA FTTP.

b) In 2020/21 the price for CP to CP migration will be £3.06, however LRIC calculations based on the 2018/19 Regulatory Financial Statements show a LRIC of £5.52 (compared to a FAC of £5.82). Five years of CPI indexation would result in a price of around £3.40 by the end of the charge control. This would result in a significant under recovery on a unit basis (the total impact will depend on Alt Nets' and Openreach's/ investment in Ultra-Fast networks). Given how close the LRIC and the FAC are and that Ofcom propose LRIC is no longer reported annually, we would ask that - at the very least – Ofcom reset CP to CP migration to be a FAC based charge in line with the price for Bandwidth Modify (£5.58 in 2020/21). This will allow cost recovery and can be easily implemented by aligning charges.

c) More broadly, we believe it is unnecessary for Ofcom to intervene in such a prescriptive way to determine the charges we apply for FTTP CP to CP migrations, particularly given that (i) no other charges for FTTP

services are to be determined in such a prescriptive way where other access services are available and ahead of copper retirement; and (ii) we are at a very early stage of FTTP take-up on the Openreach network and there is no obvious risk of distorting downstream competition between CPs as a result of the level of CP-CP migration charges we apply.

9.303 Our main business objective is to drive volume onto the FTTP platform. Any upfront charges we apply for connecting customers to the new network will act [✂]. We would like to drive bulk migration to the FTTP platform of both end-customers with higher 'pent up' demand for higher speed access [✂] customers who may be more broadly satisfied with the superfast speeds available on the existing platform and who may therefore [✂]. The standard FTTP connection price (£98.48 in 2020/21) is itself [✂]. This standard price was set by Openreach to [✂]. At this point in time, it is important that we retain a high level of commercial flexibility [✂]. Among other things, we may want to [✂] and improve efficiency.

9.304 The key here is about being able to use our pricing structures to drive the desired behaviour – i.e. rapid adoption. Relatively low pricing of CP-CP migration on an existing FTTP line may drive some CP strategies towards acquiring FTTP customers from other CPs rather than looking at early migration of their existing base and/or acquiring new customers who are currently purchasing copper/FTTC based connection from other CPs. This risk could, in turn, deter CPs from incurring the upfront cash costs associated with migrations/upgrades – which would still be material even if discounts were in place. Determining a low CP-CP migration charge for FTTP may therefore have the effect, not of increasing competition between CPs for FTTP services, but of reducing FTTP take-up by any CP. By singling the CP-CP migration charge out as one that should reflect the estimated costs of the underlying upfront activities, regulation would limit the commercial flexibility we would like to attain the best balance in our pricing structure between upfront and recurring charges to better drive total take-up of FTTP, maintain our cashflow at acceptable levels and support the ongoing case to invest.

9.305 While we recognise that Ofcom will always have concerns that a high level of CP to CP migration charges for any service may deter competition between CPs for that service. This concern will be much lower where we are in the take-up phase for that service and where no individual CP starts with a material base of customers versus rivals – i.e. there is only limited scope at this stage for competition between CPs for the existing base of FTTP connections; competition between CPs will be based on the fact that each CP will be looking to acquire end-customers from other CPs or retain customers they currently serve where those customers are currently served by copper/FTTC. CPs will primarily compete by upgrading customers onto new FTTP connections not by migrating FTTP lines. Furthermore, we would only [✂].

9.306 Cablelink Basket. In Volume 4 6.33 Ofcom says, "we therefore propose a separate basket for Cablelink services, capped at CPI-0%", which is a small change from the current situation where there is a sub basket for Cablelink link services and we have no further comment to make. However, we note that condition 12F of the legal instrument has been written as if there is a CPI-0% constraint on each item, rather than a basket control. We disagree with the need to control each item individually. Ofcom do not explain why they propose to reduce our flexibility to rebalance prices and Openreach does not consider there is any valid justification for doing so. Therefore, we do not agree with this proposal as it is entirely appropriate to rebalance between different cablelink link variants in the review period. We would ask that Ofcom amend the legal instrument to match the policy described in Volume 4.

9.307 Cross Market Ancillary Services. One benefit of the WFTMR is to take a holistic view of regulation. We therefore think this is a good opportunity to streamline the regulation around accommodation services. We would wonder if

perhaps the accommodation services covered in condition 12B (co-mingling and tie cable baskets) might be covered in condition 12F. This would remove the need for 12F to refer to overlapping services. This would also mirror the regulatory reporting that Ofcom has requested, where all accommodation services should be reported together, with no distinction between WLA, BCMR or PIMR market use.

9.308 Dark Fibre Initial Testing Cost. The cost stack for this item is driven by labour cost, however Ofcom have set a CPI-CPI charge control for the duration of the review period. This is entirely inconsistent with all other labour based charges, which Ofcom have proposed to be CPI-0%. Within the Dark Fibre portfolio Ofcom are proposing the Right When Tested charge to stay flat in real terms at CPI-0%, which is also labour based, and more generally Ofcom are proposing Ethernet TRCs should stay flat in real terms at CPI-0%. We would request that Ofcom change the control on Initial Testing to be CPI-0% as this would align with its approach to other labour based charges.

9.309 Ethernet and WDM Cancellation and Early Termination Charges (ETCs). As explained above, we believe that cancellation and ETCs should not be included within the definition of Exempt Ancillary Services. The prices for these services are set with reference to the connection and rental charges respectively. The connection and rental charges are regulated in the Ethernet and WDM Services basket which is subject to a CPI-0% basket cap. The Exempt Ancillary Services each individually have a CPI-0% cap. Because the Ethernet and WDM Cancellation and Early Termination Charges (ETCs) are set with reference to the rental and connection charges, by including the related Ethernet and WDM cancellation charges within the definition of Exempt Ancillary Services, Ofcom is imposing two different types of, potentially conflicting, regulation on these services. To avoid a conflict, we would ask Ofcom to remove Ethernet and WDM cancellation and ETCs from the definition of Exempt Ancillary services and instead regulate these prices under the general fair and reasonable charges obligation.

9.310 Please note that it is our understanding that any Ethernet and WDM charge not specifically listed in the definitions for Ethernet and WDM services basket of the Exempt Ancillaries Services are under a fair and reasonable charges obligation.

9.311 Ethernet TRCs. We do not believe that condition 12H on Ethernet TRCs should include condition 12H.1 parts (v) and (vi) as these are specifically WLA market related items and are not within the section of the TRC price list that is relevant for Ethernet or Dark Fibre.

9.312 Direct ECC Basket. This item is in the Direct ECC basket, with a CPI-0% control. [✂]. We would welcome the opportunity to discuss with Ofcom an alternative basket weighting method, perhaps using a revenue derived from the prior year price multiplied by prior year volume (where the volumes are from the ordering system source used to calculate the ECC Fixed Fee.)

9.313 ECC Survey. The ECC Survey performed by internal labour costs significantly in excess of the £244.52 that the regulated price currently covers. (To evidence this, using the C grade fully allocated labour rate of £[✂] that Ofcom have used for Dark Fibre costing, this would suggest a four-hour task time. This is only appropriate for the simplest of surveys. In addition, where we use contractors to perform surveys the costs are higher than Ofcom allow us to charge; for Customer Network Solutions, the average cost paid to the third party is £[✂] and where we have recently had to use a third party to perform Ethernet surveys the cost has been £[✂].) As mentioned above, we do not have revenue weightings for the Direct ECC basket that align to the Regulatory Financial Statements and so can't rebalance within the Direct ECCs basket. This prevents us from increasing the price of the ECC Survey to recover our costs. We would therefore request that Ofcom allow a start price adjustment to allow the ECC

Survey price to increase to £[✂] to cover a five-hour task time, which our Fibre Network Delivery team believe to be the average task time.

9.314 ECC Balancing Charge. Ofcom intend to maintain the requirement to have the ECC balancing fee for the year notified by the end of May for that same year. The first time we had to comply with this timing was in 2020. Our experience in 2020 is that, to maintain a robust governance process, it takes around a month. If we work backwards from the end of May, that leaves only 4 weeks during April to obtain a full year's Ethernet orderline data (at a time when the people we rely on to obtain the data are busy with year-end activities) and then analyse that full year dataset to calculate the next year's charge. Please note that we can (and do) obtain data for P9 in advance but the process of rolling forward to P12 and then analysing the calculations for the year was a major challenge to do within the time allowed by Ofcom. We believe it is important that this calculation is robust and that there is adequate time to analyse, correctly calculate and peer review the output before the Balancing charge is notified. On that basis we request that the end of May notification deadline is extended to the end of June in each period.

9.315 Across all charge controls for the WFMTR Ofcom has included a new request that compliance statements should be accompanied by a statement from an independent third party such as our external auditors of the Regulatory Financial Statements. We do not oppose this but think that Ofcom need to consider details of the implementation.

a) This would be a finding on performance of tests and not an audit opinion.

b) Our external auditors would like to engage Ofcom to agree the scope of the tests (in a similar process to how the tests for Solus Voice were agreed).

c) Crucially, this will take time to deliver (at least six weeks for 100% substantive checks) and can only start once Openreach has already concluded its internal checks and governance. Based on this our external auditors believe a submission deadline of end of August would be more reasonable and realistic, though an end of July deadline (alongside the RFS) could be a possible though challenging deadline. The current compliance submission deadline of the end of June would not be possible in any circumstances.

d) As external auditors are restricted from non-audit advisory work (which this would count as) we would need a statement from Ofcom for the audit and risk board that they require our external auditors to complete this work for it to be approved.

Basis of Charges Obligation

9.316 We agree that PIA Ancillaries and Contractor ECCs should continue to be on a basis of charges obligation.

9.317 We also agree that energy usage per kWh should also be cost orientated. However, we note that we are only able to set prices on a reasonable basis using forward looking costs. While around 75-80% of the power costs will be hedged when prices are set at the start of the year, costs can vary during the year. We believe that it is appropriate to review prices during the year (we would suggest around the start of the "Winter Season" for power costs that starts in October, as this is when costs tend to fluctuate). However, we do not think it is realistic to expect that prices charged during the year would ever exactly match costs actually incurred in the year, as some costs are only settled up to 18 months later. We would not see a mismatch between actual costs and prices in this situation as non-compliance as long as we had set prices in the year based on the best forward-looking view of costs that we had at the time.

Fair and Reasonable Charges

9.318 We agree that any new ancillary products (with the exception of PIA ancillaries or Contractor ECCs) should be priced on a fair and reasonable basis.

Charge control legal instruments

9.319 We have submitted a number of clarification requests to Ofcom since publication of the consultation. We believe that the items below still require resolution.

Table 9.13: Openreach's outstanding clarification requests

Reference in Document	Clarification Required
Volume 3 Table 5.3 compared with Condition 12C and Volume 4 3.98	Table 5.3 of Volume 3 shows there being a charge control on Copper based VULA 40/10. This would include SOGEA, given the definition of Copper Based VULA at Volume 3 5.31. However, Volume 4 3.98 is clear SOGEA is under a fair and reasonable charges obligation, and condition 12C of the legal instrument is clear the charge control is only on FTTC 40/10 rentals. Please can you clarify the price regulation that applies to SOGEA at all bandwidths (as discussed above in section 9).
Volume 3 3.136 compared with Table 3.3	We believe that the text in 3.136 that says "…extends the offer at another price that is below the one originally offered…" should say "…extends the offer at another price that is above the one originally offered…", consistent with table 3.3.
Annex to Condition 12A Part 1	This list includes products that have been withdrawn from supply as not relevant within the scope of a network adjustment. • Provision of an Earth Spike for pole • Install a lightning protection module • Provision of a 'BT 66B' for lightning protection • Lay Copper Earthing Strip in an open trench • Lay Copper Earthing Strip in Soft or Unsurfaced • Lay Copper Earthing Strip in Footway • Lay Copper Earthing Strip in Carriageway
Condition 12D.3 (c)(i) and (ii)	The Supplementary Visit charge here is listed as £43.28, however we believe it should be the same as the Visit charge set out in Condition 12D.7 (b) which is £43.30. This would then make the charge in part (ii) £21.65.
Condition 12E.8	Main Link referred to as a single service. However, the definition in Condition 12E.19 (j) is for the mainlink listed on the EAD pricing paper. Do we take from the phrase "this service" that this condition covers only a single time, EAD main link, but not the EAD RO1 main link or the EAD RO2 main link?
Annex to Condition 12E Part 1	Bulk Transport Link is not available since August 2019 and so does not need to be listed here. (Section 1 or Section 2)
Annex to Condition 12E Part 1	EAD SyncE Modify – upgrade charges have all been withdrawn since September 2019 and so do not need to be listed here.
Annex to 12G Part 1 Section 3	New connections to EAD Enable and EAD Sync have been withdrawn, so these products can be excluded from this definition.

Reference in Document	Clarification Required
Condition 12H.1 and Annex to Condition 12H Section 1	The products in parts (v) and (vi) are specific to non-Ethernet products, and are not included in the Ethernet section of the TRC price list. Are they included here in error? By including here and in Condition 12D there would be overlapping regulation.

Source: Openreach