Promoting competition and investment in fibre networks – approach to remedies

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Non Confidential

Contents

1. Executive summary

1.1 Vodafone welcomes the opportunity to comment on Ofcom's consultation on promoting competition and investment in fibre networks. At a high level we:

- Share Ofcom's frustration at the UK's continued reliance on copper for residential broadband, recognising the need for as wide a residential fibre footprint as possible;
- Have reservations about Ofcom's approach. It is unlikely to achieve sustainable competitive provision for most consumers, ultimately limiting the geographic spread of competing fibre and allowing BT to over recover in the process;
- Believe the enterprise fibre market is distinct, with mature infrastructure, a cautious customer base that is adverse to switching and who tend to purchase on a national basis – universal dark fibre is key to future competition in this segment;
- Believe that while Ofcom's approach focuses on keeping pricing high to encourage investment, more thought is needed around making legacy access less attractive. BT has grown used to artificially high returns on legacy copper – channelling these already high returns (through the copper wedge) into fibre investment would be transformational;
- Support a requirement for BT lines of business to buy 5% of their future consumer fibre demand elsewhere (other than Openreach). This would make alternative investment sustainable and transform competitive fibre provision in the UK.
- Believe there is a need for a broader based charge control around the purchase of increasingly mainstream products such as VULA at 80/20. This would help safeguard the consumer interest, particularly during any fibre transformation period.

Broadband regulation and broadband competition

1.2 Ofcom has set out an initial view that 70% of the UK population reside in an area that has the potential for competitive fibre provision (can support three fibre access networks). This view has been reached by Ofcom after consideration of the location of the Virgin Media network; the potential for an area to support new economic fibre deployment; and after reviewing the plans of individual network builders and their appetite to build in certain locations. Having segmented the country into areas that fall within these categories (competitive, potentially competitive and non-competitive), Ofcom sets out remedies applicable by category.

1.3 In its assessment, Ofcom has not considered the origins of the Virgin Media network (arising out of a regional franchise approach in the 1990s, eventually consolidating into one entity after Chapter 11 financial restructuring). Ofcom does not take into account the interaction between network builders, and their separate plans for network deployment (which are typically fluid due to ongoing constrained capex and a desire to avoid overbuild), nor the staged approach to funding, which typically requires the phase one build business cases to be achieved, prior to stage two funding being unlocked.

1.4 Ofcom considers that 30% of the UK population reside in an area that is unlikely to sustain any competitive build. Consumers in these areas will need to rely upon Openreach if they are to enjoy the benefits of fibre. This consideration would not appear to accommodate niche rural fibre builders like Gigaclear, who target particular rural areas for fibre deployment.

Understanding how much of the UK can support multiple residential competing fibre networks?

1.5 It is clear to us that the current approach is insufficient to arrive at a robust segmentation result. This has led it to overstate the extent of the potentially competitive area within Ofcom's analysis and risks leaving consumers with insufficient regulatory safeguards around price and service. With the prospect of competitive build a more remote possibility than Ofcom suggests, this will undermine Ofcom's justification for relaxing regulatory remedies in a large part of the country.

1.6 To understand more clearly the dynamics of new fibre network build we have engaged consultants SPC Networks in conjunction with TalkTalk, FIbreNation, Cityfibre and Hyperoptic. SPC interviewed these network builders to understand how they rank and progress potential fibre build areas in the UK. As one might expect, for each, this involves navigating a complex decision tree, taking account of a range of practical, demographic, financial and environmental factors. Based on their detailed research, SPC is now in the process of developing a functional model. The model could be used by Ofcom to more accurately predict the deployment of rival networks across the UK. It would remove much of the guesswork from the current approach, leading to a more accurate set of results that better reflect sustainable fibre build outcomes.

Getting the remedies right: Potentially competitive area

1.7 In each of the three categories, Ofcom has set out a proposed approach to remedies. In competitive areas, no regulation will prevail, with consumer outcomes market led. In potentially competitive areas, Ofcom will cease the existing regulatory approach (which has sought to underpin retail service competition through control of Openreach's wholesale pricing, aiming to align it with cost).

1.8 Ofcom propose that the regulatory emphasis will now move towards supporting network competition. In the switch over from service competition to network competition, Ofcom is of the view that it is necessary to keep service prices high in order to attract market investment in new networks. To achieve this, Ofcom proposes to no longer require Openreach copper broadband prices to be in line with its costs. Prices will start to rise each year with inflation. Ofcom hope that competition from rival fibre builders will act as a check on future Openreach wholesale pricing, with regulation only acting as a backstop on pricing in the future.

1.9 Given the considerable level of uncertainty over the extent and pace of any alternative fibre network investment and the level of competitive constraint that will emerge by 2026 or even 2031, Ofcom is making a significant leap by choosing to end the link between wholesale pricing and cost.

1.10 There are clear indications that network build will be far slower than originally anticipated, as network builders' face up to the realities of the task before them. In such a capex-constrained environment, with roll out slower than anticipated, investors are seeking to maximise returns. This will incentivise them to avoid any kind of overbuild situation, with new investors in particular very keen to ensure they are the first to market with fibre in a given area. This rational behaviour would appear at odds with Ofcom's high-level assessment of likely outcomes, with Ofcom not attempting to quantify the risks or indeed the benefits of their proposals in either consumer or economic terms.

1.11 There is a clear need for regulatory proposals aimed at encouraging fibre development to be underpinned by transparent and accountable regulation. Frontier Economics has undertaken a review of the expected trade-offs that will occur should Ofcom's proposals be realised. It is essential that Ofcom's market review proposals present the costs and benefits of a range of proposals. This will enable the selection of a set of remedies, while fully understanding associated costs, benefits and risks.

High Copper Pricing zap the appetite for fibre investment

1.12 Ofcom should not only give thought to revenue incentives to encourage new fibre investment (such as keeping wholesale pricing high), but also give thought to making legacy access less attractive. Openreach's ability to extract artificially high returns from legacy copper actively discourages investment in new access network technologies. Why would any rational investor undertake a scale investment when returns on legacy services are maintained at artificially high levels by the sector regulator? While high copper prices might provide a modest boost to new fibre entrants, the negative impact they have on Openreach's willingness to invest is likely to be far more pronounced.

1.13 We consider it necessary to put in place a regime that incentivises the build of FTTP networks for all parties. If legacy pricing is to be kept high to incentivise new entrant build, an additional mechanism is required to incentivise Openreach to move off copper. We do not consider that the threat of rival build in limited parts of the country will be sufficient.

1.14 Indeed, should the appetite for new entrant build stall completely, or reduce to a lower level, Openreach will lack any incentive to keep up its program to replace copper. Put simply, setting of prices above costs and allowing Openreach to retain for itself the revenues above cost decreases Openreach's incentives to build FTTP.

1.15 There are additional risks to allowing Openreach to charge high wholesale prices, even if pockets of alternative network do emerge. BT Group is vertically integrated and therefore unlike other competitors in the market today, can decide to offset higher returns for wholesale services with lower returns for retail services, creating a retail margin squeeze.

Recognising BT's significant incumbency advantages

1.16 Under the proposals, Ofcom will provide Openreach with additional wholesale service revenues and margins. This will be in addition to the cost advantages that Openreach and BT already enjoy due to their position in the market today.

1.17 In our response to the Ofcom DCR, we submitted a report from FTI, which sets out BT's significant incumbency advantages and the consequential barriers to competition and market entry[1] for new fibre builders. In its proposals, Ofcom has failed to consider these barriers to competition, choosing to concentrate on permitting higher market pricing to attract market entry. This gives Ofcom an incomplete picture of market realities.

1.18 In understanding the long-term success of any future regulatory strategy around fibre deployment, it is essential to evaluate how BT's market advantages affects the prospects for competition. It is necessary to consider remedies that address these advantages and imbalances head on.

The Copper Wedge

1.19 More progressive thinking is required if Ofcom's competitive fibre vision is to be realised. We have previously set out the benefits of creating a "copper wedge" which removes from Openreach the revenues that are in excess of cost recovery[i] for legacy copper. This would make it less attractive for Openreach to remain on copper, acting as a push factor, with wedge revenues channelled into fibre

[1] Vodafone submission Annex 3 to the DCR

build. We have also previously provided Ofcom with legal analysis on how it could use the legal framework and SMP remedies to implement the copper wedge and have now refreshed this analysis, providing a step-by-step implementation plan.

Widening BT's supplier base

1.20 There are other additional proposals that seek to address this competitive imbalance. Legal separation of Openreach and the rest of BT seeks to create a more level playing field between BT and CPs when relying upon Openreach. Openreach still however received 100% of BT lines of business orders, as BT never tenders its retail demand. The business case of rival networks would be advanced and competition levelled if BT placed an agreed proportion (e.g. 5% of its order volumes, rising to 10% over time) with non-Openreach networks. This would be transformational and provide much needed demand to underpin future alternative fibre investment. It would also greatly assist easing concerns around overbuild, as BT may well seek to place all its demand in one city with another provider to meet its external buying target. Openreach would then have more resources to build fibre in untargeted areas.

The transformation to fibre needs an adaptive approach

1.21 We have also examined the possibility of Ofcom setting up an adaptive remedy approach. This uses real time activation of a remedy, exactly when market conditions are met, removing the risk of imperfect guesswork over the course of a 5-year market review cycle. We have set out in detail the legal ability to implement such an approach.

A fibre future grounded in Market Realities

1.22 While we share Ofcom's ambition and wish to see sustainable fibre competition in as much of the UK landmass as possible, market conditions and legacy incumbency will prevent this from being realised unless a more radical approach is pursued, one that considers both making fibre investment rewarding and making remaining on legacy access less lucrative in order to move the UK on from copper.

1.23 The remedies proposals presented so far are at a high level and may create initial entry incentives for new build entrants, however in practise the proposals favour mostly Openreach and therefore will fail to work at any scale, ultimately falling short of creating a fibre market that is sustainable and competitive.

Getting the remedies right: Non-competitive areas

1.24 In non-competitive areas, Ofcom proposes to move to a regulated regime that presumes Openreach will be the only network provider. It is proposed to reverse the uplift to wholesale service pricing

that was created by the 2018 WLA, allowing Openreach to increase prices to match a reasonably efficient new entrant for these areas and creating a mechanism where those revenues must be invested in new fibre assets.

1.25 Much of the detail remains to be worked out, however Ofcom does not appear to consider the impact of the considerable economies of scale open to Openreach (versus a smaller scale provider), nor its guarantee of all of BT's retail lines of business. These factors provide a mechanism for BT to earn excess profits due to unaddressed incumbency advantages.

Business Connectivity remains a separate market and needs different remedies

1.26 Ofcom proposes to adopt a similar geographic segmentations approach for Business Connectivity services with potential further regulatory differentiation for High Network Reach Areas and the Central London Area, although that detail around these proposals have not been set out.

1.27 In potentially competitive areas, Ofcom proposes ceasing its current regulatory approach, which sought to support service competition by regulating Openreach pricing toward costs.

1.28 The goal of this change is to move to support network competition rather than service competition and therefore keep service prices high to attract market investment in new networks.

1.29 The pace of new network build is unclear. Unlike the FTTP market, the leased lines market is not a new market but an established market with a fully installed base of connected customers. Additionally it is not evident that builders of FTTP networks have the strategy to participate in the markets to supply leased lines, which would be a divergence from their core business of serving the residential market. Leased line markets are more difficult to enter due to the market being mature. Customer demand certainty of delivery timescales with pricing having to be significantly lower than that of the incumbent supplier to entice customer switching. These customers have far longer customer contract life times and wide geographic scope to their sites needing to be connected.

1.30 There are substantial risks that these proposals will result in negative consequences for current levels of competition in the retail market. Ofcom has not addressed any of the barriers to customer switching. Furthermore, by allowing Openreach to retain for itself revenues for leased lines that are above its actual costs, BT Group will have supplementary profits on wholesale services that can be used to compete more aggressively at the retail level creating the opportunity for retail margin squeeze.

1.31 There is insufficient evidence to suggest that networks are converging to supply broadband and leased lines to define a single economic product market. Ofcom has not conducted its own product

market analysis. We have commissioned consultants to conduct a product market analysis which will be provide to Ofcom.

1.32 Ofcom's Business Connectivity market conclusions identify that Openreach has market share above the levels considered dominant for both competition law and SMP designation across the entirety of the UK. Ofcom is therefore incorrect in its conclusion that the CLA is fully competitive and that the HNR needs only light touch regulatory remedies. Business connectivity is a national market with SMP held nationwide by Openreach.

1.33 Business connectivity competition requires the availability of dark fibre on a UK wide basis in order to enable suppliers to serve the retail market and to develop UK wide service propositions based on the dark fibre input. Availability of pockets of dark fibre will address the pricing of services in those pockets, but will hold back product innovation, as different wholesale access products will have to be used to underpin retail services in different parts of the country and it will not be possible to support all features in all locations.

1.34 Similar to the requirement for evaluating the broadband costs and benefits, it is necessary to undertake an analysis of the options that will increase the competitiveness of the UK business connectivity market in order to understand the risks and benefits of implementing a more widespread dark fibre product. A dark fibre remedy would not undermine the potential of new entrants to provide PON based services, as these will be cheaper to provide (than a traditional point to point leased lines) and will cannibalise the current leased lines market.

1.35 In non-competitive areas, Ofcom proposes to retain and improve the service competition regime and accepts that Openreach will be the only network provider and therefore require the provision of cost orientated dark fibre. While we agree with Ofcom's proposal to introduce dark fibre, the service innovation benefits can only be brought about through a UK wide remedy.

2. Broadband and leased lines remain separate economic markets

2.1 The market review framework process starts with the retail and wholesale product market analysis.

2.2 We have commission SPC Networks to conduct an independent product market review to determine whether broadband and leased lines remain in separate product markets as Ofcom has found to date, or whether this situation has changed. SPC Networks concludes that:

- Broadband and point-to-point services and networks remain economically distinct.
- Network builders are using a variety of fibre solutions. A minority are installing full fibre broadband as a traditional point-to-point deployment. The majority are installing PON variants, with variation in asymmetrical or symmetrical premise capability, and variation in total PON bandwidth capability.
- The demand for point-to-point connectivity will continue for higher bandwidth services and critical applications for a significant set of Enterprise sites. The current generation of PON architectures being deployed today have very limited scope to enable the convergence of consumer broadband and end-to-end services on the network particularly in serving major enterprise sites requiring geographic diverse routes.
- Point to point services will not be pre-deployed beyond the local exchange to enterprise premises while the PON build is undertaken. Such an approach would be too fibre intensive and cost prohibitive. Point to point fibre will continue to be needed to meet individual enterprise customer orders.

3. Robust geographic market analysis

3.1 Ofcom have proposed the existence of two geographic areas and thus two different regulatory approaches for the UK. This assumes that there are two defined geographic areas in the UK where competition will and will not emerge in the course of the next market review period. We believe this binary approach will limit the ability of Ofcom to select from a broader range of remedies, taking account of the variation in condition between locations within the same categorisation.

3.2 As set out in our response to the Ofcom Geographic Markets Initial Proposals consultation, we have serious doubts that Ofcom's proposals have correctly segmented the country. Prospectively competitive areas should be areas that have a high prospect of being designated as competitive during or by the end of the market review period 2026. If this is not the case then the area is clearly not prospectively competitive for the lifetime of the review. It should then fall to Ofcom to set regulation to address the competition issues apparent in the market within the review period.

3.3 It is our belief that it would be prudent to add at least one further category to cover the geographies that, in Ofcom's view, over a much longer time horizon (beyond the market review period) could have potential for full competition, but are unlikely to emerge as competitive in the next market review period. Alternatively, Ofcom needs to have an approach which adapts regulation for certain end users in real time to accommodate the lack of homogeneity of conditions across a wider geography.

3.4 We are concerned that Ofcom's approach to identifying geographic areas in which it will be economically viable to invest in fibre is unduly simplistic. We recognise that there are challenges both in identifying the relevant investment considerations and in capturing the necessary data, but we believe Ofcom must consider this crucial issue.

3.5 To assist in this we have commissioned (alongside CityFibre and TalkTalk) SPC Network to develop a model based on how operators make financial decisions to invest in fibre in specific geographic areas. A key consideration for the project has been to ensure that the modelling approach can be operationalised to identify those geographic areas that are likely to be potentially competitive.

3.6 The model developed by SPC Network takes a more concrete approach to fibre investment. That is to say it starts from the position of how operators are making their investment decisions, given their different business strategies and starting points (in terms of existing assets and capabilities). Through a combination of interviews with operators and desk research, SPC have identified the following core considerations when an investing CP considers network build locations:

- the population/premises threshold;
- the existing presence (or not) of the firm in the location;
- the distance of the location from other existing operations;
- the quality of the relations with local stakeholders;
- the presence of a competitor in the location;
- the availability of DPA in the location.

3.7 A preliminary decision tree model was developed based on these factors, which was tested with the project participants with previous investment decisions re-run.

3.8 With feedback from this exercise, an outline Multi-Criteria Decision Analysis (MCDA) model (shown below) has now been developed to capture the way in which different operators weight the identified key considerations differently. The aim is to ensure that the model can accommodate a range of generic investment approaches, such that it could, in principle, be used to model the investment approaches of more recent entrants such as CityFibre and Fibre Nation and more established operators such as Openreach or Virgin Media.

3.9 SPC has developed the model using data around decision factors that Ofcom could reasonably obtain (and in some cases already hold). The table below summarises the relevant factors[2] and identifies whether the necessary data are publicly or privately available (in that it is held by individual CPs). It is assumed that Ofcom could use its Section 135 powers to request any private data.

3.10 Using this model will enable Ofcom to more accurately determine the outlook for fibre deployment during the period of coming market review.

2 These are still presently under consideration and hence may be open to further development.

MCDA Tree Levels		Detailed Metric	Public	Private
Infra Build		Near to Existing	✓	
	Already In Location	Existing assets	✓	
		In BT Exchange	✓	
	Build Relations	Planning Auth.		✓
		Civil Supply Chain		✓
		Openreach		✓
		DPA availability	✓	
Strength In Market	Brand Strength	Re-sell Partners		✓
		Existing Customers		✓
		Local Champions		✓
	Comp Position	Openreach Position	✓	
		Other Entrant Fibre	✓	
		Cable Presence	✓	
Market Size		Target HH Size	✓	
		Existing Anchor Tenants		✓

4. How to remedy competition problems

4.1 Ofcom's proposes remedies with the intention of encouraging rival scale investment in gigabit capable full fibre networks. The remedies focus exclusively upon the market price incentives and the powers that Ofcom has to influence market prices at the wholesale level. However, this presents an incomplete and oversimplified picture of market entry. It is necessary to conduct a much wider analysis of the barriers to market entry and the impact that BT's incumbency advantages have on the prospects for competition in fibre. Ofcom should not shy away from seeking to understand these very real factors, which have a very practical impact on market entry and future competition. The OECD in 2005 identified 19 different types of barriers to market entry:

1. Sunk costs
2. Absolute cost advantages
3. Economies of scale
4. Economies of scope
5. High capital costs
6. Reputational effects
7. Network effects
8. Legal and regulatory barriers
9. Barriers to exit
10. First mover advantage
11. Vertical integration
12. Predatory pricing
13. Limit prices
14. Intentional overinvestment in capacity and sunk costs
15. Fidelity rebates and bundled rebates
16. Product differentiation and advertising
17. Tying
18. Exclusive dealing arrangements

19. Information asymmetry

4.2 Of that list of 19 barriers, we believe there are a number that competing fibre builders will encounter. These need to be understood, analysed and ultimately remedied in order to enable rival fibre rollout to result in a competitive market. If the barriers cannot be overcome through regulation, they will seriously undermine Ofcom's ambition for this market, limiting the spread of competition. We step through some of the key barriers below, assessing their relevance to competitive fibre investment.

Sunk costs

4.3 Sunk costs are investments made which cannot be recovered and are therefore "sunk". One key distinction between fixed and sunk costs is that there are no selling or redeployment options with sunk cost assets. As there is no course of action, which allow recovery of these costs the incumbent may choose not to include the costs in its pricing decisions once it has absorbed these costs. This creates a significant barrier for the new entrant who would have to incur significant costs to enter, but would be faced with a rival who is able to charge prices below those which would allow the new entrant to recover the sunk costs.

4.4 Sunk costs also create uncertainty and risk with committed entry, as there will always be some likelihood of failure of the new entrant's business venture. This uncertainty, combined with the magnitude of sunk costs may prevent new entrants from entering the market if the risk is deemed too high. This scenario is particularly relevant in circumstances where a new fibre investor is competing against Openreach's accelerated copper offerings (up to and including G.Fast).

4.5 Ofcom expects that the use of DPA by both Openreach and rivals will help to level the playing field with respect to these sunk investments but this is far from certain. DPA remains unproven and there are significant issues before it can be used at scale. Wayleaves, poor record keeping and the expense of conducting network extensions all discourage use and undermine confidence in the product. Poorer knowledge and a lack of confidence in DPA will increase the use of self-build by the new entrant, raising costs and slowing down the rollout of a new entrants FTTP network. Openreach has a far better knowledge of its network and the experience of its engineers goes beyond the availability of duct mapping available to industry. It has acknowledged that poles require replacements and active management to be able to bear the additional weight of new fibre and to remove unused or redundant copper. The timing of this activity is important and it is necessary for

any works to be relevant to the entire range of CPs rolling out networks rather than Openreach alone.

4.6 Ofcom's approach to the recovery of costs is to set a charge control cap rather than a pricing floor. Ofcom's approach relies upon it being in the commercial interest of BT/Openreach to keep prices at that price cap level. Setting in addition a price floor would deal with this problem. A problem continue to persist around the certainty of long-term levels of pricing, particularly in an environment where Openreach have used complex discounting and rebate structures to secure demand from broadband retailers and discourage use of alternative suppliers. In these circumstances it can be very difficult to even establish the actual price being charged in the wholesale market, as it often bears no relation to the headline price. This lack of long term pricing certainty may serve to undermine future FTTP build phases by alternative investors, as they struggle to compete with aggressive discounting from Openreach.

Economies of scale as a market entry barrier

4.7 Economies of scale arise when per unit average costs decline as output increases over a certain range. Even if the new entrant and the incumbent have similar cost curves over this range, the incumbent is likely to have more demand. In BT's case, it is assured all of BT's retail lines of business demand (EE, Plusnet and BT) and other volume national retailers who need to serve the UK wide market will use Openreach at scale. No other wholesale provider comes close in terms of the network coverage they offer. With these volumes guaranteed, Openreach is able to smooth its common and fixed costs across the high volume of connections and they can charge prices per unit such that it may just undercut the new entrant's higher per unit average costs, without itself becoming unprofitable.

4.8 BT currently provides a broadband service to over 19M customers, with its network connected to almost 100% of the premises it does not actually provide a service to. BT therefore benefits from economies of scale compared to other, smaller operators. FTI estimated the economies of scale for a network with 19m customers compared to a network with a user base of 4m (equivalent to the rollout coverage rather than take up expectations of both [x] and [x]). This analysis showed that in these circumstances Openreach would be able to secure a £[x]0 per connection advantage per user.

4.9 In addition to providing economies of scale, the opportunity to service wholesale customers also provide BT with an additional source of revenue and dampens the impact of retail competition on BT compared to a retail only business. For example, in the event that a customer switched from BT Retail to a competitor which used BT wholesale inputs, lost retail revenue would be significantly

offset by additional external wholesale revenue and thus the impact on BT of increased retail competition is lower than that of a company that does not have an upstream wholesale network (or indeed an established and substantial wholesale base of customers).

4.10 Additional advantage can be substantial savings on startup costs, when an incumbent can rely on its existing customer base to switch to full fibre whereas a new entrant would have to persuade customers to switch networks. Customer acquisition costs for a new entrant are calculated by FTI to be £[xx]0 compared to £[xx] for a customer upgrading with the same network provider.

4.11 The incumbent has an existing wholesale and retail customer base. It benefits from being able to migrate retail customers rather than a need to win new customers. The wholesale business reduces the risk of lost market share, since even when a retail customer is lost the incumbent may still earn wholesale revenues from the gaining supplier. FTI calculate this to be an advantage of £[x] per connected customer.

Economies of scope

4.12 When a firm produces, distributes or sells a wider range of products instead of just one, it is better able to share out the common costs across them, enjoying higher cost efficiencies. The implication is that even if a new entrant is just as efficient for the one product it is providing it will not have the same cost advantage, as it does not supply any related goods.

4.13 BT has an established and wide range of products that it is able to sell to its customers. In the context of broadband the interrelated products are fixed line broadband, TV and voice products all provided over a single network sharing associated common costs.

4.14 Analysis by FTI identified that BT enjoys scale economies of providing voice, broadband and TV services, which amounts to £[x] per connected customer.

High capital costs

4.15 These arise in the form of high absolute costs of investment as well as high costs of borrowing. While many potential entrants might have the necessary funds to enter the market without any outside financing, a number of them will not and they will be required to borrow (for example in the case of [x]). All lenders do not perceive all borrowers as equal, since some wealthier and more experienced companies will have a lower default risk associated with them, and hence can borrow at cheaper rates, In such a scenario, the new entrant would find it difficult to enter the market.

4.16 BT has the largest fixed telecoms network at a national scale, which makes it easier to expand into other areas through only incremental investments. This allows an already large network to grow larger.

4.17 BT will also enjoy more favourable credit terms and borrowing costs due to the stability of its cash flows compared to a new entrant with a higher risk profile.

Reputational effects

4.18 An incumbent will have a strong reputation for reliability and quality, perhaps due to its long-standing presence in the industry or its large size. Therefore, customers may have a natural tendency to buy from the incumbent and not a new entrant, thus deterring entry into the market. This also exacerbates the problems associated with high capital costs as described above.

4.19 BT is the UK's oldest telecommunications provider and is the universal service provider. As the oldest provider of telecommunications services BT has an inherited customer base, as customers are often unwilling to switch. In particular, BT has a large voice only market with uncontested revenues. In contrast, it is more difficult for a new entrant to attract new customers. Being a first mover gives BT the power to change the market.

4.20 This problem has manifested itself during the Openreach Ethernet service crisis. Despite Openreach being the cause of the crisis BT lines of business where deemed a safer bet by customers. Rollout problems associated with a lack of DPA experience and contractor availability are likely to increase, making it difficult for new investors, with consumers opting to go with BT due to perception around stability.

Network effects

4.21 Network effects are used to describe the phenomenon of the benefits that arise from using a large network. On the consumer side, this would be associated with having increased benefits from using a product with an increasing user base. Indirect network effects may arise when the large size of a network stimulates production of other related goods. These and a number of other factors, which may be specific to the network in consideration, make way for the largest networks to only grow larger, solidifying the incumbent's position. This makes it harder for a new entrant to break in to the market.

First Mover advantage & lower customer acquisition costs (flipping from copper to fibre)

4.22 Entering a particular market first gives the firm certain permanent advantages. For instance, it develops a long-standing brand loyalty which cannot be matched by a subsequent firm, in particular if the additional network enters the market some time later. First mover advantage with greatest geographical scope is expected to be achieved by BT/Openreach.

4.23 Having an existing customer base which has a degree of switching inertia alongside a general perception that BT is a known brand, allows the incumbent to price at a premium to competitors. It is difficult to determine the pricing premium needed to overcome incumbency advantages versus one driven by other commercial factors.

4.24 Having an existing customer base who have a degree of switching inertia alongside a general perception that BT provides a dependable service (e.g. because it has better access to engineers), allows the incumbent to price at a premium. In order to gain market share and overcome the first mover advantage, a new entrant must price at a discount to the incumbent.

4.25 FTI calculates the first mover advantage from customer inertia / loyalty creates a pricing premium worth £[xx] per connected customer.

Vertical integration

4.26 This relates to the advantages the incumbent enjoys due to having control over different parts of the production and supply chain. Having this degree of control gives the incumbent significant benefits. The extent to which this acts as a deterrent to entry would depend on how substantial the benefits are and if the effects of the integration can be replicated.

4.27 Being a vertically integrated firm gives Openreach the advantage of having a wholesale customer base solely supplying BT downstream businesses and through other operators such as Sky and TalkTalk. When making any upgrades to its network infrastructure Openreach will be able to offer upgraded wholesale products through these operators much more easily than a new entrant who does not have an established wholesale market.

4.28 The merger of BT with EE positioned BT superiorly with the potential to offer quad play packages, creating further synergies through shared common costs and a large consumer base. For example BT estimated the synergies to be £3BN in costs and £1.2BN in revenues for the EE merger.

Predatory pricing

4.29 This occurs when the incumbent prices products below its own costs to threaten and deter entry into the market.

4.30 Predatory pricing concerns relate to the risk that BT undercut prices to the extent that new competitors are not able to enter the market profitably. Ofcom's regulation considers margin squeeze concerns and includes price controls which address the risk of BT aggressively pricing out competitors, particularly those dependent on Openreach.

4.31 Under the proposals BT is required to price uniformly across the geographic area and therefore the higher profits that can be achieved by pricing at Ofcom's charge control level are deemed to prevent it from charging lower in response to competition in smaller geographic areas. We have identified a range of cost advantages that BT holds which illustrate the potential that BT have far lower costs than any new entrant rival.

4.32 Ofcom needs to carefully consider BT's ability to refocus profits from its retail to wholesale operation, squeezing retail rivals in the process. A range of possible safeguards should be considered, including margin squeeze tests, price floors and a requirement for BT's retail operation to buy a proportion of their demand outside of Openreach.

Limit pricing

4.33 When the incumbent cuts prices so that it makes fewer profits this can prevent entry by a competitor because the competitor would not be able to enter profitably, since it would not be as cost efficient as the incumbent or be able to operate at a loss like a scaled incumbent.

4.34 Regulatory reporting is critical to the identification of costs and cost recovery. To date it has been possible to use the regulatory reports to understand product costs and the range by which prices can alter in the future given current alignment with costs and prices.

4.35 Where the charge control sets prices that are well in excess of costs they are meaningless as a mechanism for dealing with market certainty of pricing trends and determining the prospect of the investment to make predicted returns.

4.36 We can see this situation in play with 10Gbit/s EAD pricing. The price of the product is currently high; in fact well above BT's actual costs. Any investment to self-supply is at risk of being uneconomic and undermined if BT choose to reduce the price, which they can because (a) regulation does not prevent them and (b) the current price is well above cost.

Understanding Barriers to investment

4.37 It is clear that Ofcom need to put significant effort into understanding network investment barriers and issues arising from incumbency. An examination of the full set of market entry barriers identifies a robust set of issues that contribute to BT having market advantage. This rounded view provides an assessment framework to test proposed remedies to see if the remedies are sufficient to address a wide range of barriers.

4.38 Ofcom will need a range of detailed remedies that are more comprehensive than those proposed.

5. The Copper Wedge

5.1 Ofcom needs to find a remedy set that does not add further to the inherent market advantages which Openreach/ the BT Group already hold. Ofcom needs to find a way of creating incentives for all potential network builders including Openreach.

5.2 In 2016 NERA were commissioned by Vodafone to look at the existing body of evidence which considered the relationship between copper pricing and fibre rollout for the various market participants and to devise a remedy that created the same incentives upon all in the market to bring full fibre to the UK[3]. NERA highlighted the following discussions on the linkage between pricing and network rollout incentives:

Bourreay, Cambini and Dogan: discuss three separate effects:

> The replacement effect is driven by the effect of the copper access prices on the relative profitability of using the existing copper network for the entrant: as the price of copper access increases, the entrant finds the purchase of access to be less desirable and so is more inclined to invest in its own infrastructure. Hence, lower copper prices reduce the incentive for entrants to invest in next generation networks. Ofcom attempt to address this effect within its proposals by raising the price for copper access.
>
> The wholesale revenue effect is, in effect, the converse of the replacement effect but applied to incumbents: a lower copper access price reduces the incumbent's return on copper relative to the return on investments in fibre thereby encouraging increasing fibre investment. This is the effect identified in the WIK study and its primary basis for advocating lower copper access prices as a means of encouraging fibre. Ofcom's proposals do the opposite by increasing the price of copper services and thereby making the economic case for BT to switch to fibre weaker.
>
> The migration effect refers to the fact that lower copper wholesale prices lead to lower retail prices for copper-based products retarding consumer migration to higher speed fibre based services and thus reducing the demand for fibre and the returns to fibre investment for incumbents and entrants alike. Ofcom in part addresses this problem by keeping wholesale copper prices high but takes no action to keep overall prices i.e. retail prices

[3] https://www.vodafone.com/content/dam/vodafone-images/public-policy/reports/pdf/balancing-incentives-for-the-migration-to-fibre-networks-310317.pdf

high. Indeed its action to enable BT Group to take higher profits at the wholesale level puts at risk the ongoing level of retail prices.

- WIK: An integrated incumbent will switch from copper to fibre, when copper profit is below the expected fibre profit. Since higher copper access charges increase profits from copper but leave fibre profits unaffected, high access charges for copper reduce the incentives for a switch. High levels of copper access charges generate negative incentives for incumbents to invest into fibre because of profit cannibalisation.
- Vogelsang: states that the copper wholesale access price as a single instrument cannot implement an efficient policy that is characterised by several tradeoffs. Essentially copper pricing needs to be accompanied by additional measures that will ensure the desired policy outcome is achieved. Ofcom's current proposals lack measures to address all parties' incentives.

5.3 Our work with Nera was undertaken in 2016. Since that time Ofcom has put in place a WLA charge control which includes a cost uplift to the charges levied by Openreach, to change the cost base to be less Openreach orientated and more reflective of the costs of a new entrant. In effect Openreach is rewarded with higher copper margins and therefore incentives to progress with fibre rollout are pushed out into the future and reduced overall.

5.4 This change in approach therefore creates conflicting incentives. It is possible that new entrants are incentivised by higher market returns and the promise that Ofcom will no longer push market prices down. It is clear this strategy along with the improved DPA regime has drawn a range of new investors to the market. However, it is not yet clear whether this is sufficient to bring scale network deployments to the UK, and as we have cautioned there remains a range of other barriers that Ofcom has left unaddressed by its remedies.

5.5 In contrast to the incentives on new entrants, the additional copper wholesale profits act as a disincentive upon Openreach to spend to replace high earning copper with high cost to install fibre or rollout speedily. The solution is a counterbalancing remedy that encourage Openreach to move away from legacy copper – the wedge.

5.6 NERA set out a simple 3 step process to implement a wedge model which was designed to allow a regime that attracted new entrants to invest in the market while at the same time preserving and increasing the incentives upon Openreach to invest in full fibre:

- Step one - Identify areas in which FTTP deployment is economically efficient and viable based on private investment.
- Step two - For copper access lines in these area, set the price received by the access provider at a level that does not incentivise further investment in copper (e.g. at or near short run incremental cost) while leaving the price paid by an access seeker at or near forward looking long run incremental costs
- Step three - The wedge remains in place until Openreach has turned off its copper network across the areas.

5.7 We have asked Towerhouse to set out an implementation plan for the copper wedge while ensuring it is compatible with the upcoming EECC framework.

5.8 In summary Towerhouse conclude

- the Copper Wedge Proposal could be compatible with the EU regulatory regime;
- it will require engagement with the European Commission and BEREC
- the Copper Wedge Proposal should be as least market distorting as possible, for example by setting technology-neutral conditions for use of the Wedge Funds and enabling any alternate supplier to make use of Wedge Funds rather than solely BT/Openreach.

5.9 We consider the wedge fund can be used in a variety of market enhancing and fibre enabling projects. Rivals to Openreach despite having access to DPA are disadvantaged in comparison to Openreach who presently have sole access to its GPO inhered wayleaves and wayleaves signed prior to 2017. The wedge fund could be used to methologically update the wayleave agreements to ensure they are fully shareable and all align with post 2017 ideal.

5.10 For network deployment to be successful service take up is necessary. The fund could be used to support an industry neutral communications programme to explain what is happening with copper / PSTN switch off and how services are evolving to require full fibre.

5.11 For some geographies the economics of rolling out full fibre are more challenging and these areas will benefit from financial support. The wedge fund could be used to support network build via competitive tender in such areas and it is this option that we have asked Towerhouse to design the implementation for although this is clearly one of many ways to disperse the fund.

5.12 Towerhouse set out that the implementation would be akin to the current process for imposing SMP charge control obligations and the detail that sits behind these proposals.

5.13 The SMP conditions themselves will include:

- How the prospectively competitive area will be defined;
- The price control at LRIC for copper services;
- That BT must ring-fence the difference between LRIC and SRIC; and
- That BT must handover that difference (or relevant parts) in a manner directed by Ofcom, which reflects the outcome of the auction/allocation rules below;

  (i) The specific rules for how 'bids' will be assessed (including all criteria, their measurement and weighting);

  (ii) The timing and form of the 'auction' or 'allocation process';

  (iii) How the competition will be structured; and

  (iv) The rules for participation – which should include a requirement to enter into an agreement with Ofcom (either at the start of the process or upon winning) regarding participation, commitments to deliver on winning proposals;

  (v) The agreement between Ofcom and the winning bidders regarding delivery of the funds and obligations to fulfil the commitments in winning bids; and

  (vi) The draft direction by which Ofcom would announce the winners and the amount of subsidy that BT must handover.

5.14 In summary the copper wedge works to ensure that the policy to price copper services above Openreach costs does not create unintended market distortions across the value chain. The copper wedge increases the incentives upon Openreach to transition from copper to fibre without this needing to be incentivised by the extent or speed of other rival build. The copper wedge can be implemented as an SMP remedy.

6. Distributed purchasing by the BT Group

6.1 The legal separation of Openreach has provided a degree of clarity over the ability of CPs and BT retail lines of business to purchase products from Openreach on equivalent terms. Legal separation does nothing for BT's own retail supply arrangements, with the business acting as a fully integrated organisation in this respect. One of the key incumbency advantages we identified at the start of this document was economies of scale, with BT able to 'bank' all its retail demand and flip its entire customer base onto any new fibre network. This demand, taken together with its massive wholesale base would allow it to fill up any new network quickly and without significant acquisition costs. Rival CPs investing in fibre have none of these advantages and must work hard to win each customer on the network.

6.2 One simple, but incredible policy initiative that would change the economics of alternative build overnight, would be a requirement on BT to place a proportion (~ 5%) of its retail fibre demand with CPs other than Openreach, with this proportion growing over time (~10%).

6.3 This would guarantee considerable volumes to alternative fibre builders, forcing BT to interact and engage with alternative fibre networks, assisting in interoperability. It would also discourage over-build as a tactic to stifle competition. It would provide important transparency and cost benchmarking data, discouraging an integrated BT margin squeeze.

6.4 This type of arrangement is not uncommon in other sectors, with the BBC for example having targets around sourcing a proportion of its output from independent producers. This initiative would allow scare fibre build resource to be deployed elsewhere, with BT using alternative networks in some cities, fibre can be spread further and wider.

6.5 Now is the right time in the fibre lifecycle to introduce this requirement. If the market were mature it would be significantly more complex to achieve and BT would have a credible argument around stranded assets. This one initiative would do more for the competitive UK fibre sector than any other proposal Ofcom has made. Even if just a 10% alternative fibre target was set on BT lines of business (with 90% going to Openreach), it would put millions of customers onto alternative infrastructure and create the bedrock for a more dynamic, multi access network market place, giving BT a real incentive to make issues like switching work from a consumer perspective.

7. Adaptive remedies

7.1 A major concern with the current approach to remedy setting is the likelihood that Ofcom's geographic market segmentation is insufficiently robust. The forth-coming regulatory period is much longer than before, moving from 3 years to 5 years in duration. Under a 3 year regime it is extremely difficult to predict the future of the market and therefore under a 5 year regime this is even harder, with the consequence of regulatory error greater.

7.2 A solution is to prescribe a regulatory regime that transitions real time to market developments. The geographic area that Ofcom proposes to designate as prospectively competitive is vast and accounts for 20 million premises. Ofcom therefore is of the view that 20 million premises are likely to have 3 or more full fibre networks installed to them.

7.3 In the event that Ofcom are wrong this will result in substantial consumer harm as we have set out. A better solution is therefore to transition a geography into a regulatory zone when there is actual evidence that the area is prospectively competitive.

7.4 We have asked Towerhouse whether such an approach to SMP obligation setting is achievable under the EECC framework. Tower house find that an 'adaptive regulation' regime could better serve the regulatory circumstances by adjusting in real time:

- a cost-based *ex ante* price cap would be imposed on Openreach in potentially competitive areas at the start of the regulatory period;
- this price cap would remain until a defined threshold is met for an area (e.g. an alt-net FTTP operator meets a specified coverage threshold in that area); and
- at that point, Openreach would be required to keep their prices above a 'price floor' in that area.

7.5 As set out fully in the annex, following a review of the UK and EU legislation Towerhouse concludes that there is a good case that an 'adaptive regulation' regime. Adaptive regulation;

- Provides more appropriate remedies than a 'static regime'. While Ofcom will necessarily be choosing 'trigger factors' which are rough proxies for determining the actual level of competition, this is still an improvement from a situation where areas are 'locked in' for the full charge control period, regardless of how actual competitive dynamics may change;
- Provides better stability than alternatives such as a mid-period review, because market participants will know up-front what the two sets of remedies are, and the criteria used to

determine the regulatory areas. A mid-period review, in comparison, could lead to an entirely new and unpredictable set of remedies and could take into account any number of factors; and

- Is more transparent: Ofcom will be fully consulting on the set of remedies and the criterion to be taken into account up-front, which will also fulfil its duties of procedural fairness.

8. Remedies necessary to ensure the progression to competition in potentially competitive areas

8.1 In this section, we review Ofcom's proposals for potentially competitive areas, these are the areas that are not competitive today but where Ofcom believe competition could develop in the future. We identify where we believe Ofcom's proposals are insufficient to meet the objectives and set out alternative proposals to address the range of competition problems identified.

8.2 In summary our proposals for remedies in potentially competitive areas are:

- MPF/ Copper 40/10 (FTTC) - Cost based regulation in line with Ofcom's historic approach.
- Copper GEA faster speeds (80/20 FTTC) – Cost based regulation in line with the market moving to this speed being the anchor product from 2021.
- Creation of a "copper wedge" - where any Openreach prices are set above Openreach's efficient costs.
- Universal Dark fibre availability –to ensure controlled market transition and retail enterprise competition.
- Ethernet Active Services – Regulated at 2019 prices to ensure market stability and a smooth transition towards dark fibre. With active price regulation relaxed gradually when dark fibre is universally available

8.3 Ofcom define 'potentially competitive' as areas where either; alternative fibre networks are present, alternative providers have specific plans to build, or where Ofcom considers there is a possibility of network build. We set out in the section on geographic markets why we consider Ofcom should undertake a more detailed analysis of prospective geographic competition and that it is our view that the segmentation proposed will substantially overstate the prospect for competition at the end of the review period (and indeed the subsequent review period).

8.4 We believe that Ofcom's approach to remedies risks damaging competition in the business connectivity and consumer broadband retail market. Over the period of the next review (five years), this damage has the potential to be both significant and wide spread.

8.5 In the rest of this section, we explain why these remedies will harm retail competitive on a product-by-product basis. We explain why further safeguards are necessary and why we believe changes to market segmentation is required or indeed radically different approach to flexing regulation to suit the market conditions is required.

Product by product analysis of proposed regulation in 'potentially' competitive areas

8.6 We identify a range of possible outcomes of the proposals on the retail market that may occur:

- An increase (compared to cost based regulated prices) in the price of wholesale products in markets where Openreach has SMP. This will flow through to the retail market and therefore prices for consumer broadband and business connectivity services will be higher than they otherwise would be if wholesale prices were regulated to cost.
- An increase (compared to cost based regulated prices) in the prices of wholesale regulated products in markets where Openreach has SMP. However, no flow through to the retail market with the profits of providers competing with BT being squeezed, with BT as a vertically integrated organisation simply cross-subsidising business units. This could lead to a significant increase in BT's retail market share.
- An increase of Openreach excess profits in markets where they have SMP and the use of these excessive profits to distort competition and win market share in competitive markets where they currently do not have SMP.

8.7 Ofcom's proposals are insufficient to address any of these possible outcomes, all of which would ultimately lead to consumer harm.

The regulation of MPF and the GEA copper-based 40/10 product

8.8 The Table below shows the nominal annual charge estimates that were decided by Ofcom in the last WLA market review. This table shows MPF charges broadly static, whilst GEA prices fall by over 30% over the review period.

Table 1: MPF and GEA prices[4]

Charge control nominal annual charge estimates	Annual charge as at 23 March 2018	2018/19	2019/20	2020/21
MPF	84.38	85.74	85.36	85.36
GEA 40/10	88.80	69.59	61.12	59.91
MPF plus GEA 40/10	173.18	155.33	146.48	145.27

8.9 The implications of the above cost based charge control imposed by Ofcom is that regulated wholesale superfast broadband products have reduced in price; this has had an effect on the retail market. The take-up of superfast broadband has increased considerably between March 2018 and April 2019 and the retail price has fallen with a significant number of offers in the market place. It is important to recognise, that most of these price reductions have been fed through using time limited volume based discounts, with headline pricing unadjusted. If Openreach ultimately decided not to renew these discounts, it would provide an easy route to raising prices.

8.10 The merits of Ofcom's wholesale cost based regulation in this market is quantifiable and undoubtedly hugely beneficial to the retail market. We believe the competitive success of the retail consumer broadband market in the UK is predicated on effective regulatory intervention in the wholesale market, controlling the price and services Openreach must offer.

8.11 Post March 2021 Ofcom is in large part, proposing to hand over pricing control of the wholesale broadband market to Openreach, the dominate market player with SMP. Ofcom is not proposing to review MPF or GEA price controls or indeed regulate higher speeds of wholesale broadband products, which are now rapidly becoming the mainstream (anchor) products in the market. Post March 2021 wholesale broadband prices in the UK will be controlled by the commercial offers Openreach determines. The remedies Ofcom have proposed will ultimately have little effect or influence in this market, GEA 40/10 will no longer be a mainstream service (being at the lower end of the bandwidth range), with Openreach's existing commercial offers pushing volume elsewhere in the bandwidth range and ultimately the price paid for GEA.

8.12 Ofcom need to carry out a retail impact assessment comparing the proposals in this document, which are a significate change to the conventional regulatory approach, which would involve

[4] https://www.ofcom.org.uk/__data/assets/pdf_file/0011/114203/Explanatory-note-modification-SMP-condition-7a.pdf

continuing regulation of wholesale products at cost. The impact on the wider market and specifically the retail markets needs to be understood before the benefits of these proposals can be effectivity commented on.

8.13 The change in regulatory approach by Ofcom is intended to incentivise investment by allowing wholesale prices to be higher. While this could increase investment incentives for non-Openreach operators to some degree, Ofcom have not shown that the impact of their approach will materially increase investment, or what competitive benefits will result in the longer term even if market entry is secured.

8.14 When determining investment cases, investors will assess whether the returns on the cash flows resulting from the investment will be greater than a given hurdle rate. The returns for non-Openreach operators will largely be a function of:

- Cost per home passed/connected;
- The growth in penetration in homes covered; and
- The average margin per user (AMPU) for connected customers.

8.15 The remedies that Ofcom are consulting on in this document are not expected to change the cost per home passed/connected (the availability of an effective PIA remedy should reduce costs per home passed). However, higher Openreach wholesale prices would increase the prices for corresponding downstream services (retail broadband and corporate connectivity/mobile backhaul). This will increase both the expected market share and average margin per user for third party fibre investments.

8.16 We consider that the impact of higher retail prices for broadband consumers (and business connectivity users) on investment incentives may be limited and much less than that assumed by Ofcom because:

- The 'pass through' of higher Openreach prices into higher downstream prices would not be 100% as operators, including BT downstream divisions, would seek to trade off price rises with potential market share loss;
- The impact on average margin per user (ARPU) and expected share for new operators would depend on the degree to which the regulated products are close substitutes and whether there are barriers to switching. Therefore, for example if most customers require 100 Mbit/s + services by 2026, the regulated pricing of the 40/10 product will have little impact on market

share or AMPU where fibre is available. Similarly, in the business connectivity market, barriers to switching may limit the rate at which new entrants can build share, independently of the Openreach pricing.

- The impact on margins would only be for the period during which regulation applied. Given the long lifetime of fibre assets (c. 40 years) and Ofcom's expectation that long term there will be deregulation of services in competitive areas in later market reviews, the impact on returns over the whole lifetime of the assets will be limited (less than five years).

8.17 Therefore, we believe that the degree to which changes in wholesale prices feed through into increased investment incentives for competitors has been over assumed by Ofcom in the broadband consumer market.

The regulation of Fibre broadband

8.18 Openreach have announced plans to rollout consumer fibre broadband to approximately one third of the UK over the next 5 to 10 years. When Openreach rollout fibre services copper line services could be switched off. The speed, sequencing and precise plan as to how this will happen is currently not clear. There are no requirements upon Openreach to meet its announced roll out plans.

8.19 We agree with Ofcom's proposed approach to remedies for the regulation of fibre broadband over the review period. We believe that wholesale access to fibre broadband products on an equivalence/non-discriminatory basis to BT is essential to enable us to compete with BT. However we also understand that investment incentives and the impact of cost based price regulation has to be considered. In the early years of adoption of a new product when the market is developing, the services are not 'anchor product' type services and competition may be emerging cost-based regulation may not drive the best outcomes for the market.

8.20 We consider that this approach proposed by Ofcom is in line with their current regulatory approach, which considers new product regulation and seeks to strike a balance between investment incentives and allowing a fair return on new investments.

The regulation of leased lines and dark fibre

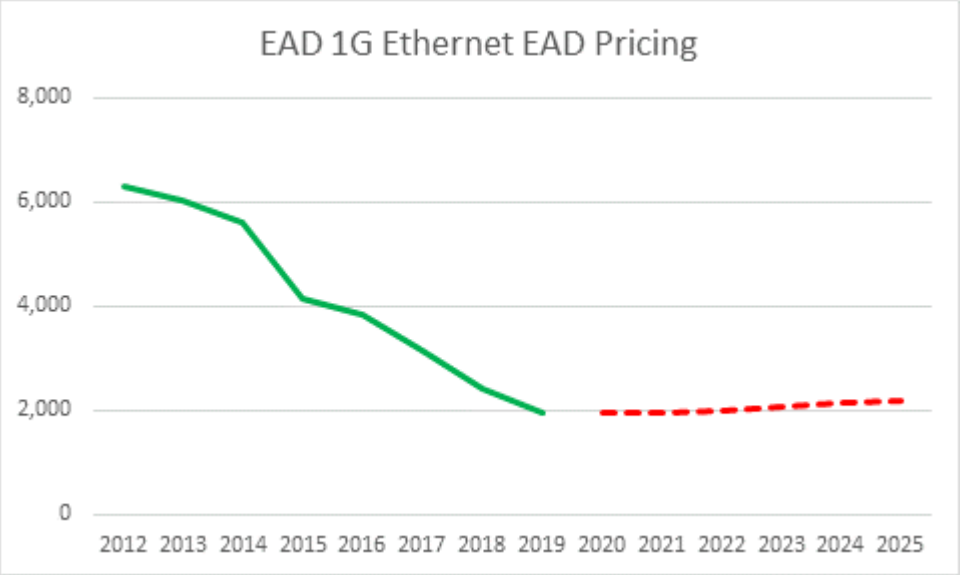
8.21 Ofcom have previously sought to regulate the price of products in this market where BT is found to have SMP towards cost. This has meant that for the last 6 years wholesale prices in the market have reduced by more than 10% each year. This has had a dramatic effect on the retail market and the

business sector where end business users have been able to increase their data and application usage (moving from 10Mbit/s to 10OMbit/s as the mainstream bandwidth and the transition from 100Mbit/s to 1Gbiit/s being underway) without experiencing a huge increase in prices, allowing retail prices to benefit from the significant economies of scale and volume efficiencies that have occurred at the wholesale level.

8.22 Again, in this market Ofcom's justification for ceasing its previous approach and moving towards setting wholesale charges above costs is that it will incentivise investment. Again, we would underline the importance of Ofcom needing to carry out a full impact assessment of this policy shift. Comparing the outcomes of this proposed regulatory approach with the counterfactual of wholesale prices being targeted to cost.

8.23 The graph below shows the historic and future planned prices of EAD 1G Ethernet products. These products are representative of the price implications for all Ethernet products in the market and show the stark difference between the price regulation of these services before and after the results of these proposals. Such a stark difference requires Ofcom to carry out a full impact assessment and ensure the resultant effects on the retail market are not detrimental to end business users.

Graph 1: Ethernet EAD 1G Prices – Historic and proposed



8.24 The proposal regarding higher speeds of Ethernet services (above 1Gbit/s) is potentially even more damaging for the market. We estimate that annual demand for 10Gbit/s circuits is about to expand

significantly, with annual demand for business Ethernet capacity growing by 20%[5] and the fibre capacity demands of 5G mobile services. As 10Gbit/s services become more mainstream, the industry requires Ofcom to review the products and pricing to ensure the best outcomes for the enterprise consumers. However, Ofcom's proposal is to simply set 10Gbit/s prices at their current level. No analysis of the costs of providing the services has been undertaken and no market analysis on the impact of maintaining this high pricing level on future demand has been carried out.

8.25 According to Ofcom[6] the incremental cost of active 10G equipment over 1G is £510. If we generously estimate the annual FAC to BT of delivering a 1G circuit as £1,990[7], then we assume the total FAC for BT to deliver a 10G circuit is at the absolute most £2,500. BT are currently charging approximately £5,000 for the annual rental of 10G circuits, thus making excessive returns of £2,500 per circuit sold. Ofcom are proposing to allow BT to price important (for the market) services at 100% above cost with little or no market analysis.

8.26 Ofcom are proposing not to regulate Openreach's dark fibre product in these areas. Dark fibre is a regulatory remedy that Ofcom attempted to impose in 2016, we argued strongly as part of our business connectivity market review response that dark fibre should be imposed in this market[8]. Business connectivity is one national market and geographic segmentation is not appropriate, indeed Ofcom have shown that BT's market share in the deregulated central London area has increased over the last three years.

8.27 We believe the market requires a dark fibre product for the provision of Enterprise business services and 5G mobile backhaul. BT's market power is best addressed by competitors in the market having stable and clear long term pricing. It is our view this is best facilitated by the introduction of a UK-wide, cost-oriented Dark Fibre remedy:

- This will enable competitors to offer customers contracts knowing clearly their cost base over the entire customer contract – 3 year period.
- Competitors will be able to develop new services that they can offer on their own fibre and over BT fibre, as services are no longer constrained by BT active equipment. Today it is not worthwhile innovating for services that are limited to own fibre connected sites.

[5] BCMR consultation
[6] BCMR consultation annex 16
[7] Using information from the regulated accounts
[8] Our BCMR response

- Competitors will still be able to extend their own networks to meet specific customer demand and in situations where this remains economic, such as service sites not already connected by fibre.

8.28 Ofcom's proposals will leave the market direction in the hands of Openreach, with few regulatory remedies to constrain Openreach behaviour. Ofcom are relying on new investment acting as a competitive constraint, however this may not materialise in the scale required especially during the next review period. Openreach remains unmatched in its market power. Ofcom need to ensure further safeguards are included and ensure what is proposed can be justified as being in the consumer interest.

8.29 In the next sections we look at a range of interventions that would help to provide a wide consumer benefit, supporting alternative investment while seeking to ensure as many consumers as possible get to benefit from fibre.

9. Remedies in non-competitive areas

9.1 In the previous sections we have set out the competition problems that need to be addressed. In this section we review Ofcom's proposals for regulatory remedies in what Ofcom defines as 'non-competitive areas'. We identify in this section where Ofcom's proposals are insufficient to meet their identified regulatory objectives. In summary we consider the most appropriate regulatory remedies in this area are:

- MPF/ Copper 40/10 (FTTC) - Cost based regulation in line with Ofcom's historic approach.
- Copper GEA faster speeds (80/20 FTTC) – Cost based regulation in line with the market moving to this speed being the anchor product in 2021.
- Dark fibre –to ensure controlled market transition.
- Ethernet fibre – Regulated at 2021 prices to ensure market stability and a smooth transition towards dark fibre.

9.2 However, as explained there are a number of additional barriers to market entry and market dynamics that favour the incumbent operator and distort this market. These also need remedying and in the previous sections we explain the example of the copper wedge, distributed purchasing by BT and adaptive remedies which are all examples of how some of these additional market barriers could be remedied.

Ofcom's proposal departs from their historic regulatory approach

9.3 Ofcom is proposing to classify part of the country as non-competitive, in defining this non-competitive part of the country Ofcom consider that all the following conditions need to be met; Openreach need to be the only network present, no alternative providers have specific plans to build and Ofcom do not consider that there is a possibility of network build.[9]

9.4 Without more detailed Information as to how Ofcom practically propose to do this it is difficult to fully comment on this approach. For example, a number of alternative network providers have a niche rural fibre build model and specifically target fibre build in areas that one would imagine are included in Ofcom's definition of a non-competitive area. In addition to this, the Government have

[9] Para 3.1 Ofcom's consultation

provided £1.7bn of BDUK funding to rollout super-fast broadband in these areas and Ofcom are currently implementing the governments Broadband USO scheme, a scheme that entitles consumers to demand a 10Mbit/s broadband service from BT and BT to seek funding for the provision of this service from Ofcom.

9.5 In addition to more information regarding the detailed implementation of this proposal, Vodafone also considers an analysis of Ofcom's current and historic method for incentivising investment in this area is vital. Ofcom state in their consultation:[10]

> *"Our traditional approach to regulation essentially involves allowing BT to recover the costs of new services from those consumers that purchase them. But this may not provide BT with sufficient Incentive to build fibre networks in non-competitive areas because It will tend to face higher than average build costs, and also because It does not face competitive pressures from rival Infrastructure operators"*

9.6 Ofcom's traditional method for incentivising investment has included an uplift to the wholesale broadband prices that BT can charge by allowing BT to recover 'hypothetical costs' akin to a new entrant in the market. Therefore Ofcom's traditional method for incentivising investment in this market has been to (a) allow BT to recover supernormal profits after the initial period of investment from users of the new service (to effectively compensate for the investment risk undertaken by BT) and (b) allow BT returns above their actual costs incurred to allow new entrants to invest in this market.

9.7 This traditional method of incentivising investment has not been successful, BT have not traditionally invested the cash they have generated from their monopoly infrastructure back into developing and improving their network. At the same time as not being successful in incentivising investment, Ofcom's method has gifted BT approximately £10bn in excessive regulated profits over the last 10 years.[11] Vodafone has for a number of years been highlighting to Ofcom that allowing BT to recover costs from their regulated services that are in excess of their actual costs incurred will not incentivise investment[12]. Vodafone are pleased now that[13] Ofcom have reconsidered their approach to allowing BT to recover costs above their actual costs incurred (referred to as the HON

[10] Para 3.5, Ofcom's consultation
[11] Our 2018 frontier report
[12] Our 2017 Frontier report
[13] Table 3, Ofcom's consultation

adjustment) and are proposing from 2021 to stop allowing BT to recover costs from regulated charges that they don't actually incur.

9.8 However Ofcom need to consider what BT has done with excessive past profits when considering going forward the costs that BT are now allowed to recover from existing copper services and new fibre services.

9.9 Ofcom's table[14] seems to suggest that from April 2021 the prices of wholesale copper services will reduce by the amount of 'hypothetical costs' Ofcom have allowed in the past, it is not clear how much this relates to but it is assumed by Vodafone that it is in excess of 10% of the current prices. This price reduction will be welcome by consumers in rural areas that receive Broadband services that are far inferior (slower and proving to be less reliable) to services that cost less in urban areas.

9.10 However, what is less clear is what will happen to copper broadband prices in these rural areas if BT start investing in fibre services, and what cost benefit/impact assessment Ofcom have done to support its initial proposal that copper broadband prices may be allowed to rise as a result of investment in new fibre services. Consider the example of a rural broadband customer that receives a traditional copper broadband service of less than 15Mbit/s and lives in an area that Ofcom deem is 'non-competitive'. Currently they could pay £35 per month for their broadband services, post 2021 this could reduce to £30, then as BT invest this may climb again in price to £35 or even beyond. What benefit would the rural consumer receive? Does it depend on their broadband requirements? Does it depend on where BT choose to invest? There are many unanswered questions and we call on Ofcom to carry out an impact/cost benefit analysis to answer these questions as part of their consultation process.

RAB modelling and execution process

9.11 As Ofcom have explained in their consultation the policies to incentivise BT and other operators to invest in the UK's telecoms infrastructure has centered on allowing BT to increase wholesale prices above cost through the application of a HON adjustment and allow BT to generate super-normal profits from the customers that it sells new or upgraded services to post investment. Ofcom have not to date worked with BT or Openreach on commercial business planning or projects where Ofcom have a roll in approving/authorising/assessing BT's actual investments against a benchmark or performance metric. These activities are more akin to the way Ofwat or Ofgem manage the regulation of the water and energy industry. For Ofcom to change its regulatory approach and

[14] Table 3 Ofcom's consultation

move towards a regime where Ofcom potentially approve, monitor and assess Openreach's investment performance and efficiency of those investments requires a significant shift in regulatory approach.

9.12 We are now less than two years away from the date when Ofcom plan to implement these policies. Vodafone is concerned that Ofcom will not be able, in that time to develop a new regulatory approach with the appropriate rigor and transparency that will ensure consumers in more remote and rural areas actually receive the best outcomes from the telecommunications industry.

9.13 We as a telecommunications industry have some experience of Ofcom's ability to assess and control BT's investments through the BDUK broadband programme. This programme assessed BT's business plans and financial needs as presented by BT and decided that BT required £1.7bn to meet the superfast needs of consumers is areas of the country that did not receive higher speeds of copper-based broadband. Nearly four years after this project started it has been assessed by BT that in fact, their business assumptions were incorrect and in fact, more than one third of this money should be returned to government. It is very fortunate that the BDUK funding scheme included a 'claw back' mechanism and that the excessive funds can in the future be returned. We urge Ofcom to learn from the past lessons of the BDUK programme and consider these in any future design of an investment based regulatory scheme.

9.14 We carried out a full assessment of the considerations involved in monitoring/regulating investments in network where capital has been provided from other sources. This report detailed the lengths the regulator should go to ensure transparency, benchmarking efficiency and costs, and continuous monitoring.[15] This is not a simple undertaking and what this report highlighted was that from the outset the process needs to be very clear to the network operator, the customers of the network operator and the wider telecoms industry.

MPF and Copper FTTC 40/10 and above prices

9.15 Ofcom have segmented an area of the country as non-competitive, we consider it essential that Ofcom then charge control to cost services in that area where no competition is expected. We agree with Ofcom's provisional proposal to charge control these services to cost, where cost represents BT's true actual cost and not their hypothetical cost that simulates a new market entrant.

[15] Ensuring transparency when network providers use your money to upgrade their infrastructure

9.16 We understand that this proposal will see prices for these services fall in 2021 and this is clearly of benefit to telecommunication consumers in these areas.

9.17 If Ofcom subsequently consider allowing BT to increase the prices of these service when BT invest in new fibre services they must carry out a full cost benefit analysis to ensure that consumer interests are best served by this significant policy development.

Fibre Broadband prices

9.18 Ofcom's proposal appears to place no charge control or quality of service obligations on fibre services when BT roll them out in these uncompetitive areas. This would seem to be appropriate under Ofcom's traditional methods of incentivising investments where recovery of investment costs are limited to consumers of the new products and services but seems wholly inappropriate when those investments have been enabled by consumers of existing copper products and services. If I am a consumer of copper based broadband services in these areas I am potentially going to be asked to pay more for these existing services. The addition that I pay will be used to enable the roll-out of future fibre services. After funding these future fibre services with my higher charges I want to be assured that I can procure these new services at a price set by the regulator and not by a commercial organisations with market power to extract maximum wealth from me.

9.19 If Ofcom were to allow BT to set the prices of new fibre services in these areas how would Ofcom assess the difference between the fibre investments BT are making and the likely returns from those investments. It is important to understand this difference as this would represent the basis for any cross subsidy required from copper based broadband services.

Leased lines above and below 1Gbit/s and dark fibre regulation

9.20 We consider it in line with Ofcom's proposal to segment an area of the country as non-competitive to then charge control to cost services in that area where no competition is expected and where one operator has SMP.

9.21 Ofcom is not proposing to charge control to cost leased line services below and above 1Gbit/s and this is inconsistent with its approach to charge controlling copper-based broadband services in the same area. However Ofcom is proposing to charge control dark fibre to cost in these areas and therefore we agree with Ofcom's proposals because dark fibre can be used to provide both below and above 1Gbit/s services.

10. Approach to Quality of Service

Quality of service regulation needs to refocus to have strong maintenance of current standards levels

10.1 History has shown that quality of service can be profitably sacrificed by Openreach. Openreach's SMP means that order volumes are not affected as service standards fall. It is also anecdotally evidenced that poor performance by Openreach advantages BT downstream who are perceived to have leverage beyond that of other CPs to escalate and expedite order problem.

10.2 The Ethernet service crisis directly resulted from Openreach headcount reductions in 2012 when Openreach sought to remove £35Mpa from its network planning cost base[16]. This occurred as the company was simultaneously upgrading its copper network to FTTC. These actions directly led to years of poor Ethernet planning and delivery causing years of provisioning misery for Communications Providers using Openreach and their customers. Full recovery from this crisis took six years and Ofcom's intervention to secure. The cost of the crisis was far in excess of the £35Mpa initially saved by Openreach, with UK businesses suffering an unquantified productivity impact.

10.3 Openreach shares a number of resources between its Ethernet and Broadband/ copper services. As Openreach has rolled out FTTC and now Gfast/FTTP the focus of resources has diverted from Ethernet to Broadband. As Gfast/FTTP rollout by Openreach accelerates there will be greater pressure on limited sources. Resource management becomes even more critical beyond 2021 as the demand is no longer just between Openreach product departments but unprecedented demand within industry as numerous network rollout programmes are embarked on simultaneously.

10.4 Openreach has not shown itself capable of quickly (or absent regulatory pressure) resolving the root causes of service deterioration. Acceptable service performance levels and appropriate payment of consequential SLGs have been sacrificed for financial gain[17]. The timeline for the service issues starting and improving are shown below. No material improvement occurred until Ofcom intervened with specific regulation as BT's SMP allows Openreach to have poor performance yet remain profitable in particular when SLGs can be avoided or minimised.

[16] Slide 9 https://www.btplc.com/Sharesandperformance/downloads/PDFdownloads/q413_slides_update_part2.pdf
[17] (SLG payment avoidance via Deemed Consent)

Time period	Issues
Spring 2012:	High-level decisions taken within BT to reorganise Openreach centralising planning and reducing headcount to deliver 'efficiency' savings[1]
Summer 2012:	Openreach planning & headcount changes introduced and service crisis ensues
Autumn 2012:	Industry is slow to react, assured by Openreach that problems are temporary and will be resolved quickly
Spring 2013:	Openreach continues to struggle with lack of resource, growing order-book and the additional strain on NGA delivery. Get well plans are introduced, but without additional resourcing or unwinding of previous changes, they fail.
Summer 2013:	Growing industry disquiet at length of service crisis. CPs facing the wrath of their customers are escalating issues to Openreach, but still no senior management ownership of the issue.
Autumn 2013	CPs escalate concerns to Ofcom, who are being informed simultaneously by Openreach that things are under control. Recovery plans continue to fail and Ofcom (informed by direct industry feedback) begin asking Openreach management tough questions. This results in Openreach senior team acknowledging for the first time that there is a wider problem that needs to be resolved.
Autumn 2013	Vodafone Deemed Consent investigations kicked off due to growing concerns over failing performance and increasing customer complaints but continued high CCD performance statistic being provided by Openreach.
Winter 2013/14:	Openreach trumpets EMP upgrade as the solution to the problem, asking CPs to get behind it. CP concern that EMP is too far away and too big a leap – request to focus on fixing current processes.
Winter 2014:	Real-time Deemed Consent challenge process initiated by Vodafone as initial analysis highlighted that Openreach were not behaving correctly.
Spring 2014:	With OTA oversight there is continuing tension between Openreach and Industry around EMP Vs. fixing current processes. Eventually Openreach commit to do both, with DoJ the solution proposed by Openreach, after request to re-order SLG payments is proposed by industry (but then rejected by Openreach). Recovery plans continue to fail. New Openreach CEO takes criticism on the chin and acknowledges failures and promises new resources (unwinding previous cuts).

Spring 2014	Deemed Consent investigation completed concluding Openreach poor behaviour.
Summer 2014:	Tensions high, with DoJ Openreach team unpicking what is required and where things appear to be going wrong. Very apparent that Openreach have underestimated the scale of the task. Innovations like Clarity are delayed and EMP work stack takes a back seat for the first time.
Summer 2014	Letter issued to Openreach challenging poor behaviour
Autumn 2014:	Further recovery plans have failed, DoJ trial delayed. Scale of Deemed Consent/date management issues significant. It becomes apparent that despite the good intention of the Openreach team, the lack of clearly understood internal processes, lack of joined up delivery within various Openreach teams and the limitations resulting from the use of third party contractors limits the ability of Openreach to make positive change.
Autumn 2014	Openreach agreed to some of the incorrect Deemed Consent usage highlighted but both failed to address the underlying issues and provide a compensation offer for the whole period and provided inaccurate responses.
Winter 2014/5:	DoJ trial delayed further as full extent of the task becomes apparent. Trial scope is modified to make it more achievable to deliver. EMP is no longer on the agenda as DoJ and date management discussions dominate. Clarity is available, but only in pull format.
Spring 2015:	Only 53% of our orders with Openreach are delivered on time. Scaled back trial finally commences in April 2015. Deemed Consent usage rules still not fully agreed. New Openreach resource is finally coming through, but service crisis continues. April 2015 – Collaborative Service Improvement Eight Point Plan – further recovery initiative to focus on main points of inefficiency and improve delivery.
Spring 2015	Openreach provide further response but still falls well short of expectations. Continued issues faced with real-time challenge process with Openreach.
Summer 2015	Vodafone refutes Openreach's stance. Vodafone submits dispute to Ofcom.
Autumn 2015	Other CPs raise disputes with Ofcom against Openreach Deemed Consent. (TalkTalk).
Winter 2015/16	Ofcom upholds Vodafone dispute and initiates own investigation into Deemed Consent abuse. Vodafone submits SLG claim to Openreach but does not conclude due to Ofcom own investigation.

April 2016	The Ofcom new minimum service standard regime starts, reflecting that performance to CDD has been at 70% of orders.
Summer 2016	Deemed Consent section of the Job Control Handbook issued to CPs for the first time. CP suggested improvements/changes not implemented or accepted by Openreach
March 2017	Ofcom issue the results of their investigation into Deemed Consent abuse fining Openreach £42M.
April 2017	80% orders to CDDs minimum standard is met.
April 2018	85% orders to CDD minimum standard is met.

Source: Vodafone

10.5 The evidence clearly identifies that service performance can be sacrificed for extended time periods as Openreach pursues greater profits without adverse effect upon Openreach sales levels. While BT retains SMP it is necessary and appropriate to put in place a regulatory regime that supports maintenance of service levels at acceptable levels. That regulatory regimes needs to include:

- Minimum service standards below which service performance cannot fall. Failure to comply must result in biting sanctions.
- Public publication and therefore full transparency of performance against a set of relevant KPIs
- Clear and contractual service SLAs for a stable delivery and repair system.
- A requirement to pay SLGs for failure to meet SLAs. SLGs need to mirror and flow directly into the demands of the automatic compensation scheme and include recovery of CPs cost of dealing with Openreach failure[18]. The QoS direction sets out an approach to SLG setting which continues to remain appropriate and relevant.

[18] At present the copper/broadband SLG regime is misaligned with the automatic compensation regime requiring Retailers to foot the bill for compensation activity outside of their control.

11.Retirement of the copper network

11.1 Openreach have recently consulted on their proposed approach to copper switch off, which would involve them rolling out FTTP on an exchange by exchange basis. When 75% of premises were accessible to FTTP, this would trigger an exchange closure process, where copper services are withdrawn for new supply, with copper switch off occurring sometime after this (exchange area by area).

11.2 It is clear from Openreach's consultation that copper drop wires will not disappear entirely. They will remain in situ for a proportion of premises where Openreach feel fibre remains uneconomic. It may well be the case that fibre is brought to the closest distribution point, but the copper drop to the premise remains. This could mean that many exchange areas have a minority of copper drop wires left after formal copper switch off.

11.3 Regardless of the how the Openreach access network is presented to the customer (FTTP or copper), there will be an opportunity for Openreach to close exchange buildings as the copper distribution network is retired.

11.4 Adoption of FTTP within an exchange area will be voluntary at first, with early adopters keen to secure higher speeds, but ultimately it will become mandatory if consumers wish to maintain a fixed connection. Given Ofcom's reluctance to regulate FTTP in an effort to encourage investment, there are risks that the consumer interest will not be safeguarded in the transition, particularly when that process becomes mandatory.

11.5 The process of copper switch off can have an adverse effect on rival network builders.

11.6 Openreach's unique ability to fill up their FTTP network and co-ordinate copper switch off gives them a considerable advantage over other FTTP providers. Not only are Openreach guaranteed the business from all BT's retail lines of business who, (despite legal separation) make no attempt to tender their procurement needs elsewhere, they can also co-ordinate the process of Copper Switch off with their FTTP roll out and load the new network up from the outset. This gives them utilisation rates that other FTTP providers would be unable to match. All this can be achieved without the need to incur large customer acquisition costs.

11.7 Openreach are the only national provider and if retail communication providers are to offer a national service they must contract with Openreach at scale. This is true of the current generation of GEA products and this relationship allows Openreach to secure volumes for its FTTP footprint (which was a condition of the most recent GEA volume rebate scheme). In the scenario of copper switch off, retail providers who wish to continue to offer a UK wide service will have no choice but to make use of Openreach FTTP.

11.8 Technology change from copper to fibre represents a key time point for new market entrants to acquire customers. The management of copper switch off in areas of overbuild should accommodate the build status of rival networks, giving these networks a fair chance of acquiring retail and wholesale business before switch off is enforced.

The dangers of Discounting

11.9 While we believe there remains a place for discounts in the wholesale market there must be much clearer guidance to ensure discounting aids competition in the long term. We are very concerned that Openreach has the freedom to structure discounts to achieve their aims at the expense of other wholesale providers to the detriment of long term competition. Allowing Openreach to design discount schemes that are only open (or commercially advantageous) to the very largest purchasers (such as their own lines of business), or compel retail communication providers to buy a certain technology mix at the expense of other supplier relationships would be a serious error at this point in market development. Sawtooth or all or nothing discounts can be very disruptive and prevent some communication providers from competing as they are no longer able to secure the lowest price in the wholesale market.

11.10 Often the key issue when considering the impact of a discount scheme is not the price paid with the discount relative to the previous price, but the price paid in relation to that which can be achieve by key competitors. In the volume UK retail broadband market, if you can't at least match the wholesale price being secured by the competition, you've little scope to grow (or even defend) your customer base.

11.11 In non-competitive areas, Openreach is likely to be the sole supplier in most cases. They shouldn't be able to leverage this purchasing into sales within prospectively competitive and competitive areas as this could unbalance the wholesale market.

11.12 Likewise discounts create considerable uncertainty in the longer term. If a CP has secured a substantial discount on the unregulated 80/20 product (with the headline price for this service

not changing for a number of years). If terms are not agreed for a renewal of the discount then a price shock is likely to occur, undermining exiting retail customer contracts and the ability of CPs to compete in the retail market. Openreach use this uncertainty to their advantage as it allows them secure long term commitments from retail broadband providers. This is likely to be at the detriment of new wholesale FTTP providers, who find themselves competing against an Openreach who are demanding significant retail volumes from the same communication providers who sell into the retail broadband market.

Setting the ground rules for discounts

11.13 The tone taken in the consultation document around the role of discounting underestimates the threat posed and we would like Ofcom to take steps to ensure discounting can't be used as an anti-competitive tool. The Competition Act is a poor defense in such circumstances, particularly given the timescales (4 years +), uncertainties and expense to pursue a case, with the complex nature of the issues making the cases difficult to pursue.

11.14 We'd like to see Ofcom take steps to clarify upfront clear rules for discounting, setting out key principles that must be adhered to, ensuring selective CPs cannot be discriminated against and Openreach can't leverage sales in non-competitive areas to guarantee sales in more competitive parts of the country, to the detriment of other wholesale providers.

[i] https://www.vodafone.com/content/dam/vodafone-images/public-policy/reports/pdf/balancing-incentives-for-the-migration-to-fibre-networks-310317.pdf