Promoting investment and competition in fibre networks: approach to remedies

TalkTalk response to BT submission on remedies consultation

November 2019

NON-CONFIDENTIAL

1 Summary

1.1 This submission is TalkTalk's response to BT's and Openreach's submissions, dated June 2019, on Ofcom's consultation entitled *Approach to Remedies*.

1.2 While TalkTalk differs on the implications, we agree with BT's analysis of many of the errors and omissions in Ofcom's consultation. We share BT's concerns regarding:

- the lack of evidence underpinning the proposals made by Ofcom;
- the absence of any cost/ benefit analysis of the proposals being made; and,
- complex and unnecessary proposals in category 3 areas, which risk market distortion.

1.3 Of course, we do not agree with BT in all aspects. However, unusually in the context of regulatory consultations, there are far more areas where we agree with BT's analysis than where we disagree. We urge Ofcom to take full account of the joint concerns highlighted in this submission in its next consultation on remedies, currently due in December 2019. We consider that this will require Ofcom to widen the range of options it presents for consultation and conduct thorough analysis of each against its objectives drawing on appropriate evidence.

1.4 In particular, TalkTalk agrees with BT that:

- the access and leased line markets should not be conflated, and Ofcom should consult fully on market definition and SMP findings (sections 2.1 and 4.0 of this document);
- copper networks should be retired once Openreach has rolled out FTTP in an area (section 3.2);
- Ofcom should grant Openreach a 'fair bet' on FTTP roll-out (section 3.4);
- Ofcom's proposals would prevent BT from meeting competition from Virgin Media (section 4.1);
- Ofcom should undertake a cost-benefit analysis of its proposals (section 4.3); and,
- Ofcom's proposed RAB model cannot easily guarantee cost recovery for BT (section 5.1).

1.5 There are other areas where we disagree with BT (for example, on whether there are bidding market characteristics in wholesale broadband, whether two operators plus the threat of entry can ever be sufficient to constrain Openreach's SMP, and what the boundaries of category 2 and category 3 areas should be). However, it is striking that in an area of regulation where BT and TalkTalk's views are frequently opposed, on this occasion we concur with much of BT's submissions.

1.6 The remainder of this document is structured along the same lines as BT's submission, and sets out in detail our areas of agreement and disagreement. Where there is a reference to an Openreach submission, it is preceded by "OR" prior to the paragraph number.[1]

[1] In addition, and helpfully, BT's submission has paragraph numbering formatted as §X.x, while Openreach's is §X. It should therefore be clear in all cases which submission is being referred to.

2 Remedies must reflect market dynamics

2.1 Section 2 of BT's response sets out its position that Ofcom has fundamentally misunderstood the market dynamics of the broadband market, and has failed to reflect the changing nature of the market over the regulatory period. TalkTalk agrees with this, although we do not agree with the conclusions BT draws from Ofcom's misunderstanding.

2.2 BT sets out at §§2.9-2.14 that Openreach is not the largest provider of ultrafast connections in category 2 areas, and is behind Virgin Media in such connections at present.[2] This is evidently factually accurate, and implies that Openreach is unlikely to hold SMP at present in a hypothetical narrowly defined product market consisting solely of ultrafast connections. However, there are a number of important points to note, even once this fact is accepted:

- *relevant product market*– Ofcom has not yet consulted on its proposed product market definitions, as previously noted by TalkTalk in its submissions to Ofcom (see §8.13 of our June 2019 submission and section 3 of our March 2019 submission). It is therefore far from clear that the appropriate product market is one for ultrafast connections alone. If the relevant product market were defined as being all connections with speeds at or above 30Mbps, this would lead to very different conclusions regarding market power. Similarly, if the product market were treated as FTTP alone (for example, to reflect consumer preferences for low fault rates), then this could again lead to different SMP findings. That is, in this case either a wider *or* a narrower product market definition than that implicitly proposed by BT could have different outcomes. Openreach's point in its submission (OR §31, §57) that Virgin Media has considerably more ultrafast customers than Openreach is of no particular relevance, as this is not a defined product market, and TalkTalk considers that over the early part of the next regulatory period, reliability is likely to be more important than a simple speed based metric.[3] As Virgin Media's DOCSIS lines are still based on copper, they do not provide the levels of quality and reliability offered by an FTTP line.
- *relevant geographic market*– all of BT's analysis in §§2.9-2.14 is based on the whole of category 2. When considering constraints in any geographic unit, it may not be the case that Virgin Media acts as an effective competitive constraint, depending upon the relative extent of Virgin Media rollout and of Openreach FTTP build.[4] Indeed, if the relevant product market were FTTP alone, then Virgin Media, because it has a low proportion of FTTP in its network, may act as a competitive constraint in a small proportion of the category 2 area. More generally, category 2 encompasses areas with widely differing conditions of competition and therefore generalisations about current market shares across category 2 are of no particular relevance.
- *this analysis is not relevant to whether FTTC products are regulated*– even if it were accurate that BT does not hold SMP in a putative ultrafast market encompassing the

[2] This is mirrored at §§30-33 of Openreach's submission.

[3] [✂] The speed of FTTP will therefore be relevant to a minority of households over the 2021-2026 period.

[4] Ofcom's current geographic unit of aggregation is proposed as being a postcode sector; however, Ofcom has not yet presented evidence that this is the most appropriate geographic unit of aggregation to adopt.

whole of the category 2 area, this has no implications for whether, and how strongly, Openreach's FTTC products should be regulated, since those FTTC products are not part of the relevant market.

2.3 In addition, BT states at §2.13 that '*Virgin Media might also consider wholesaling network access services in light of competitive pressure*'. This is entirely speculative. [✂].[5] There are a number of technical obstacles to doing so, most notably the design of the DOCSIS network, which means that bandwidth has to be managed collectively, rather than by the wholesale provider. This means that even if Virgin Media commercially wished to wholesale, the products it could offer would be unlikely to be attractive to potential wholesale customers since they cannot control, innovate or differentiate the service. Ofcom should place no weight on such speculative and unevidenced statements.

2.4 At §§2.15-2.17, BT's response covers the potential competition from smaller FTTP operators such as CityFibre and Hyperoptic. It states that '*these have financial backing and can achieve build costs very similar to Openreach by using duct and pole access*', and then lists a number of operators, and references Ofcom's statements in the PIMR regarding the potential effectiveness of passive access remedies for network construction.

2.5 It is accurate to state that there are several firms seeking to roll out their own FTTP networks at present, including TalkTalk's own FibreNation subsidiary. However, it is highly unlikely that they will have similar build costs (see §2.16 below). Further, it remains to be seen how effective these firms will be in acting as an effective competitive constraint on Openreach. It is unlikely that all of the altnets will be able to build to as many homes as they have targeted, and several of them are likely to fall by the wayside for one reason or another, whether because of financial backing falling through, management problems, or a simple lack of demand for the services they provide.

2.6 It is always easy for dominant firms to claim that smaller entrants will soon provide an effective competitive constraint sufficient to undermine the dominant position. However, it is important that Ofcom does not prejudge the impact of entry. Although entry may be sufficient in time to undermine BT's SMP, it is unclear how long this will take, and whether it will encompass substantial parts of the UK, or only a few selected areas. This process can be seen in the leased line market, where despite substantial entry, Ofcom has found that BT continues to hold SMP in all parts of the UK other than the Central London Area.[6]

2.7 It is therefore appropriate, as TalkTalk set out in its June 2019 submission, for Ofcom not to pre-emptively deregulate or soften regulation before there has been entry in a particular part of the UK that is of a sufficient scale that it is likely to constrain BT. The example of the CLA demonstrates that, in and of itself, entry is not sufficient to constrain BT's SMP, and that it will be important to assess whether and how entry leads to effective competitive constraints on BT.

2.8 §§2.18-2.21 provides BT's view that wholesale customers may be able to use a tender process, or similar, to create competitive tension between networks, specifically referencing

[5] [✂]

[6] For the avoidance of doubt, TalkTalk disagrees with the finding that BT does not hold SMP even in the small part of the UK represented by the Central London Area.

both Openreach's volume discounts and Sky's market testing of a tender process. BT refers to competitive conditions as being '*akin to bidding markets*'. Although it does not explicitly state it, BT appears to imply that if it were a bidding market, BT itself could not hold SMP; a bidding market is therefore an extreme form of countervailing buyer power.

2.9 TalkTalk agrees that, in the long run, if there is meaningful market entry then operators may be able to use bidding and tender processes in particular parts of the country to meet their access network supply needs. However, there are a number of conditions which are likely to be required for this to be the case:

- *there needs to be a viable competitor in the specific area*. It will need to be viable in a number of ways: for example, it will need to cover most or all of the premises in an area; and it will need to have sufficient capacity, particularly in terms of the number of customers connected in a given time period, to take the CP looking to switch its base in. In the absence of a viable competitor, there is clearly no scope for bidding, as there is no alternative bidder.
- *that competitor needs to be willing and able to wholesale*– at present, not all network operators are willing and able to wholesale to third parties. For example, although CityFibre and FibreNation wholesale to other operators, other networks such as Hyperoptic and Virgin Media do not wholesale. There is no scope for creating a bidding situation in areas where there is a third party network, but that network does not offer wholesale provision.
- *customers need to be willing to switch to the new network*– one of the core points about a bidding market is that it is winner takes all, with lumpy demand. This requires that a CP can rapidly switch all of its demand to the new network. However, it is difficult to rapidly switch customers, since switching from one FTTP network to another, or from the Openreach network to an altnet FTTP network, will require work at the customer's premises (both in-home and externally). Not all customers may be happy with this experience, and even if they all are, it will take an extended period of time to switch all of the customers of a major operator. This condition is therefore unlikely to be satisfied.

2.10 As such, it seems unlikely that these conditions are currently satisfied in a meaningful proportion of the UK. Tender processes are therefore largely impractical at present. [✂]

2.11 Even if tender processes become usable at some point in the future, this still does not imply that the UK wholesale access market will become a bidding market. Taking the elements of a bidding market as set out by Klemperer (2005) in turn:[7]

- *'Competition must be winner takes all'*– this is clearly not the case. CPs are able to, and may well, split their demand across networks, whether by choice or from necessity. An individual altnet will not be present in all parts of the country, resulting from demand being split at a national level; and even at a city level an altnet is unlikely to be able to serve all premises.[8] As set out before, customer unwillingness

[7] Klemperer, P. (2005), *Bidding markets*, at section 2.1

[8] For example, because of listed buildings; private roads; difficulty in obtaining wayleaves for MDUs; or topographical features which make it uneconomic. See §6.3 of TalkTalk's March 2019 response to Ofcom's geographic markets consultation.

to have in home works which they have not requested means that it will likely take an extended period to switch customers across, and many customers may never be willing to switch unless compelled to do so.

- *'Competition is lumpy, so that there is an element of bet your company in any contest'*[9]– this is also not the case, at least for Openreach. Openreach has locked in demand via BT Retail representing a market share of over 30% of total UK lines. Virgin Media is also vertically integrated with a major retail CP, guaranteeing it a large volume of demand. Despite having the fourth largest retail customer base, TalkTalk has [✂] via its retail business; the fifth largest operator (Vodafone) has less than 5% of volumes. There is consequently no sense in which there is any bet the company element for BT/ Openreach in bidding for demand from any other operator, as it could not be rendered insolvent by failing to win a tender process from any particular external provider, due to its vertical integration and market power.[10]
- *'Competition begins afresh for each contract and for each customer'*– this is not the case, given the substantial switching costs in the broadband market. Connecting a customer to a different network may cost several hundred pounds per customer in total, given the need to pay customer service costs, digging across front gardens, the provision of a new router, and in home engineering costs. There is consequently a substantial element of lock in, with the result that one round of bidding will substantially influence the outcome of the next round of bidding.

2.12 BT cites Openreach's volume discounts as evidence of Openreach's customers having '*flexed their muscles*'. This is a misrepresentation of the situation. [✂]. Rather, Openreach itself recognised that its excessive prices– which were well in excess of costs– were acting as an impediment to wider take-up of FTTC products. Indeed, the evidence is that they may have been set in excess of the monopoly level. [✂]. §2.20 of BT's submission is simply an inventive recasting of history to fit BT's narrative.

2.13 BT §§2.22-2.24 covers the potential impact of fixed wireless and 5G mobile (OR §§40-41). TalkTalk has dealt with these points in our June 2019 submission (at §5.25) and considers, to determine whether BT's analysis is accurate, that Ofcom should have assessed the impact of new technology on fixed line products, and should in particular have taken them into account in its product market definition.

2.14 TalkTalk agrees with BT's view at §2.25 of its submission that Ofcom should have considered demand and supply side substitution on a product specific basis. The lack of product-by-product analysis is a key omission from Ofcom's consultation, and is unsustainable.

2.15 TalkTalk also agrees with BT's submission at §2.26:

[9] By 'bet your company' Klemperer means that if the bid is lost, it is conceivable that the company bidding for the contract is no longer a viable going concern, and risks bankruptcy.

[10] It is not relevant whether the market is a bidding market from the perspective of altnets, as no party is currently arguing that altnets hold SMP. However, it also seems unlikely that altnets will face a bidding market: CityFibre has minimum volume commitments from Vodafone providing it with a guaranteed revenue base; Gigaclear conducts a demand building exercise in each locality to guarantee demand before it begins construction; and FibreNation is currently vertically integrated with TalkTalk.

- we agree that the strength of constraint between FTTC and FTTP products is likely to be asymmetric;
- we agree that the constraint that FTTC imposes on FTTP is likely to weaken over time; and,
- we agree that the current sustainable price premium of FTTP over FTTC is uncertain.

2.16 However, we disagree with BT's §2.27. Openreach is likely to retain a considerable advantage even after the introduction of unrestricted DPA:

- it has better knowledge of its assets than third parties do, and so will be better able to judge the best method of rolling out an FTTP network in light of the restrictions on DPA;
- some wayleaves allowing access to buildings or duct are solely granted to Openreach and not usable by CPs extending their networks on the basis of DPA;
- altnets will need to break in and out of Openreach's duct, incurring a cost which Openreach/ BT does not need to incur;
- Openreach is able to spread the cost of network alterations across its whole customer base, via the manner in which DPA operates and the excess construction charge approach for leased lines, and be able to recover them due to their SMP. This differs from other providers, who would not have the ability to do so;
- there is, as yet, no guarantee that DPA will enable a level competitive playing field between Openreach and other operators, as it has not yet been at scale to roll out a network. For there to be a level playing field, use of DPA needs to be seamless, involving no more costs than if the network builder owned its own passive assets, which seems unlikely, particularly since the product has not yet been industrialised;
- DPA is unlikely to be able to be used for the final connection to leased line customers, as leased line customers will generally expect installations faster than is currently possible using DPA;
- it has access to an existing large and experienced field force of engineers which can be flexed between different types of work, lowering labour costs and alleviating capacity constraints; and,
- it is vertically integrated with the largest consumer base of all CPs in the UK, providing it with a larger potential market than any other network builder, and a considerably higher and more certain minimum level of demand.

2.17 As such, Openreach is likely to maintain a material incumbency advantage even in the presence of Ofcom's DPA remedies. This incumbency advantage is likely to be maintained during the whole of the period of the next review on a national basis, given that FTTP networks from operators other than BT are unlikely to hold a substantial national market share before 2026. Openreach will continue to be able to act independently of its competitors and customers over this period.

2.18 TalkTalk also disagrees with BT's statement that '*competition between two networks with the realistic prospect of entry may be sufficient to drive competitive outcomes*'. There is simply no economic logic to this statement:

- competition between the fixed networks of Virgin and BT has been insufficient to drive competitive outcomes to date. BT has continued to make supernormal returns on products which are not regulated. For example, in the 2018 Wholesale Local Access Review, Ofcom found that the ROCE earned by BT on the (then-unregulated) FTTC product was 24.8% in 2016/17;[11]
- there are very high barriers to entry in fixed line networks, including large fixed and sunk costs; a substantial time from the decision to enter and entry being completed; and large economies of scale, scope and density. All of these will mean that Openreach will have ample time from becoming aware of the prospect of entry to react to entry, without needing to set a low price in advance of entry occurring. There is consequently no need for Openreach to maintain low prices in advance of entry, when it can observe entry and cut them well before its competitor is able to go to market.
- Openreach and BT Retail also have, through minimum contract terms, the ability to partially restrict competition, and earn supernormal profits, even after there has been entry. Where there are either wholesale or retail contracts in place which span the period until after entry, the whole market will not be available to entrants, reducing the returns from entry, and locking up demand at prices above the competitive level for extended periods after entry.
- BT refers to '*customers [being] able to lock in benefits through contractual terms*'. It is unclear how this can happen in the absence of effective competition which leads to networks bidding at competitive price levels.

2.19 Indeed, the conditions of competition in fixed line networks appear highly conducive to coordinated effects, which will mean that two operators will not be sufficient to drive competitive outcomes, and even three may not be enough:

- the oligopoly in fixed line telecoms is tight, in that there are few firms in each area—usually only two, with three in a few parts of the category 2 area;
- there are substantial barriers to entry which will ensure that hit and run entry cannot undermine the collusive equilibrium;
- the market is transparent and easy to monitor. Consumer prices by their nature need to be public, and Openreach is required under EoI conditions to publish wholesale prices, making it clear what its behaviour is. All operators engage in regular detailed monitoring of their principal rivals' behaviour and strategies already;
- there is multi-market contact between firms, both horizontally between different geographic areas and vertically between retail and wholesale markets, supporting punishment strategies;
- FTTP networks' capabilities are likely to be relatively homogeneous, both facilitating the establishment of a collusive equilibrium, and making punishment strategies more effective.

2.20 BT's submission does not deal with coordinated effects, but if Ofcom is minded to accept the view that a small number of networks is sufficient to lead to competitive conditions in fixed

[11] Wholesale Local Access Review 2018, volume 1, at §9.34

line network markets, it should conduct an analysis which considers whether there might be coordinated effects in the FTTP market which would act to raise prices above the competitive level.

2.1 Competition for business services

2.21 BT's submission briefly considers competition in leased line markets at §§2.31-2.34. This section largely reprises BT's submissions in the 2019 BCMR.

2.22 At §2.31, BT states that there are two relevant economic markets:

- '*a lower bandwidth market (at 1G and below) which will be increasingly cannibalised by ultrafast broadband*'; and,
- '*a competitive VHB segment above 1G*'.

2.23 TalkTalk disagrees with this assertion. First, there are not separate markets, principally due to supply side substitution. Second, even if there were separate markets, we do not agree that any putative market for leased lines with speeds above 1Gbps is competitive. Openreach has been able to set prices well in excess of costs—indeed, more than double costs– in this market for an extended period. This is not consistent with a competitive market, where such behaviour would lead to Openreach having a negligible market share, rather than the substantial and growing share which it currently possesses. Rather, even if there is a separate economic market for very high bandwidth leased lines, it is not a competitive market.

2.24 However, we agree with Openreach's comments (OR §§53-55) that Ofcom appears to be implicitly adopting an inappropriate product market definition which conflates access lines and leased lines for no good reason. If Ofcom wishes to adopt a product market definition which brings together leased lines and access lines, it should provide detailed economic evidence that this is the appropriate product market definition, and that a hypothetical monopolist of either leased lines or access lines could not profitably impose a SSNIP.

2.2 Impact of FTTC prices on BT's FTTP investment incentives

2.25 BT's submission also supports TalkTalk's position that, by increasing the FTTC price, BT's incentives to invest are reduced due to the higher counterfactual profit margin if it did not invest in FTTP. As BT states (§2.15) *'Other network rivals... also derive full value from any customer gained through investment whereas established operators only gain value from upgrades (for customers they would otherwise retain)'*. The reduction in the value gained by '*established operators'* will reflect these operators' margins on their existing customers; it is the same mechanic which reduces BT's incentives to invest when wholesale FTTC prices are increased, as it only gains value from the difference between the FTTC and FTTP price.

2.26 This is consistent with section 5.3.2 of TalkTalk's June submission, which sets out in detail the manner in which high FTTC prices will reduce the incremental value of an upgrading customer to BT, and so deter FTTP investment. Effectively, the '*value from upgrades*' in BT's terminology is reduced by an increased FTTC price.

3 BT's view that investors require long-term signalling

3.1 Section 3 sets out BT's view that in order to promote investment, there is a need for Ofcom to provide signalling of its long term intentions with respect to regulation, given the long period for FTTP to pay back the costs of investment. There are a number of more detailed points which BT makes in support of this contention, which will be addressed in this section.

3.1 Stability in the price of existing services

3.2 At §§3.10-3.20, BT sets out its view that a long period of 'stability' in the price of existing services is needed to provide an appropriate investment environment. The core points made in this regard are as follows.

3.3 *BT supports the move to five year control periods*– BT sets out at §§3.10-3.11 both its support for a move to five year review periods, and that the timescales for investments are even longer than five years. TalkTalk considers that leaving regulation unchanged for five years, irrespective of changes in market outcomes, is unlikely to be appropriate in a market as dynamic as the broadband market is at present. A longer control period makes it imperative that the form of regulation adopted is able to adapt to outcomes which differ from expectations over the course of the control period. It also makes it important that Ofcom takes its decision on regulation and appropriate price caps as close as possible to the start of the regulatory period, so that information emerging just before the start of the period can be taken into account.

3.4 *Ofcom should be explicit about the approach which it will adopt over multiple charge control periods*– despite correctly noting that Ofcom cannot fetter its discretion, BT requests that it should set out the regulatory policy principles that it will adopt over multiple periods. TalkTalk considers that if Ofcom wishes to adopt such an approach then it must ensure that the principles are sufficiently flexible that they can cope with any scenario which can realistically occur, from widespread competitive FTTP roll-out, to no scale roll-out by operators other than Openreach and to different levels of Openreach roll-out. A combination of principles and flexibility will be difficult given the rapid evolution and uncertainty which surrounds the communications sector at present. If Ofcom wishes to adopt such an approach, it should consult separately on these principles, outside the type of wider consultation which is planned for December.

3.5 *BT supports charge controls at a CPI+0% level and considers that Ofcom should signal its intentions after 2026*– TalkTalk has set out at length in its June submission (at section 5) its concerns with a CPI+0% pricing policy, which looks likely to be the worst of all worlds, failing to provide the correct incentives for reasonably efficient operators to invest by ensuring prices above their cost base following their entry, while also permitting BT to earn substantial supernormal profits prior to entry occurring. The proposed charge controls may not be in line with the REO cost level, and even if they are, needlessly cause consumer harm by failing to adapt to differences in competitive conditions between various areas. CPI+0% pricing is also less predictable than an REO charge cap, as it is less arbitrary and therefore more predictable over the medium and long term.

3.6 *BT alleges that CPI+0% pricing may not enable it to over-recover against its costs*– at §3.15, BT asserts that Ofcom is wrong to state that CPI+0% charging will enable BT to enjoy prices

in excess of its costs, but rather that reducing volumes may mean that it does not cover its costs. This assertion is unsupported by any evidence at all regarding the scale of reduction in FTTC lines which BT expects, the economies of scale which it alleges will be lost, and whether those economies of scale will be replaced with economies of scope between FTTC and FTTP lines served by Openreach. The lack of evidence is surprising since BT has the data available to model costs. As such, Ofcom should not accept this assertion without a considerably more detailed analysis being submitted by BT. This is particularly the case when the approach to copper switch off proposed by BT– where FTTC exchanges can be closed soon after universal availability of FTTP in an area– is a scorched node approach which means that static assessments of scale economies are unlikely to be appropriate.[12] Such a complex situation requires full and detailed economic analysis, rather than a single paragraph of unsupported assertion. Finally, it is unclear in what respects economies of scale will actually be lost– the duct, poles and associated passive assets will continue to be used, and exchanges will either be used for FTTP or closed and no longer incur costs. The only obvious losses in economies of scale will be in copper cable, which is a small proportion of the total cost stack, and which in any case will only be in the short term until copper switch off and recovery of the cable. Openreach's point that '*high unit costs of supply... will be faced in supplying [copper] customers as migration to FTTP increases*' therefore appears wrong (OR §66(c)).

3.7 There are also several other factors which are omitted from BT's over-simplistic analysis of the relationship between price and cost for MPF/ FTTC services:

- the HON adjustment needs to be removed from the cost calculation before determining whether there is over-recovery. The HON is not required to enable BT to recover its efficiently incurred costs, but rather intends to support entry by alternative operators. The removal of the HON adjustment is very significant in the context of the charge control on MPF and FTTC products, with Ofcom stating in the WLA18 that '*The combined impact of our ongoing network adjustments is to increase the 2020/21 forecast charge for MPF rentals by around £8.60 per line*'.[13] The HON reflects that BT has previously gained from an unduly accelerated depreciation profile. To the extent that there are any losses following removal of the HON adjustment, these could be considered to have been pre-funded by the historic HON, which has provided BT with funding well in excess of its cost level.
- other cost aspects of copper and FTTC services will also be reduced. For example, there will be no need to incur any R&D or product development costs for copper services given that FTTP is being rolled out.
- BT will be able to save some repair costs, particularly for dropwires, by removing copper dropwire and replacing it with fibre, where this is cost effective.
- given that there will be no need to invest in the copper network at all, depreciation will rapidly reduce asset values, implying a sharply downwards underlying cost trend.
- BT have not recognised that they will enjoy copper recovery income at the point when the copper network is retired in each exchange area.

[12] For example, if the line losses on FTTC are mainly at exchanges which are closed, the loss of economies of scale in FTTC may be negligible, as the costs associated with FTTC lines which have switched to FTTP no longer exist after the exchange is removed from the network.

[13] WLA18, §A12.89

3.8 Finally, and importantly, neither BT nor Ofcom has set out why price stability, in the sense of prices not changing over time, is important to investors at all. As set out in TalkTalk's response to the remedies consultation (section 6.3.5.4), what actually matters to investors is the predictability of pricing over time, which can then be built into business plans. By being justified on the basis of an established methodology, cost reflective pricing is more sustainable and predictable than Ofcom's *ad hoc* approach of leaving charges constant over time.

3.9 Openreach's points about stability enabling better cost recovery for legacy copper services (OR §66(a)) are simply irrelevant to FTTP investment. The willingness of all parties to invest in unregulated FTTP– a service which, by its nature, is unlikely ever to reach end of life– will be unaffected by the approach adopted to Ofcom allowing recovery of costs for legacy copper products, which are regulated and reaching the end of their economic life.

3.10 Overall, therefore, TalkTalk considers that it is highly likely that Ofcom's statement that prices will be set in excess of costs is correct. Indeed, we consider it likely that in the first few years of the control period, prices will almost certainly be significantly in excess of costs.

3.11 At §3.16, BT notes that Ofcom increased the accounting life for copper dropwires to 18 years in 2005, and that the transition to FTTP means that many copper lines will not reach the end of this depreciation profile. However, this raises the important question of whether BT's behaviour in continuing to install copper dropwires has been efficient. By 2012, for example, over 50% of households in Romania, and approaching 50% in Denmark, already had access to FTTP connections.[14] By this point in time FTTP was the modern efficient technology, which should have been used for all connections of new properties to the Openreach network. However, Openreach kept installing copper lines to new connections well after this point: for example, a 2015 submission by Linden Homes, available on Ofcom's website, specifically complains of Openreach's policy of using copper dropwire to connect new homes.[15] Unless Openreach can submit compelling evidence that it was more efficient in the specific circumstances of the UK to install copper dropwires than FTTP dropwires in the 2012-15 period, Openreach's approach should be treated as being inefficient.

3.12 There is consequently strong reason to believe that Openreach's commercial policy was inefficient, adding costs and making it likely that this situation would occur at the point of copper switch off, when by the early 2010s Openreach must have been aware would occur in large parts of the country before the dropwire was fully depreciated. By 2012 at the latest, FTTP was technologically ready and should have been installed by Openreach for all newly built properties. The lack of installation appears to have been a form of regulatory gaming, with Openreach knowing that costs would be stranded, and always intending to claim the costs of this stranding at this point of the regulatory cycle.

3.13 Irrespective of whether it considers stranded costs of copper dropwires to be significant, therefore, Ofcom should disregard any stranding of copper dropwires for properties built since at least the start of 2012. Such investments were inefficient, and a firm operating in a competitive market would not have made them; or, if it had made them, would not have been able to recover those costs. TalkTalk envisages that such an approach by Ofcom would

[14] *Broadband Coverage in Europe in 2012*, Study for DG CONNECT

[15] https://www.ofcom.org.uk/__data/assets/pdf_file/0024/62475/linden_homes_annex.pdf

mean that the issue of copper dropwire stranding is at most a minor one, as the vast majority of copper dropwire installed since 2012 will have been for new properties.

3.14 Finally, it is notable that even BT's own submission states that 'it has been a principle of economic regulation to date that BT is afforded the opportunity to recover its efficiently-incurred costs for legacy services'.[16] TalkTalk both considers that this statement is accurate, and that this approach is appropriate. However, as set out above, much of the expenditure on copper dropwire in the last decade will have been inefficiently incurred, and should not be remunerated by Ofcom.

3.15 TalkTalk's view that high FTTC prices will impede BT's incentives to invest in FTTP are addressed at §3.19 of BT's submission. This sets out BT's view that '*lower legacy prices would mean there would be less incentive for customers to migrate to fibre services, and the lower (and slower) levels of customer migration would be a powerful negative drag on the investment case*'.

3.16 BT's argument in this paragraph notably does not dispute the core dynamic put forward by TalkTalk– that the margin foregone would be lower if legacy prices were held down, rather than increased substantially above costs, as proposed in Ofcom's remedies paper. TalkTalk therefore assumes that BT does not dispute this dynamic, but rather considers it to be only a part of the whole analysis, which needs to be offset against the incentives to migrate set out by BT in its document.

3.17 However, TalkTalk's proposals for adaptive regulation (set out in section 6 of our June 2019 submission) deal with this criticism, by divorcing prices before and after FTTP has been constructed in an area by an altnet. Prior to entry, the price is kept at a cost-reflective level to ensure that there are incentives on Openreach to construct an FTTP network, and maintain a competitive retail market. However, after entry prices immediately jump up to an REO level, and are maintained at that level due to the imposition of a price floor. Customers therefore have appropriate incentives to migrate to the new network, as they will face an FTTC price specifically designed to encourage migration, but BT's incentives to invest in FTTP will be strengthened. At the same time, incentives for access takers to support FTTP developments are preserved, as they cannot know when their rivals will support an FTTP network– or one will be built speculatively– which would cause the FTTC price to jump and provide their competitors with a significant competitive advantage over them.

3.18 On the other hand, increases in the regulated FTTC price will have the direct effect of reducing BT's incentives to invest in FTTP, as these increases will narrow the gap between the FTTC price and the FTTP price, lowering the incremental revenues which BT earns by investing (section 5.3.2 of TalkTalk's response to Ofcom's remedies consultation). It is unlikely that there is a positive indirect effect from increasing the incentives of altnets to invest, thereby increasing competitive pressure on BT (see TalkTalk submission at section 5.3.1 for why there is unlikely to be such an effect); however, even if there is such an effect then there is a low probability that it could outweigh the negative direct impact on BT investment.

[16] §3.17 of BT's submission

3.19 BT's critique in §§3.19-3.20 therefore implicitly supports TalkTalk's proposals for adaptive regulation, which specifically deals with the issues raised by BT. Under adaptive regulation, retail customers should be willing to migrate to FTTP as fast as under Ofcom's proposals, as the retail price for FTTC will be the same or higher as that proposed by Ofcom whenever there is an altnet FTTP operator available in an area; and in cases where Openreach has invested in FTTP, the copper withdrawal process will lead to migrations[✂].[17]

3.2 Historic obligations

3.20 §§3.21-3.26 set out BT's view that, although it supports Ofcom's recognition that the copper/ FTTC network will need to be retired once FTTP has been rolled out, the proposals do not go far enough in alleviating the 'historic regulatory obligations' placed on Openreach. It is unclear exactly what these historic regulatory obligations are – BT does not specify them – but TalkTalk notes that most of the regulatory obligations imposed on BT are in order that it does not abuse its SMP to the detriment of consumers. It is also unclear what 'costs' these 'obligations' impose; a reduction in revenue by preventing excessive pricing is not the same as a cost increase.

3.21 TalkTalk also broadly supports the proposals for the copper/ FTTC network to be retired when FTTP roll-out has been completed in an area. However, TalkTalk would expect that the network would have been fully completed; it is not acceptable for the copper network to be retired before all premises which were previously served by that network are able to obtain FTTP from BT/ Openreach. Retiring the copper network in advance of reaching this point risks very poor consumer outcomes– for example, in the most extreme case, a customer could lose access to any fixed line service at all, although given the reputational costs we consider it unlikely that BT would adopt such an approach.

3.22 Not as extreme, but still serious, would be a situation where a customer served by TalkTalk, Vodafone or Sky over an FTTC product had that product withdrawn without being replaced with a BT FTTP service, and was effectively compelled to switch to Virgin Media, or some other network, in order to retain fixed line connectivity. This would again be a poor customer experience, and would be likely to negatively impact the brand of the retail CP, despite them being able to do nothing whatsoever to mitigate the situation.

3.23 An approach of allowing copper withdrawal in an area when 75% coverage has been reached also has negative incentive effects on BT's rollout of FTTP. The use of a 100% threshold provides powerful incentives on BT not to leave 'not spots' in its network, where there is no coverage, as leaving such not spots will prevent copper withdrawal and the attendant cost savings. There are consequently significant societal benefits from setting a 100% threshold for copper withdrawal, at least during the forthcoming review period, in order to provide appropriate incentives for BT not to leave gaps in its coverage. In the longer term it may be appropriate to review this, in the event that there are insuperable obstacles to connecting a premises with FTTP (e.g. wayleaves). However, in this initial period, and particularly while wayleaves reform is ongoing, it would be most appropriate for BT not to be permitted to withdraw copper until it has replicated the copper network within an exchange footprint.

[17] [✂]

3.3 Price premium for the FTTP anchor product

3.24 TalkTalk agrees with BT's view that a price premium would be merited for the FTTP 40/10 product over the FTTC 40/10 product (§3.28). We also agree that careful quantification of the premium is required, based on a range of features, including those mentioned by BT. However, the corollary of this is that the same improved quality will apply when determining the REO based price for FTTC services. As FTTP is higher quality, entrants will be able to sustain a price premium over the competing FTTC products from BT, and any price cap set with reference to an REO price should be adjusted for this. We would expect any price premium for FTTP to reflect cost savings to CPs, such that customers being migrated from 40/10 FTTC to 40/10 FTTP could be offered the same price without changing CPs' margins from serving them. This will be particularly important since there will at some point likely be a need to compel customers to migrate to FTTP products in light of copper switch off, and it would be inappropriate to increase such customers' prices.

3.4 Fair bet

3.25 BT sets out at §§3.29-3.40 that Ofcom should specify the terms of the 'fair bet' under which it will (or will not) consider regulating FTTP in the next regulatory period. It avers (§3.36) that further guidance is needed on the terms of the fair bet, and states (§3.37) that BT would '*welcome confirmation*' that Ofcom does not envisage regulating speed variants in excess of 40/10 Mbps until 2031. Finally (§3.38) BT states that there is merit in specifying today a level of upside returns that BT would have the opportunity to earn.

3.26 TalkTalk agrees with much of this. In particular, we would welcome further detail on the manner in which Ofcom envisages applying the fair bet over the lifetime of FTTP investments. This has the potential to avoid much of the sterile debate which played out in the context of potential FTTC regulation, where all parties agreed that there should be a fair bet given to BT/ Openreach, but disagreed on what such a fair bet looked like.

3.27 We also believe that it would be appropriate for Ofcom to set out the level of upside returns which it currently considers BT should have the opportunity to earn on FTTP investments. This should then anchor expectations appropriately as to the point when Ofcom would consider additional regulatory intervention.

3.28 However, Openreach's statement (OR §68) that '*the scale of investment in FTTP makes the build case more risky than that previously faced when investing in FTTC*' appears to be wrong and lack economic basis. The risk of an investment, in terms of the cost of capital which it faces, is in no sense linked to the scale of the investment. Very large investments (for example, the Thames Tideway) can have low costs of capital if they have stable demand and cost conditions. Openreach has offered no reason why a large project would have a higher cost of capital attached to it. Moreover, there is a case that the diversifiable risk associated with FTTP is lower than that for FTTC:

- once FTTP has been completed, copper products can be withdrawn in an area, effectively compelling many customers to switch to the new product. This differs from FTTC, which has always existed alongside ADSL products;
- FTTP offers a quality advantage over Virgin Media's products, whereas even at the time it was being introduced, FTTC was inferior to Virgin's DOCSIS network;

- FTTP is future proof and therefore can pay back investment over a long period, while FTTC was always likely to be a short-term product supplanted by FTTP, and therefore had a shorter lifetime over which to pay back investment.

3.29 Openreach's assertions regarding the risk of its potential investments in FTTP investment therefore appear wrong both in theory and in practice.

3.30 It would also be inappropriate for Ofcom to rule out, at this stage, regulating FTTx variants above 40/10 Mbps for a period as long as that until 2031. For example, at the 2026 WLA market review, Ofcom may find that it expects, at least in some parts of the country, the level of upside returns over the asset lifetime which it has previously specified to be exceeded in the 2026-31 period. In such a situation it is likely to be appropriate to impose some price regulation which will result in returns being reduced to the fair bet level. There can be no argument, in such a situation, that BT is being expropriated, as it will have had the opportunity to earn upside returns. Such an approach would also arguably amount to prejudice on the part of Ofcom.

3.31 Ofcom should therefore set out a set of principles for its consideration of the fair bet, and should apply these principles in future reviews, or should justify why it is changing them. However, it should not adopt the prejudicial approach of specifying the regulatory or remedy outcomes it is likely to apply.

4 Openreach's commercial flexibility

4.1 Section 4 of BT's paper sets out its allegation that Ofcom's proposals unduly restrict Openreach's commercial freedom. This section considers BT's analysis.

4.2 At the outset of this section, it is important to set out that TalkTalk agrees with BT's comment (§4.5) that it expects Ofcom to consult fully on the market analysis and SMP findings (including downstream of physical infrastructure) in order to substantiate its competition concerns. It is surprising and concerning that Ofcom has not yet undertaken such consultation, and in particular that it has simply assumed product markets in order to undertake its geographic markets consultation. Ideally, Ofcom should consult separately on product market definition and SMP assessment before its full consultation on both market assessment and remedies, currently scheduled for December, and push back the December consultation to some time in 2020.

4.1 Geographic pricing restrictions

4.3 §§4.7-4.26 sets out BT's view that Ofcom's proposed restrictions on geographic price discounts are excessively onerous, and the basis on which increased restrictions on geographic discounts are proposed is not set out in the consultation (§4.11).

4.4 Although TalkTalk does not yet have a strong position on the appropriateness (or otherwise) of all of the geographic pricing restrictions which are proposed by Ofcom, we agree with BT's concern that Ofcom has not properly set out the basis for the restrictions, and in particular the proposed restrictions on leased lines.

4.5 TalkTalk considers that some of these problems result from Ofcom's flawed approach of simply reading across remedies from access lines into leased lines, without any consideration of the different market conditions and degrees of competition which are found in the two markets (see §8.4 of TalkTalk's remedies response). Leased lines are given only the most cursory of treatments in Ofcom's remedies proposals, and no account is taken of differences between access and leased lines.

4.6 This may stem from a view in Ofcom that all FTTP networks will offer both access lines and leased lines. However, we once again reiterate that Ofcom has presented no evidence that this will be the case, as physically leased lines may well require different infrastructure (to give customers dedicated 1:1 links) and, dependent on their business model, FTTP providers may well choose not to bother with these additional requirements.

4.7 Even if it is the case that all FTTP networks will offer both access and leased lines, Ofcom has presented no evidence that this would result in a similar level of competitive constraint and mean that identical remedies are appropriate. Even if all FTTP networks offered both access and leased lines, the presence of dedicated leased line networks, such as those owned by COLT, means that the levels of competition in some parts of the country will differ, with consequent impacts on the appropriateness of differing remedies packages.

4.8 However, Ofcom's current proposals provide BT with price caps considerably in excess of costs in both access lines and leased lines. In such a situation, there is a prospect that, without a geographic price averaging obligation, Openreach could set high prices in uncompetitive parts of the country and low prices in competitive parts of the country, to deter entry and expansion by altnets.

4.9 In particular, BT's analysis at §4.14 of its response is simplistic and therefore wrong. BT states that:

> *pricing below cost in one area (to maintain its competitiveness) and pricing higher elsewhere (to recoup) will either incentivise customers to move to Virgin Media in those areas or invite entry by others*.

4.10 There are three important factors omitted from this analysis:

- Virgin Media may choose to tacitly collude, rather than to compete with BT. The conditions for coordinated effects in BT + Virgin Media areas would appear to be well satisfied.
  - the oligopoly is tight, with only two competitors in a product with utility-like characteristics;
  - there is a high degree of market transparency, as Openreach is obliged to publish its prices, and Virgin Media only self-serves, allowing its prices to be effectively tracked through its widely-advertised retail pricing;
  - there are viable punishment strategies, in particular due to the substantial multi-market contact between BT and Virgin Media.

  Such tacit collusion would undermine the mechanism posited by BT. Customers would find there to be no advantage in moving to Virgin Media as it tracked BT's prices upwards, lowering churn while increasing the margins of both BT and VM.
- entry in access line markets is both slow and easily observable, through planning applications and streetworks. Therefore even if BT sets a high price in an area

initially, it can lower it as soon as it becomes aware of the prospect of entry, reducing the profit margins which themselves attract entry. Alternatively, and even more profitably, it could maintain high prices until a few months ahead of commercial launch of the new network, before deeply discounting its products and signing customers to long contracts. This would make entry loss-making, and create a reputational barrier to entry, as potential entrants and their funders learned that high BT prices may not persist once networks were constructed.

- there will always be incentives to engage in geographic price discrimination where there are different elasticities of demand in various geographic areas. BT has presented no evidence that the competitive pressure from other operators is such that it faces homogeneous conditions of competition across all category 2 areas.

4.11 The omission of these factors means that BT's analysis is fundamentally flawed, as neither the prospect of entry nor the presence of Virgin Media may act to constrain BT from setting high prices in less competitive areas in the absence of a price averaging obligation.

4.12 At §§4.15-4.19 BT sets out that restrictions on geographic price discounts may inhibit BT from meeting the commercial requirements of its customers. BT's arguments in this section have some force, in particular in areas where there has been successful entry by altnet FTTP operators, which leads to increased competitive constraints on BT and potentially, in the medium term, BT no longer holding SMP.

4.13 However, BT also fails to acknowledge that there needs to be some restriction on it which would prevent it from adopting predatory behaviour towards entrant networks. As the incremental costs of an FTTP network are a small proportion of the average costs, it is likely to be particularly difficult for Ofcom to prove that there has been predatory behaviour towards entrant networks. This justifies a restriction on BT reducing its prices in a specific location against entrants.

4.14 While Ofcom's current proposal in category 2 areas is to implement a restriction on price reductions via a geographic price averaging obligation, TalkTalk has instead proposed, under its adaptive regulation model, the imposition of a hard price floor set at the level of REO costs in areas where there has been entry. As entrants will not price below their cost level, such a price floor should not preclude BT from matching the prices offered by entrant competitors, while at the same time meaning that BT could not undercut new entrants due to its market power. Hence, adaptive regulation meets the challenge posed by BT's criticism of Ofcom's proposals.

4.15 Similarly, at BT §§4.20-4.23 (OR §§72-74), BT sets out that Ofcom's proposals could preclude BT from meeting competition from Virgin Media, in the event that Virgin Media shifted to a policy of localised pricing.

4.16 TalkTalk agrees with and supports BT's concern in this area. A large proportion of the country—around 70%– would be included in category 2 under Ofcom's proposals, and the same price would have to be set in all localities covered by this category. Virgin Media is present in around 50% of the country, while altnet FTTP operators are at present active in a very small proportion of this area. Ofcom's proposals would preclude BT from reacting to Virgin Media's commercial strategies across a large part of the country.

4.17 In areas where BT and Virgin Media are present, but there has been no altnet entry to date, it is entirely unclear why BT's pricing should be restricted more than at present. Doing so will not benefit consumers in those areas; at best, the interests of those consumers are being sacrificed to obtain benefits for consumers in other areas which have seen entry. More likely, Ofcom's flawed price averaging scheme will harm consumers across the country, without increasing volumes of investment compared to other potential regulatory approaches.

4.18 However, in areas where there has been entry by a network operator other than Virgin Media, the burden of proof should be on BT – even when meeting the price of another operator – to demonstrate that its pricing is cost-reflective and does not have exclusionary effects. There is a strong rationale for such a restriction, in order to create confidence amongst altnets and so increase investment in FTTP networks. Ofcom should consider in detail how it could create a system where it signs off on discounts to the generally prevailing price level, ensuring that they are not anti-competitive, prior to those discounts being offered to customers. An *ex post* system is unlikely to provide altnets with the required confidence.

4.19 Openreach's contention (OR §75) that not allowing it to discount in areas where Virgin Media is not present would be '*economically inefficient*' is unevidenced and counterintuitive. Openreach does not even present any examples of the types of beneficial behaviour that would be prevented, much less that the benefits of such behaviour would outweigh the costs in terms of higher perceived risk of altnet investment, and therefore reduced competition in the FTTP network market.

4.20 Finally in this section, at §§4.24-4.26, BT sets out its view that Ofcom has not properly considered whether ex post competition law would adequately address the competition issues that have been found.

4.21 TalkTalk agrees with BT that this analysis should have been undertaken by Ofcom, and that this is a central omission in its analysis. This is not to say that undertaking such analysis would have changed the remedies proposed by Ofcom; in the relevant markets, ex post competition law is clearly inadequate given the scale of market failures. However, there is no way of knowing whether Ofcom has reached the correct conclusions without undertaking the appropriate process to reach them. It has not done so in this instance. It should undertake an assessment of whether its remedies are the best approach to remedying the market failures which it has found, against a wide range of alternatives, setting out the costs and benefits of each.

4.2 The impact of the EoI obligations

4.22 §§4.27-4.29 set out BT's position that the EoI obligations proposed as being imposed on it will prevent it from meeting the needs of its customers. It alleges in particular that it will not have incentives to favour its downstream arm due to competition from Virgin Media and altnets; that the no undue discrimination obligation provides sufficient protection to customers; and the obligation could limit Openreach's ability to meet specific customer needs. BT's view on this is notably stronger than that of Openreach (OR §78) which merely stated that Ofcom should '*consider how it might apply*' EoI in the presence of different customer needs.

4.23 TalkTalk disagrees with BT in this area since the presence of a single competitor with partial coverage is inadequate to remove the incentive to discriminate (BT §4.28). As one of Openreach's largest customers, we would be very concerned if there was any weakening of EoI obligations, which are a crucial underpinning of our ability to compete effectively against BT Retail in downstream markets. Indeed, we would support an extension of EoI obligations so that BT has EoI conditions imposed on duct and pole access, compelling Openreach to use the same processes to roll out network extensions as third parties.

4.24 However, we agree that Ofcom should set out the manner in which EoI would be applied in practice in a market where FTTP is the predominant network technology. By consulting on this issue, Ofcom can clarify the application of EoI for all market participants, and make it clear both to Openreach, and to Openreach's actual and potential customers, what behaviours are and are not acceptable.

4.3 Ofcom will need to demonstrate that the benefits of its measures exceed their costs

4.25 BT sets out at §§4.30-4.35 that Ofcom should justify the proposed restrictions on Openreach's pricing by demonstrating that the benefits of the restrictions outweigh their costs. In particular, it considers that Ofcom should show that Ofcom should justify the proposal to restrict geographic price discounts in category 2 areas have incremental benefits which outweigh their incremental costs.

4.26 TalkTalk agrees with this analysis. It is important that Ofcom demonstrates that each of its measures is justified, both independently and as part of a proposed package, in order to maintain confidence of stakeholders in Ofcom, and to fulfil its public law duties. Ofcom, in its remedies proposals, set out no such justification for its proposals. In particular, TalkTalk strongly supports BT's statement at §4.34 that:

> *Ofcom must set the claimed benefit from a more certain investment environment against the risk that disproportionate measures could prevent Openreach from competing on the merits, reducing the value of BT's investment and reducing wholesale customers' ability to lock-in value through their tenders, with the attendant loss of consumer benefit/ increase in cost.*

4.4 Ex ante restrictions must reflect trends in competition

4.27 BT's submissions at §§4.36-4.41 set out BT's contentions that there will be greater competition during the period of the charge control, and that Ofcom should take a number of measures to reflect this when setting its regulatory structures.

4.28 At §4.36, BT states that a five year review period creates a higher risk of regulatory lag, with optimal regulation potentially reducing in scope over that period. TalkTalk strongly agrees with this. We have previously submitted to Ofcom our view that a five year period, with regulation set for the entire period, is unlikely to be optimal in a rapidly moving market such as broadband. We are pleased that BT's view, that regulation should be able to change within the course of the five year period, is aligned with our own, and hope that this will lead to a degree of industry consensus around the imposition of a form of adaptive regulation.

4.29 We also agree with BT's view, at §4.39, that stakeholders should be able to apply for full deregulation should competition become effective in an area during the course of the review period. This appears the correct approach both legally and economically. Ideally, Ofcom would set out in its main determination the conditions which it would apply during the period when considering whether an area had indeed become competitive. Such an approach is consistent with TalkTalk's adaptive regulation proposals. However, Ofcom should be conservative in making such assessments; it should only do so when Openreach's market share has fallen meaningfully below the 50% threshold at which dominance can be presumed, and has remained below this threshold for a sustained period. It would be entirely inappropriate for Ofcom to deregulate via a mid-period re-opening in a marginal situation where Openreach may regain its SMP before the end of the control period. Consequently, Openreach should only be permitted to apply for deregulation in a situation where it has averaged less than 40% of premises connected in a postcode sector (or other geographic area) over a calendar year. This should reduce the risk of frivolous applications or inappropriate deregulation. Once such a bright line threshold has been met, Ofcom should consider whether there are any special circumstances which mean that it still may be inappropriate to deregulate.

4.30 TalkTalk also agrees with many of BT's points at §4.40 of its submission. In particular, we consider that remedies should be based on specific concerns (whether about predatory behaviour towards entrants or exploitative behaviour towards captive customers); be the least intrusive required to meet Ofcom's policy objectives and statutory duties; and should not expose Openreach to asymmetric downside risk. All of these should be the standard goals of any regulatory towards the regulated entity.

4.5 BT Retail use of Openreach passive inputs

4.31 §§4.42-4.45 of BT's submission are rather opaque and hard to interpret. Effectively, they appear to be asking for the Commitments to be weakened if competition increases in an area, and that BT Consumer should be able to use passive infrastructure access from BT to construct its own FTTP network.

4.32 To the extent that this is indeed what BT is saying, TalkTalk disagrees. The Commitments were not, as BT states, made as part of a '*dynamic arrangement which evolves over time*'. Any such evolution would clearly be asymmetric and contrary to consumers' interests, unless BT also considers that Ofcom could unilaterally tighten the Commitments. Rather, TalkTalk's view is that they were intended to be a permanent part of the UK regime, designed to stave off full structural and ownership separation of Openreach (an approach which would still yield benefits well in excess of its costs).

4.33 Consequently, if BT's downstream divisions wish to use passive products, then they should be able to do so on a level playing field– but only on the condition that Openreach is fully structurally separated from BT Retail. It is only with such structural separation that a truly level playing field can be obtained. If there is no divestment, then BT's downstream divisions should be debarred from any use of Openreach's passive access products. In particular, it would be inappropriate for network investment to be undertaken by BT's downstream divisions without SMP obligations being applied. In the end, BT Retail and Openreach remain mere divisions of the same organisation, and SMP should be assessed on the basis of structural units, irrespective of the manner in which BT chooses to structure its business.

4.6 Copper retirement

4.34 An issue which is considered at length in Openreach's response, although not in that of BT, is copper retirement. TalkTalk supports copper retirement at a time designed to maximise consumer welfare. We consider that large-scale retirement is likely to commence during the period covered by the FTMR.

4.35 Openreach in its submission details the approach which it proposes to adopt for copper retirement (OR §102). TalkTalk welcomes Openreach's statements that it plans to work closely with CPs to migrate customers, that the '*large majority*' of migrations will be voluntary; and that it will work with industry to develop a charter to protect vulnerable customers.

4.36 However, we are concerned by the proposal to use G.fast as a medium-term solution '*where FTTP is not the right solution*' (OR §104). Openreach has gradually withdrawn from its commitment to G.fast over recent years, lowering the number of premises for which it will be used, with an increasing move to FTTP. It is clear that while G.fast may, for some premises, lead to a significant speed uplift, it does not offer the advantages of FTTP in terms of improved quality of service and future proofing of speeds. It also does not align with Government's ambition to obtain nationwide gigabit-capable coverage as soon as possible. TalkTalk therefore considers that G.fast should only be used as a last resort, where it is clear that FTTP is impracticable for physical or legal reasons.

4.37 TalkTalk is strongly opposed to Openreach's proposals to withdraw copper when coverage of FTTP is materially below 100% in a particular area (OR §§112-118). There are several reasons for this:

- Openreach elides FTTP with other '*ultrafast capable networks*'. This is inappropriate. As pointed out above, even if G.fast were able to offer the speeds of FTTP, which it cannot, it does not offer the future proofing or quality of service of FTTP, and will require downstream CPs to run multiple systems, as the technology and provisioning structure of G.fast will be different from FTTP. When considering copper switch-off, only FTTP premises should be included towards the threshold.
- Openreach's proposed threshold of 75% is very low for the start of withdrawal, well below the level at which TalkTalk would expect that the exceptions outlined in OR §104 would imply Openreach should be able to pass with FTTP. While dual running and dual regulation could be acceptable at this level (OR §114), the end-state threshold (OR §115) will need to be close to 100%.
- setting a low threshold for copper switch-off will incentivise Openreach to engage in cherry-picking of premises in some areas, and simply leave higher cost or more difficult premises in various areas in an attempt either to obtain subsidies for connecting those premises, or to not connect them at all to FTTP as being individually unprofitable. Openreach's incentive structure as the national SMP operator will therefore be improved by setting a high threshold.

4.38 Openreach also proposes that there should be a shorter period of dual running than the two years currently proposed by Ofcom (OR §115). TalkTalk considers that it would be dangerous to be prescriptive, at this stage, regarding the minimum period required. It is not yet clear how long it will take to migrate customers from FTTC to FTTP, as there are various unknowns, including the willingness of tail customers to switch, and how long in-home

works will take, and the ability of all retail CPs to fund the costs of switching and swapping out customer premises equipment. It is this timeline which should dictate the length of dual running. In the absence of a suitable period of dual running, there will be forced migrations, which would be undesirable from a customer perspective.

4.39 Finally, although TalkTalk supports a stop sell on copper products (OR §§125-126) at some point in the process, it is important that there is suitable price and quality regulation of at least the 40/10 FTTP product available for a meaningful period before this occurs in each area, to allow for CPs to switch customers to the new product, and allow CPs to work through any specific issues. Ofcom should consult on how long a period of dual regulation should occur prior to a stop sell on copper-based products.

5 Category 3 areas

5.1 Section 5 of BT's submission deals with category 3 areas (those in which Ofcom does not believe there is scope for competitive infrastructure build).

5.2 BT's core point with regard to these areas is that the majority of them should be treated as if they were category 2 areas, with charge controls set in excess of cost reflective levels in line with Ofcom's proposals in category 2. This would have the effect of unifying the treatment of the bulk of the UK, but with the corollary that prices would be higher in most of the category 3 region than under Ofcom's current proposals.

5.3 TalkTalk considers that there are some positives with a unified approach; indeed, we have suggested exactly such an approach under adaptive regulation, where the same adaptive regulation could be adopted across the country. However, as proposed by BT, adopting the same regulation in category 3 areas as in category 2 areas would simply lead to higher prices and no DFA in category 3, providing no consumer benefit and reducing BT investment. Even if there is scope for entry by altnets, given lower costs due to DPA (BT §5.3) this is unlikely in the upcoming period in much of the area, simply because there will be more profitable, lower cost, urban areas where there has not yet been any roll out of FTTP that will attract BT's limited resources.

5.4 Several of BT's points regarding changes which it wishes to be made to the regulatory structure in category 3 areas, compared to Ofcom's proposals, appear designed to make Ofcom's proposals impossible, because there is no practical manner of implementing them. Examples are §5.6, where BT requests that Ofcom finds a manner of preventing entry in lower cost areas; and §5.7, where BT asks Ofcom to be bound beyond a single review period, in breach of its public law obligations.

5.5 As in category 2 areas, TalkTalk considers that the best approach to avoid the problems that BT has identified would be to adopt adaptive regulation in category 3 areas. This provides scope for the remedies to adapt if BT is correct and a meaningful proportion of category 3 is amenable to competitive entry.

5.6 TalkTalk disagrees with BT's statement at §5.8 that '*we doubt that a model which initially lowered prices by re-basing to the level deemed necessary to delivery copper-cost recovery, and then lifted prices to allow recovery of fibre investment costs would be tolerated by*

customers'. As BT's second largest customer for access lines, TalkTalk would like to make it entirely clear that we have no objection to such a model, notwithstanding that there are other issues with the RAB model. However, these do not relate to the process of prices being reduced for one reason, and then increased for another. Such an approach is a standard part of regulated price structures.

5.7 TalkTalk agrees with BT's analysis at §§5.9-5.11: there will be a need for public funding in order to support the rollout of FTTP to the most remote areas, although it is not yet clear what proportion of the country falls into this category. We reiterate that the most appropriate approach economically is for this public funding to be on an outside in basis, with the highest cost areas being subsidised first, in order to minimise the risk that subsidy is given for areas which prove to be commercially viable.

5.8 At §5.13, BT implies that competitive leased line networks may develop into multi-service networks in the long term. TalkTalk disagrees with this. There is no evidence at all that providers such as COLT are intending to construct FTTP networks as an enhancement of their existing leased line networks. It is unclear that they would have a meaningful advantage in doing so, as FTTP is a different technology with substantial technical differences from leased lines, and would therefore require construction and streetworks to be undertaken; for example, to install cabinets and increase the frequency of break out points from the existing network as well as cover new residential areas. TalkTalk has seen no analysis which would indicate that, given the presence of these costs, leased line operators would hold a meaningful cost advantage over entrants using duct and pole access products. Nor has it seen any analysis which would demonstrate that the areas in which dedicated leased line networks exist would be commercially viable propositions for rolling out FTTP networks, given the high cost of streetworks and low proportion of residential premises in such areas.

5.1 The RAB model

5.9 §§5.16-5.34 provide BT's detailed views on the RAB model. The most important challenge raised by BT in this section is that the RAB model, which is designed to allow the certainty of cost recovery, cannot easily cope with the risks faced by a telecoms network operator, and therefore cannot effectively commit that BT will be permitted to recover its costs in this area.

5.10 TalkTalk agrees with this criticism. There are multiple reasons why BT could have no certainty that it would be able to recover its costs under the RAB model currently proposed by Ofcom:

- *There is competition at the margin from 5G services*– most RAB type regulation (for example, that in the water industry) is in sectors where demand is very stable and there are no effective substitutes, such as water and sewerage. Even in category 3 areas, there will continue to be a degree of competitive pressure exerted by technologies such as 5G mobile, and potentially in future fixed wireless access, in particular for more marginal customers with lower usage volumes; these customers are, under Ofcom's proposals, those who would be required to remain on copper products in category 3 areas in order to cross-subsidise FTTP products.
- *Demand for FTTP is uncertain*– BT is correct that there is, at present, a degree of uncertainty of demand for FTTP from consumers. However, this factor is diminishing over time, and should be a negligible factor by the end of the next regulatory period.

It may be that demand is limited to a subset of the population; but this subset is likely to be well defined in a relatively short period of time.

- *The cross-subsidy model proposed is unsustainable*– the essential approach currently proposed by Ofcom is that FTTP build will be subsidised by an uplift to the price of copper broadband, as the uncommercial element of the cost of FTTP roll-out is included in the copper RAB. However, as roll-out of FTTP encompasses an increasingly large proportion of the category 3 area, the required cross-subsidy will increase, and so prices to consumers in areas where FTTP has not been rolled out by Openreach will be driven up. This is likely to promote both demand side substitution (switching to 5G) in such areas, and entry by other operators.
- *The boundaries of the category 3 area are uncertain*– Ofcom has not yet presented detailed data on the precise reasons for the classification of each postcode sector in the UK as category 2 or category 3. However, it is likely that there will be errors in both directions, with sectors which do not see competition classified as category 2, while sectors which do see competition are classified as category 3. This means that some parts of category 3– likely the lowest cost ones– will in any case be picked off by entrants, increasing the average cost to roll out FTTP across what remains of category 3. We do not, however, agree with Openreach's contention (OR §91) that Ofcom should identify all areas as potentially competitive, as this is factually untrue and will lead to excessive prices to consumers.

5.11 Although some of these issues could be dealt with via a 'true up' to amend prices for under-recovery, the true up mechanism itself is complex and can add to perceived uncertainty for investors. As such, although the issues above can be addressed to some extent, there are adverse impacts from doing so which themselves are likely to inhibit investment.

5.12 TalkTalk does not in general agree with the somewhat different criticisms made of the RAB model by Openreach (OR §§82-86). Openreach argues that *'a RAB model is... challenging to construct where there is scope for competitive entry and technological change*'. While Ofcom may make errors in its delineation of category 3 areas, the point of category 3 is exactly that areas encompassed within it are those where there is no scope for competitive entry. This criticism is essentially therefore that Ofcom may make errors in delineating category 3; there does not appear to be a separate criticism beyond that. From this is also necessarily follows that Openreach's criticism that the RAB model *'would not incentivise parallel build*' is of no relevance; it is not intended to incentivise parallel build, specifically because no parallel build is expected in any part of category 3.

5.13 Finally, Openreach's assertion that there would be '*significant customer resistance*' (OR §86) to prices initially being lowered before being raised to allow cross subsidy of FTTP roll out is risible. As one of Openreach's largest customers, we are pleased to confirm that we consider this to be a vastly better approach than Openreach's preferred option of simply pushing prices for copper and FTTC products above their costs irrespective of whether there has been, or will be, any investment. Openreach has not consulted its customers before making such a statement. Our reasons for opposing the RAB model are unrelated to this point, but rather to the RAB approach's practicability and desirability.

5.14 However, it is likely that there would be considerable resistance from residential consumers to Ofcom's approach in category 3 areas. Under Ofcom's approach, those customers who receive FTTP latest will also be those who pay the largest subsidies to customers who have

the opportunity to adopt FTTP (at a price below cost) earliest. This offers a poor customer experience, completely unequal outcomes, and is politically unsustainable. This form of resistance is inevitable under Ofcom's proposals.

5.15 For these reasons, TalkTalk broadly agrees with BT's arguments at §5.24(i)-(iv). We do not, however, agree with §5.24(v), where BT alleges that dark fibre regulation could create artificial constraints on BT's ability to recover its fixed and common costs. TalkTalk also disagrees with BT's view (§5.30) that dark fibre creates tensions with Ofcom's approach. It is unclear what costs are common between existing leased lines and future FTTP roll-out which would not in any case have to be paid for through dark fibre charges; for example, duct costs will be apportioned to dark fibre. This self-serving argument is merely the latest in BT's many attempts to preserve its anticompetitive excessive pricing for 10Gbps services, and thereby raise its rivals' costs of backhauling demand from the access network.

5.16 We also agree with BT's view (at §5.28) that the role of duct and pole access should be taken into account when determining which areas are potentially competitive. In the absence of effective DPA remedies, only a small proportion of the UK would be likely to be competitive. We would expect that the proportion of network roll-out which is supported by DPA will increase over time, as market participants become more comfortable with the processes, unless developments are stymied by Openreach.

5.17 The processes described by BT at §5.32, by which there could be 'adjustments' during the regulatory period, are inappropriate. In particular, increasing the RAB in the event that there was underperformance by BT would create adverse incentives, making it less likely that BT would attempt to minimise costs and maximise revenues in category 3 areas. Similarly, Ofcom should not support fibre revenues in the event that demand were weaker than expected as once again this would create adverse incentives on Openreach.

5.18 Overall, while we agree with BT that the boundary between category 2 and category 3 areas is unclear, we disagree on the implications of this for the appropriate regulatory approach. Rather than treating the majority of category 3 areas as if they had the potential for entry, raising prices, and thereby harming consumers in the likely event that entry does not occur, it is appropriate to allow regulation to adapt to whether there is entry or not. In the absence of regulation which adapts to the uncertain outcomes which will be seen over the next few years, it is inevitable that avoidable errors are made, to the detriment of competition and consumers.

6 Regulated dark fibre

6.1 At section 6, BT reiterates its longstanding opposition to regulated dark fibre (and, in practical terms, any dark fibre at all, since it has refused SORs requesting dark fibre on commercial terms). Unlike in the rest of its paper, BT's analysis in this section is largely self-serving and wrong.

6.2 BT starts off its section by stating that "*regulated dark fibre is widely acknowledged to undermine network competition*". TalkTalk considers that this is incorrect. Regulated dark fibre would in general assist in supporting network competition, as it can be used by operators in order to build sections of their networks. For example, an altnet constructing

FTTP networks in multi-dwelling units could use a dark fibre to connect to the building, which then backhauls all demand from customers in that building back to an exchange. Dark fibre would also be usable by 5G mobile networks, which in some parts of the country may impose a (limited) competitive constraint on fixed line operators. The FTIR merely (and correctly) urged that Ofcom should not do anything which would undermine network competition. It did not state in any sense that dark fibre would itself act to undermine competition, and overall the impact of dark fibre will be to increase investment in modern fixed and mobile networks.

6.3 Ofcom's statement in the BCMR, at §6.9, that dark fibre makes operators less likely to roll out their own networks, is wrong. FTTP networks are not primarily or even substantially about leased lines– [✂]. As dark fibre will predominantly be used as a substitute for 1 Gbps and 10 Gbps leased line product, it therefore potentially abstracts a negligible proportion of total revenue and profits for a new FTTP network. Businesses taking a 1 Gbps leased line are unlikely to take a business grade GPON product, which will be contended and offer both less bandwidth and less certainty of bandwidth than a 1 Gbps leased line product. Dark fibre therefore potentially abstracts only around [✂] of revenue from a newly built FTTP network, even if (unrealistically) all demand for leased lines from a new FTTP network switched to dark fibre. More realistically, dark fibre will impose a constraint on the pricing of ethernet circuits by the FTTP altnet, resulting in a loss of less than [✂] of revenue.

6.4 At §6.6, BT moves on to make the claim that regulated dark fibre at cost allows arbitrage, and that this arbitrage is inefficient. Once again, neither claim is evidenced.[18] In particular, BT has presented no evidence (either in the document, or, to TalkTalk's knowledge, in any other previous public document) that its current pricing structure is efficient, and as such that the purchase of dark fibre, which might undermine that pricing structure, would cause any consumer or competitive harm. If BT wishes to eliminate what it terms "arbitrage" it is entirely at its disposal to do so, by setting cost reflective prices for the active ethernet products which it offers (including the largely unregulated 10 Gbps product).

6.5 BT's position on the benefits of dark fibre is incoherent: it claims (BT §6.23) to the extent that there are any apparent benefits from dark fibre they are illusory and due to arbitrage; however, it also claims that DPA (which has similar features, and would also potentially allow what BT terms 'arbitrage' by operators) will be beneficial (BT §6.12). One potential explanation for this discrepancy is that BT believes that it can frustrate competition via DPA by making the (as yet undetermined) processes effectively unusable at scale, but that the simpler dark fibre product will have greater impacts on BT's volumes, and be harder for BT to frustrate.

6.6 The one point in section 6 with which TalkTalk concurs is that Ofcom must pay regard to leased line networks when determining non-competitive areas (§§6.15-6.16). Ofcom has not yet drawn a sharp distinction between access networks and leased line networks, despite the fact that they clearly sit in different product markets at present. Ofcom should conduct an appropriate product market definition exercise and separately assess the business connectivity and leased line markets in its forthcoming review; it cannot ignore differences in competitive dynamics.

[18] For the avoidance of doubt, it is also not evidenced in the AlixPartners report annexed to the Openreach submission. See TalkTalk's separate response on the AlixPartners report at Section 2.

6.7 Finally, there are significant benefits from dark fibre. Allowing regulated dark fibre will promote innovation in the active layer of the network, and efficiencies from operators purchasing their own electronics. It will support FTTP and leased line network build from operators seeking to use dark fibre for backhaul. And it will be particularly important in allowing the rapid development of 5G mobile networks.