

Wholesale Local Access Market Review

Summary

Ofcom's Digital Communications Review held out a tantalising prospect for investors in infrastructure. As a consequence of its 'strategic shift', Ofcom would, when making the inevitable trade-off between lower short-term pricing and encouraging investment, "*err on the side of caution with respect to investment incentives*". Virgin Media was expecting Ofcom to do something different.

In a little over a year however, Ofcom seems to have abandoned this philosophy and gone back to the old way: get out the spreadsheets and set wholesale prices at cost. In doing so, it will make continuing to buy access significantly more attractive for Openreach's customers *and* damage the economics of cable and fibre rollout. Analysis of this collateral damage is absent from the consultation, but it should be at its heart.

The range of the intended wholesale price reductions is clearly set out, but Ofcom has been vague about the problem that it is trying to solve. Indeed, it acknowledges that broadband pricing is yielding ever better value for money, and that providers compete intensively to provide SFBB. Moreover, contrary to Ofcom's analysis, there is ample evidence that SBB still adequately constrains SFBB.

Ofcom may believe that BT's profits on its investment in fibre will be too high, but in the Kafkaesque world of the 'fair bet' this is impossible to determine without unknowable wisdom about the future and what might have been. More importantly, competing for a share of these profits is what spurs others to invest. Even if BT's fair bet may be about to expire, Virgin Media's (and others') is not.

Ofcom sets up a false dichotomy in its deliberation about how it should proceed: do nothing or set wholesale prices to cost. There is another, more proportionate, approach that really does err on the side of investment incentives. Ofcom could impose a safeguard cap on Openreach's 40/10 wholesale product at today's prices. In the contemporaneous consultation on duct and pole access remedies Ofcom proposes just an approach: setting a maximum cap on charges to prevent wholesale prices from rising. This type of simple intervention would both prevent the threat of higher prices, and support those willing to risk their capital in digging trenches and laying fibre.

If, as we believe, Ofcom's proposed approach will fail to inspire new scale investors in infrastructure—and its own modest projections for the take-up of PIA suggest this to be the case—then the prospects for BT are clear: take a risk, and if you're fortunate enough to make a return, Ofcom will make renting your assets cheaper. If this is the future, the best response of Sky, TalkTalk and Vodafone is to keep their hands in their pockets. Why deploy your own capital when you can use another's at cost and sidestep the risk?

Outline of the response

Ofcom believes that, in the near term, SBB broadband will no longer constrain the pricing of SFBB. Without this restraint Ofcom fears that prices will rise. It also believes that BT has had a fair crack of the whip on its FTTC investment and the time is now right to reduce its wholesale prices on the most popular product to cost.

We believe that there is an important lacuna in the consultation: the absence of an analysis of Ofcom's proposal to regulate wholesale broadband charges on Virgin Media's network expansion plans (Project Lightning), other current infrastructure investors and those that might be considering using BT's poles and ducts. **Section 1** is devoted to filling this gap.

We also consider whether there are competing policy objectives that would justify the apparent weakening of Ofcom's resolve to encourage greater investment in end-to-end ultrafast networks (**section 2**). We find this not to be the case. As Ofcom has observed elsewhere, broadband prices offer excellent value for money, and affordability is a problem for only a tiny percentage of consumers (and can be better tackled by other interventions).

In **section 3** we turn to Ofcom's evidence that SFBB is a 'distinct' market. We identify numerous issues with Ofcom's analysis, and certainly no strong shift in behaviours to justify Ofcom's reversal of its position in 2014 at the time of the last review.

If Ofcom's proposal is derived from a desire to reduce the profitability of BT's VULA product then we believe that this is misplaced (**Section 4**). The analysis of the fair bet is ill founded and the prospect of making profits is what will encourage others, as well as BT, to build networks.

We believe that there is an alternative more proportionate approach that we discuss in **section 5**. In short, we favour a safeguard cap on the 40/10 wholesale product. This protects consumers from rising prices if the constraints of SBB, competition for SFBB and PIA all prove ineffective.

In **section 6**, we address the questions in volume one of the consultation and, lastly, in **section 7** we consider Ofcom's modelling of BT's costs and provide answers to the questions in volume two.

Section 1: The impact of Ofcom's proposals on investment in infrastructure

Project Lightning

1. Ofcom makes an important claim in the summary of the consultation. It asserts “[i]n reaching our judgement on this aspect of our proposals we have taken account of the importance of the fair bet in preserving BT’s incentives to invest and the risk of regulatory error if we were to intervene too early. **We have also taken into account the need to preserve incentives for Virgin Media to invest**” [our emphasis].¹ It also maintains, presumably as a corollary of this ‘taking into account’, that “... proposals set out in this consultation should give BT’s competitors **strong incentives to invest** in their own networks, anticipating the potential for reduced access regulation in the future.” [our emphasis].²
2. We find no evidence that Ofcom has taken into account the effect of its proposals on Virgin Media’s incentive to invest (or, for that matter, any other non-BT investor in end-to-end infrastructure – see below) other than in determining the shape of the glidepath. It therefore has no basis on which to make these claims. Virgin Media is mentioned regularly in the consultation although this is confined to largely factual matters (e.g., “Virgin Media’s planned network expansion is expected to extend its coverage to 60-65% by 2020” paragraph 1.9) or expressions of Ofcom’s judgement (“downstream competition from other providers (such as Virgin Media or those using charge controlled LLU services to offer SBB) will not be sufficient to constrain BT’s pricing” paragraph 3.119).
3. Ofcom fails to analyse the impact of reductions (rather than the phasing of reductions) in wholesale prices on Virgin Media’s Project Lightning network expansion programme. This is surprising because Ofcom recognises that “the charge control of the [40Mbps] service will constrain the prices of higher bandwidth and ultrafast services”.³ This failure to consider Virgin Media is a serious shortcoming given that Ofcom’s ‘strategic shift’ has at its heart a desire to see more investment by competing end-to-end suppliers of infrastructure.⁴ This shift has occurred, at least in part, because Ofcom has observed that “the scale of FTTP coverage tends to correlate with network level competition, as reflected by the extent of cable coverage”.⁵
4. At the release of this consultation Ofcom said in its news release that it plans to “...to protect broadband customers and promote competition, by cutting the wholesale price that Openreach – the part of BT responsible for its network – can charge telecoms companies for its popular superfast broadband service, which has a download speed of up to 40 Mbit/s. **We would expect these savings to be passed on to residential customers through cheaper prices.**” [our emphasis]
5. We take this statement as the starting point of our analysis. In the consultation Ofcom goes on to say: “In broad terms the choice is between continuing the existing approach of pricing flexibility, which allows BT to set wholesale prices, subject to the need to ensure that its competitors have sufficient margin to compete at the retail level, and setting a cost-based price which our current analysis indicates would be below today’s wholesale prices. In the latter case, we would expect that **much of the reduction in wholesale prices**

¹ ¶1.4

² ¶1.57

³ ¶1.38

⁴ Indeed, Ofcom believes that there is a “risk that consumers’ interests may be harmed if investment is impeded.” (1.15)

⁵ ¶2.7 in the consultation on Pole and Duct Access remedies

would be passed through to consumers in the form of lower retail prices.”⁶

6. In understanding the potential impact of Ofcom’s proposals on Project Lightning it is important to understand the impact of the reduction in wholesale prices on retail prices. Our experience suggests that, if the reductions in wholesale prices are (fully) reflected in retail prices (as Ofcom believes), the *absolute* differential with our prices for higher speeds is maintained. Put another way, the reduction in wholesale prices does more than constrain prices for higher speeds: it means that they will *fall*. We believe that this view is consistent with statements made in the consultation:
- *“the charge control of the [40Mbps] service will constrain the prices of higher bandwidth and ultrafast services” [¶1.38]*
 - *We believe that, in the period of this review, there will be fairly strong substitutability between different SFBB services that are currently being delivered by fibre and cable. We also believe these will pose a constraint on the higher speed services being developed using new technologies, including UFBB services. [¶3.47]*
 - *BT’s internal documents suggest customers seem to be sensitive to this pricing. It noted that “many customers who choose fibre broadband are price sensitive, choosing the lower speed 40/10 Mbit/s service rather than the 80/20”. This conclusion appears to be drawn from BT’s finding that when the price difference between the 40/10 and 80/20 service increased to more than £[] pcm (about []% of the 40/10 retail price inclusive of line rental), the 40/10 take up exceeded that of 80/20. [¶3.50]*
 - *On the basis of this evidence it seems that some customers are willing to pay more to get higher speed SFBB and UFBB services. However, given the evidence above, we do not consider that these higher speeds constitute a separate market at this time. [¶3.52]*
 - *...the risk of harm to retail competition and consumers from excessive prices for higher bandwidth services is **mitigated by the strength of the 40/10 as an anchor** and our fair and reasonable condition. [¶8.43] [our emphasis]*
 - *Figure 3.5 confirms that customers with higher broadband speeds generally consume higher volumes of data (although this trend breaks down after average download speeds exceed 40Mbit/s). [¶3.27]*
 - *Footnote 126 says: If FTTP services command a price premium relative to superfast broadband products (for example, due to the higher quality or bandwidth), then if superfast broadband prices are lower by virtue of the VULA price being lower, **FTTP prices will also be lower**, hence lower margins arising from investment in FTTP. [our emphasis]*
7. In summary, Ofcom believes that the price of 40/10 retail services constrains the prices of services at higher speeds. We also infer, from BT’s (redacted) evidence, that customers are sensitive to the differential between the prices of various services; if this differential grows, take-up of the higher speed services is adversely affected. Put another way, the product that Ofcom intends to regulate is (more than) capable of servicing the needs of the vast majority of users both today and over the next several years.⁷ Higher bandwidth

⁶ ¶1.36

⁷ See for example paragraph 3.51: *Moreover, our forecasts of SFBB services suggest limited demand for speeds above 40 Mbit/s. We forecast that [] of Openreach’s external GEA subscription over this review period will be the 40/10 and 40/2 services, while [] will be the 55/10 and 80/20*

products can command a premium, however if the price of the substitute 40/10 product falls, the price of those premium products will tend to fall by the same (or a similar) amount. Although Ofcom is at pains to stress that it is not *directly* regulating the price of higher speed services, its analysis consistently notes that it proposed regulation *indirectly* regulates these services. It is this collateral effect that has the potential to damage investment in fibre and thwart Ofcom's strategic shift.

*HSBC estimates of the impact of price controls on Project Lightning*⁸:

8. HSBC assumes (in line with the analysis above) that the impact of Ofcom's proposals is to reduce retail prices (and therefore ARPUs) and asks by how much the rollout in Project Lightning would need to reduce by in order to maintain the project's Internal Rate of Return (IRR). HSBC starts by estimating the pre-WLA IRR of Project Lightning and makes the following assumptions:
 - Falling prevailing market pricing for high-speed services was not within the initial business plan. Consequently, this change of approach will damage the business case. HSBC assumes that 70% of the price cut is passed on to customers, across all tariffs.
 - Virgin Media's builds first to the most attractive households from an economic return standpoint and then progresses up to that household where the projected return becomes marginal versus its hurdle requirements. HSBC assumes a combination of higher absolute levels of capital expenditure to pass each home and lower final take-up rates in the more marginal areas. In the base case terminal penetration fades from 40% in the initial build, to 20% by the four millionth premises.
 - The model includes capital costs to pass and connect a home, for CPE and back-end capacity. Network elements are depreciated over 20 years and set-top boxes and installation costs over five years. Marketing and customer support costs are included as operating expenditures.
9. HSBC estimates that, under its central assumption, the IRR of the project falls by 2.3pp in its central case; this is equivalent to a reduction of 19.2% in the project's Net Present Value. It notes that a "*fall of this magnitude in project value would raise the question of capital allocation within Liberty Global and possibly result in capital being allocated to other countries in preference to the UK*". [page 28]
10. If Virgin Media were to attempt to maintain the estimated IRR:

"Assuming Ofcom's central price control profile, in order for the project to deliver an identical IRR before and after the VULA price cut, Virgin Media would have to shrink its build plans by 550,000 homes. Even under the more moderate plan ('Low'), 275,000 or almost 7% of the total plan would not be built. Were the pass through assumption to be changed from 70% to 100%, the high impact scenario would lead to up to 1.1 million homes being removed from the project."
11. In other words, HSBC estimates that the 'risk' to the scale of Project Lightning is 550,000

services. BT has forecast that more than [27]% of internal sales will be on the 80/10 service (perhaps including early adopters) [27] This suggests that telecoms providers are able to substitute between different high speed services, suggesting that many customers do not face a strong need for higher speed services. We also note that the current degree of UFBB take-up is relatively low: in areas where >300 Mbit/s services are available, take up is around 5%.

⁸ UK Telecoms Price controls = Less work, HSBC Global Research 21 April 2017

under the central case or up to 1m premises in the ‘high’ scenario (~25% of the project). According to the Office of National Statistics, the mid-point of this range is slightly more than the number of households in Northern Ireland.⁹

12. Similar sentiments are expressed in other analyst reports, albeit without the quantification that HSBC deploys:

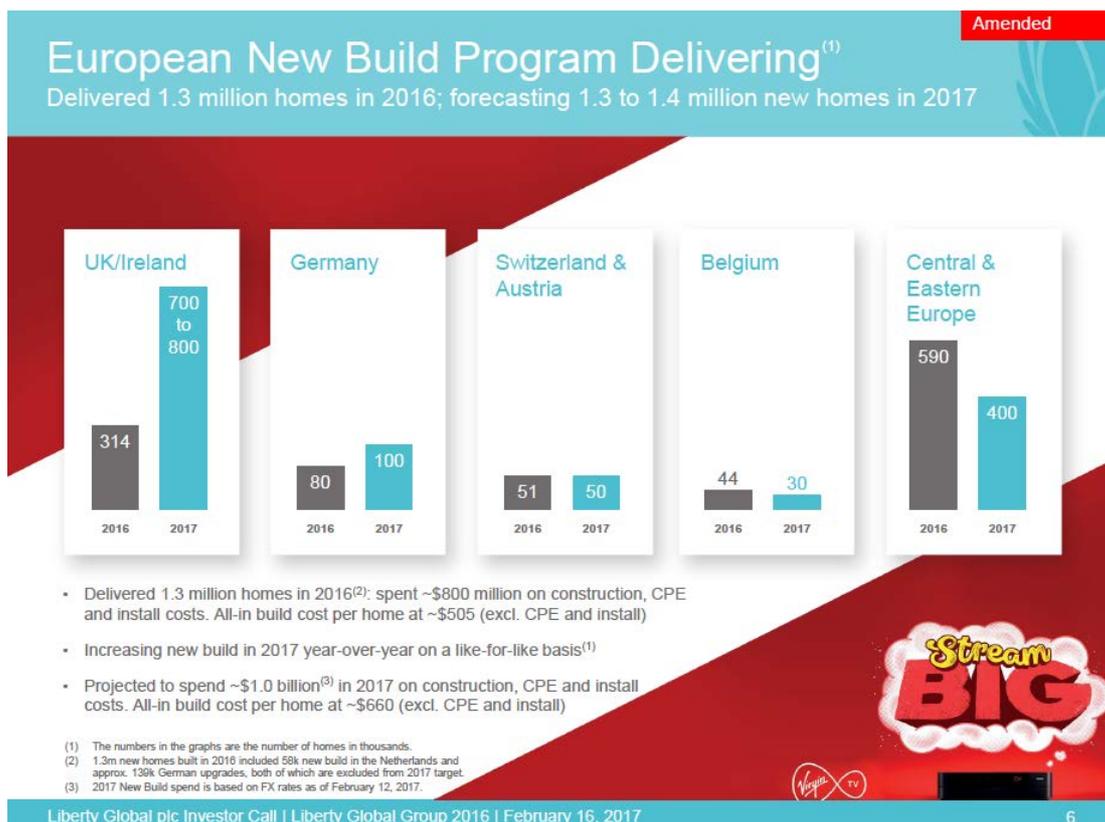
“Could Liberty reconsider the extent of Project Lightning — Ofcom is proposing to end BT's pricing flexibility on wholesale 40Mbps broadband from April 2018, almost immediately after BT's current build plan completes. We expect this to undermine the economics of new local network build by reducing both the available yield and the likely uptake. Importantly, the decision suggests a precedent for future BT builds, including of G.fast and FTTP, which may lead to the faster speed offering becoming regulated sooner than might otherwise have been expected. This combined with any logistical difficulties with Lightning that may be behind the reductions in its targets may encourage Liberty to rethink the extent of the programme”. **Citi Research 19 April 2017**

We do have sympathy with the view that Ofcom has undercut incentives to invest by toying with the 40Mbps price. **Redburn Still Sellers of TalkTalk, 21 April 2017**

***How is Virgin Media likely affected? Potentially as much as any operator, in our view.** Liberty Global's UK subsidiary is the largest and most important part of its investment case. Blessed with its own network, it has no direct exposure to the WLA. However, given its “Lightning” network expansion plans and with net debt/EBITDA tipping the scales at >5, it will be acutely conscious of any second-order deflationary effects. We expect Virgin Media's submission to the WLA consultation to express (understandably) vehement opposition to any plans to lower GEA pricing, given its substantial (£3bn) network investment.* **Arete The Telco Telex: UK Regulatory High Fibre Diet 5 April 2017**

13. Ofcom might keep in mind that Liberty Global has attractive opportunities to expand its cable footprint in other markets. The slide below is taken from the February 2016 Liberty Global Investor Call, it shows that around 45% of Liberty's anticipated build programme for 2017 was expected to occur outside of the UK.

⁹<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/families/adhocs/005374totalnumberofhouseholdsbyregionandcountryoftheuk1996to2015>



Beyond Project Lightning

14. Confidential.

Confidential

15. Confidential

16. Confidential

Other current infrastructure builders

17. Ofcom repeatedly notes the importance of preserving investment incentives for players other than BT.¹⁰ It also notes that price control of VULA is likely to erode those incentives.¹¹ Ofcom asserts that it has taken these factors into account in reaching its conclusion.

18. As we note above, there is no tangible evidence that it has done so. While the consultation paper discusses BT's 'fair bet' at length, there is no equivalent discussion of a fair bet for other players. Indeed, in revealing language Ofcom says:

“We have also considered the potential for continued pricing flexibility for all VULA products to support our objective of preserving investment incentives for competitors. Our provisional judgement is that BT has had a fair opportunity to make a return on its original risky investment, and so that

¹⁰ See (for example) ¶¶8.6, 8.12, 8.15 and 8.15

¹¹ ¶8.16, Ibid

consideration does not support continuing with a policy of pricing flexibility.”
[emphasis added]

19. This is perplexing. Why would the fact that BT had passed its expected payback date on its FTTC investment mean that charge controls now would have no impact on competitor investment incentives? Whatever BT’s expectation in 2008, the reality is that charge controls today will undoubtedly affect competitors’ returns, and (had they known about them in advance) could certainly have impacted their investment decisions at the time they were made.
20. Gigaclear, for instance, was only incorporated in December 2010, and started construction approximately a year later. Since then it has made a range of incremental investment decisions over the years to deploy fibre in almost 200 different locations.¹² Payback periods for these investments are likely to be even longer than for BT’s FTTC investment. The EIB (one of Gigaclear’s lenders) has noted that the maturity of the debt provided was “12 years in line with the long payback of these networks”.¹³ (It seems plausible that this is a cash-on-cash payback, suggesting that the discounted payback period would be even longer).
21. This suggests that Gigaclear’s earliest investments are only half way through their payback period, and their later investments are at an even earlier stage. Clearly changes to pricing at this stage are likely to have a material impact on overall returns, and in its annual report Gigaclear highlights reduced competitor pricing as one of its principal risks.¹⁴ The risk to the level of Gigaclear’s investment is evident in the fact that it is already highly targeted in where it chooses to deploy. The company notes:

“[The growth] in the coverage of our service has been achieved in line with our standard criteria of selecting the most appropriate communities that are capable of delivering an attractive return, and this methodology will be maintained at the core of our plan”.

22. With lower competitor prices, it seems likely that Gigaclear (and other operators) will find fewer communities appropriate to invest in. Nor is there much doubt that changes in Openreach pricing (and that of its downstream customers) will affect players such as Gigaclear. In its marketing material,¹⁵ Gigaclear directly compares its pricing to that of BT, suggesting that reductions in the latter’s tariffs would feed across.
23. More generally, as Ofcom has observed:

“For the period of this review ... the retail pricing of ultrafast services is likely to be constrained by the pricing of superfast broadband services.”¹⁶

24. Even if this were not true, reduced VULA pricing would still be problematic for new infrastructure investors, since even ultrafast networks receive considerable revenue from superfast products. Gigaclear, for instance, offers 50, 100 and 200 Mbps products, and positions these as the right option for most customers. For example, it describes the 100 Mbps product as a “must for families who want nonstop online entertainment across multiple platforms”.¹⁷ Product mix figures are not available for Gigaclear and other UK

¹² Gigaclear, [Annual Report & Accounts 2016](#), 2 March 2017

¹³ EIB, [EU Finance for Innovators – Case: Gigaclear](#), 15 September 2016

¹⁴ Gigaclear, [Annual Report & Accounts 2016](#), 2 March 2017

¹⁵ See, for example, Gigaclear, [Blackdown Hills Gigaclear Introduction & Q&A](#), 4 July 2017

¹⁶ ¶8.61

¹⁷ Gigaclear, [Home is where the ultrafast broadband is](#) [accessed 17 May 2017]

FTTP providers¹⁸, but in Denmark (for example) just 11% of FTTP customers take speeds of 100 Mbps or higher.¹⁹ In Australia the figure is 16%.²⁰ Superfast (and lower) services make up the great majority of revenues for ultrafast networks in these cases.

Impact on the current purchasers of wholesale access from BT

25. Ofcom has stated, a number of times, that the Digital Communications Review marks an important shift in its strategy.

There's a major shift in our strategy to promote competing new fibre networks both built entirely independently of BT's infrastructure, but also using BT's ducts and poles, using BT's passive infrastructure. [Transcript of Ofcom's call with analysts on 26 July 2016].

26. Ofcom has also been explicit about how *much* infrastructure competition it hopes to see:

"At present, about half the country has access to two network providers. We have suggested that a good long-term outcome would be to achieve full competition between three or more networks for around 40% of premises, with competition from two providers in many areas beyond that."

27. An obvious question is whether the proposals in this Consultation will aid Ofcom's strategic shift by promoting greater investment in end-to-end infrastructure on the part of those operators who currently buy active access from BT.

28. It is hard to see how these proposals will facilitate Ofcom's strategic shift. Having observed that a regulatory strategy based on LLU and VULA provides limited incentives for the buyers of those services to build their own networks, Ofcom still intends to dampen those incentives by allowing those that pursue this strategy to rent fibre via wholesale arrangements (at cost). Ofcom says that "*it must not be too 'easy' for competitors to rely on buying access to another's network when there is the potential to invest in their own*"²¹ and then proceeds to make it easier.

29. Furthermore, Ofcom's actions should be seen in the larger context of the now agreed reforms to the way that Openreach is organised. According to Ofcom, the benefits from these new arrangements for the customers of Openreach are significant. Legal separation will:

- Remove BT's ability discriminate in favour of its retail arm especially in its investment decisions;
- Ensure that Openreach responds promptly and effectively to its customers' needs, for example in developing new wholesale products and services;
- Result in Openreach leading engagement with industry on major, strategic network investment programmes to deliver better services for consumers and businesses;
- Mean that Openreach considers and engages with its customers on new commercial

¹⁸ Ofcom notes that take-up of ultrafast speeds is around 5% where they are available (¶8.61). This will be due to a combination of customers not switching to the relevant network, and switching but selecting a lower speed

¹⁹ Energistyrelsens, [Telestatistik - Første halvår 2016](#), 2016

²⁰ ACCC, [NBN Wholesale Market Indicators Report 31 March 2017](#), 3 May 2017

²¹ ¶4.21

models and relationships to support continued investment and quality, including approaches such as co-investment and risk sharing.

30. Over the next 3-4 years Sky, TalkTalk and Vodafone will buy services from a legally independent Openreach with an obligation to consult with its customers and to treat them all equally; together with an ability to buy the wholesale input at an (efficient) cost for the service that Ofcom expects will comprise nearly three quarters of the broadband market. Why, in these circumstances, would they build their own end-to-end fibre network?

The Elusive Ladder of investment

31. Ofcom notes that:

“Sky and TalkTalk have each argued that a lower VULA price could incentivise investment as it would help them to build and maintain scale during the medium term while network build takes place. They argue that a lower VULA price would allow them to build and maintain larger customer bases which they could then more easily convert to ultrafast customers once they had built their own networks.”²²

32. We cannot determine whether Ofcom puts any weight on these claims, but we submit that it should be very sceptical:

- The ladder of investment philosophy was adopted by many European (and other) regulators in the era of copper networks as a means of implementing unbundling in a way that progressively promotes competitive providers’ infrastructure investment. Entrants were expected to move up the ladder making access regulation eventually redundant. By setting low access prices, the regulator encourages service-based entry in the short term. Then, once entrants have gained a customer base and acquired market experience, they can climb the ladder and invest in their own facilities. Hence, service-based competition serves as a stepping-stone for facilities-based entry. Unfortunately, there is no evidence that this is what has happened. For example, Bacache, Bourreau and Gaudin²³ build an empirical model to test the three rungs (bitstream access, local loop unbundling and new access facilities) of ladder of investment hypothesis. They find no evidence in support of the hypothesis i.e., no effect of the past number of service-based unbundled lines on the number of new access lines owned by entrants.
- It is not clear why lower VULA prices would give greater scale to Sky and TalkTalk. Such prices would apply equally to BT’s retail arm, and so would not help these companies gain share from BT. Lower prices might increase superfast penetration, but Ofcom is anyway forecasting that this will grow to 73% by 2020/21.²⁴ It seems likely that a significant portion of the remaining 27% might simply have little interest in upgrading. If so, again the benefit of lower VULA prices to Sky and Talk Talk’s scale will be trivial.
- TalkTalk’s cumulative capital expenditure in UK telecoms has been £748m (FY08 to H1 17) since it launched ‘free broadband’ in April 2006 (as of H1 FY17 its current fixed assets totaled £289m), and to-date it has spent only £4m on a fibre-to-the-premise

²² ¶4.26

²³ Maya Bacache, Mark Bourreau and Germain Gaudin; *Dynamic Entry and Investment in New Infrastructures: Empirical Evidence from the Fixed Broadband Industry*. Review of Industrial Organisation 44 (2014) pp. 179-209.

²⁴ ¶1.12

network in York (with a further £20m earmarked for the next 18 months). [Source: HSBC].

- Sky has stated that it will not build a fibre network and has pulled out of its FTTP joint venture with TalkTalk in York.²⁵
 - Vodafone’s CFO (Nick Read) speaking to analysts at its year-end results said: “Vittorio [Colao, CEO] will shortly talk about the infrastructure strategy and the trade-offs between buy, build and rent options. And as previously stated, the mid-teens outlook has limited fibre build. We continuously evaluate fibre business cases but we have yet to identify opportunities with the appropriate targeted returns.”²⁶ Lowering wholesale prices will reduce likelihood that fibre build in the UK will meet Vodafone’s targeted return.
33. As Arete notes: “Both [Sky and TalkTalk] argued that lower wholesale prices are a key step towards investing in FTTH technologies as it affords them the opportunity to build a large enough base to migrate across. **This argument looks like (understandable) self-interest; surely Ofcom will see through these claims.**”

Summary: Implications for future competitive investment

34. In assessing the overall implications for future competitive infrastructure investment, it is worth revisiting the basis for historic infrastructure build alongside BT.
35. At a high level, any incumbent is likely to have a significant scale advantage over rivals. This applies both nationally (systems costs amortised across far more customers, for example) and locally (the advantage of starting with all the customers in a given area, meaning a high ratio of homes served to homes passed). These scale advantages mean that all else being equal, the incumbent might have an unassailable cost advantage.
36. However, historically a number of ‘windows of opportunity’ have offset this scale advantage:
- In the past incumbents operated inefficiently, with (for example) significant overmanning;
 - Cable operators were able to add telecoms capabilities to their existing networks at low incremental cost;
 - Poor broadband service quality in certain locations created an opening for a superior competitor project (Gigaclear’s approach)
 - Geographically averaged pricing for the incumbent created an opportunity for new entrants to ‘cherry pick’, focussing on the lowest cost areas (Hyperoptic’s approach, and historically Mercury’s)
37. However, all of these factors will be much less relevant in future. While BT may not be perfectly efficient, it is a transformed organisation from a decade or two ago. Cable—in the shape of Virgin Media—is already in the market, and there are no other players with fixed infrastructure that can be so readily upgraded to enter the fixed telecoms market.

²⁵<http://www.ispreview.co.uk/index.php/2016/04/sky-confirm-no-plans-build-uk-fibre-optic-broadband-network.html>)

²⁶http://www.vodafone.com/content/dam/vodafone/investors/financial_results_feeds/preliminary_results_31march2017/Q4_FY1617_transcript_FINAL.pdf (page 6)

38. While there remain some not-spots for broadband, these are rapidly diminishing. The combination of BDUK funded deployment and a proposed 10 Mbps USO means that the pool of customers with inadequate broadband is lower, threatening competitor investment in these areas.
39. Geographically averaged pricing will also be less relevant, since the proposed prices set for VULA are based on the area covered by BT's commercial deployment – that is, it excludes areas which were partially funded by state aid, such as that from BDUK.²⁷ This contrasts with past cost-oriented charges, which were generally based on Openreach's national cost base. This would have incorporated high cost rural and remote areas, pulling up the specified charge. That in turn increased the attractiveness of the cherries for competitors to pick in lower-cost urban areas. However, if the VULA tariffs are based on an ostensibly urban footprint (by excluding BDUK areas) there will be far less scope for competitors to undercut BT by targeting urban areas.
40. Moreover, the situation in rural areas will be even more acute – potential investors will have to compete with an Openreach tariff that is mandated to *well below* the full cost in those areas. Since these areas can lack any infrastructure competition from Virgin Media or others, it is doubly unfortunate that rival investment is being made more challenging.
41. Consequently, the various 'windows of opportunity' will be much narrower in future. By extension, the imposition of cost-based VULA tariffs (reflective of Openreach's scale advantages) will therefore create a particularly challenging environment for competitive fixed infrastructure investment.
42. It might be argued that there is still the opportunity to overbuild an ultrafast network and provide a superior product, thereby capturing share despite a cost (and therefore price) disadvantage. However, as we have already noted, the business case for ultrafast networks depends heavily on superfast revenues.
43. At the beginning of the market review, Ofcom reiterates that is making "*a strategic shift to encourage the large-scale deployment of new ultrafast broadband networks*".²⁸ However, Ofcom later says: "*there are still very high entry barriers to constructing a significant scale local access network independent of the incumbent's network*",²⁹ and (partly) on this basis determines there is a need for cost-based pricing for VULA.
44. However, entry barriers would be surmounted if there was a profitable opportunity to do so. Mandated pricing based on the costs of an incumbent with scale far greater than its rivals means that there is no profitable prize worth scaling those barriers for. This runs counter to Ofcom's desire to encourage ultrafast deployment, and risks creating a perpetual self-fulfilling prophecy. At each review, cost based tariffs for Openreach will be required as a consequence of a lack of sufficient infrastructure competition, and precisely those tariffs will remove the incentives for any widespread deployment of new infrastructure.

²⁷ Cartesian, [Wholesale Local Access Market Review: NGA Cost Modelling](#), 30 March 2017

²⁸ ¶1.3

²⁹ ¶3.120

Section 2: What problem is Ofcom trying to solve?

Broadband prices

45. Ofcom identifies a risk that it is seeking to mitigate through regulating the price of wholesale access. This risk is variously described:
- *Protecting consumers against the risk of high prices and protecting retail competition where necessary based on access to BT's network. [page 1]*
 - **Protecting consumers against the risk of high prices.** *Interventions to encourage investment in new infrastructure must take account of the high risk that they could result in higher prices for consumers. [¶1.21 and ¶8.6]*
 - **Protecting retail competition where necessary based on access to BT's network.** *Where we do not expect network competition to emerge, the prices charged for access to BT's network must allow rivals to compete. [¶1.21 and ¶8.6]*
 - *Therefore, there is a significant risk that retail competition would be weaker and consumers would face considerably higher prices if there was no control on VULA pricing. [¶1.35]*
 - *We believe that our proposed approach provides sufficient protection to superfast broadband customers from the risk of higher prices...[¶1.41].*
 - *In addition, where necessary, we propose charge controls to mitigate the risk of excessive pricing. [¶4.5]*
 - *Therefore, we consider that there is a significant risk that retail competition would be weaker and consumers would face considerably higher prices if there was no control on VULA pricing given the risk of excessive pricing by BT. [¶8.11]*
 - *....the challenge we face is to address the risk of excessive pricing by BT in a way that encourages network investment and protects consumers and competition in the short term (given that investment in new ultrafast networks will take time). [¶8.12]*
 - *Absent regulation, we have provisionally identified a risk that BT would have the incentive and ability to maintain the price of VULA access at an excessive level, leading to higher prices for SFBB customers. [¶8.24]*
 - *Our judgement at this stage is that continued pricing flexibility is therefore likely to risk excessive pricing by BT, and so have a significant impact on consumer bills, suggesting it may be necessary to impose a charge control to protect customers from the risk of higher prices. [¶8.35]*
 - *Moreover, our analysis of the risk of consumers of SFBB facing high prices suggests that continuing with complete pricing flexibility would be insufficient to address the pricing risk we have identified and would not provide consumers with sufficient protection, given that new network build will take time and may not be viable in all geographic areas. On balance, therefore, we consider that a charge control on VULA is appropriate. [¶8.36]*
46. At some point in the consultation the risk that Ofcom is addressing morphs from protecting consumers from higher prices to protecting them from excessive pricing, although this

term is not defined. As far as we can see, at no point does Ofcom claim that the current prices are ‘excessive’. Instead, absent the proposed intervention by Ofcom, it believes that BT would be able to increase its prices because the competitive constraints that bear upon it are insufficient to dissuade it from this course of action. Put simply, Ofcom is guarding against a *future* threat of harm rather than the existence of a current detriment.

47. This view that there is no current problem is consistent with Ofcom’s observations elsewhere. In *Pricing trends for communications services in the UK* (15 March 2017) Ofcom observes that “average revenue per user has not reflected the increasing data consumed by fixed broadband and mobile users”. [p12]. It offers an explanation for this phenomenon:

Data provided to Ofcom by service providers show that shifts in average spend have not always reflected changing usage patterns among fixed broadband and mobile data users. Increasing take-up of superfast broadband has gone hand-in-hand with increasing use of streaming video services such as BBC iPlayer and Netflix, resulting in rapid growth in the average monthly volume of data consumed per residential connection, which increased by 67% year on year to 97GB per month in 2015 (132GB in 2016). Despite the steep increase in data usage, the average revenue per residential fixed broadband connection increased by just 8%, to £19 per month in 2015, and was 36% lower than in 2005.

While fixed broadband and mobile phone users have benefited from competitive prices over the last decade, this is not the case for residential landline users.

48. In its work on the USO Ofcom reports that “research suggests that the pricing of broadband today does not prevent most people from taking it up”. However, there are “issues of affordability for a small proportion of consumers”. Its research reveals that only a small minority (3%) of broadband customers reported having difficulties paying for fixed broadband. This leads Ofcom to conclude that “our research suggests that, **if prices for universal decent broadband were set at current levels across the UK, affordability would only be an issue for a small proportion of consumers**”. [our emphasis].³⁰
49. In any case, affordability should be addressed through SBB, not the premium SFBB product. VULA regulations should be unrelated to affordability. Consumers are not disinclined to take *any* fixed broadband product because SFBB is too expensive.
50. In summary, there is no evidence that the prices for broadband are too high/excessive. On the contrary, value for money is increasing rapidly. Ofcom uses data volumes consumed as a proxy for value.³¹ However, while traffic volumes have grown exponentially, broadband ARPU’s have seen little or no change, suggesting that consumers have seen enormous benefit from falling price per MB. Neither is there evidence that, for the vast majority of customers, superfast broadband prices are either unaffordable or a barrier to consumption – indeed, Ofcom forecasts brisk increases in superfast adoption, and makes no claim that this depends on price reductions. The case for regulating wholesale prices to cost cannot rest on the need to address excessive or unaffordable pricing. Put another way, there is no under-consumption market failure that would justify intervention.

Competition

³⁰ Achieving decent broadband connectivity for everyone (Technical advice to UK Government on broadband universal service

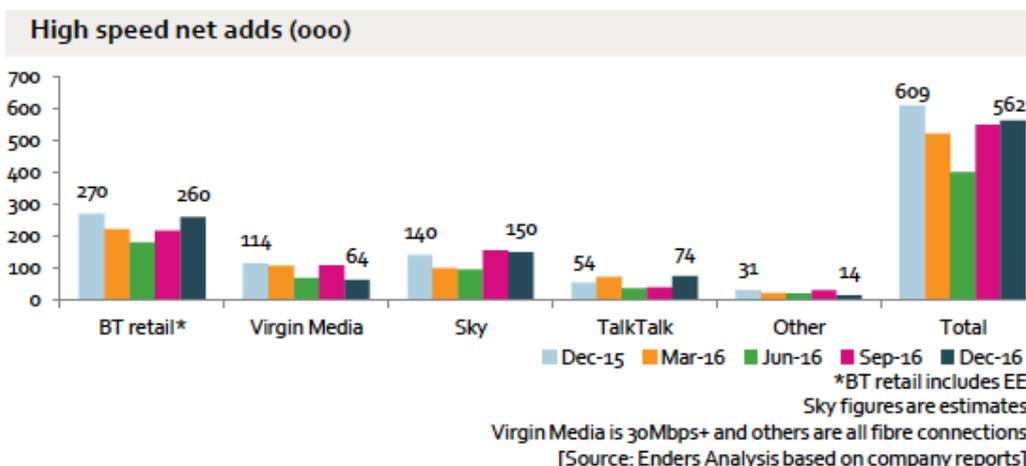
³¹ ¶3.27

51. Ofcom also refers to the risk that competition is weaker in the absence of regulation. This is a vague articulation of a potential problem, however Ofcom adduces no evidence that competition is 'weak' under the current suite of wholesale prices. The table below shows the offers available at the beginning of April from those that purchase wholesale access from Openreach, as well as Virgin Media.

April 2017 Broadband Offers

	Package	TV	Broadband Speed	Usage	Inclusive Calls	Offer	Usual Price	Discount value	Activation / Router Deliv.	Minimum Contract	Offer End Date	Online Offer / Notes
	Unlimited Broadband	-	Up to 17Mb	Unltd	W/E	£24.49 for 12 months	£40.99	(£198.00)	£9.99	12 months	10-Apr-17	£75 vch (ends 10th Apr)
	Unlimited Infinity 1	-	Up to 52Mb	Unltd	W/E	£29.49 for 12 months	£47.49	(£216.00)	£59.99	12 months	10-Apr-17	£125 vch (ends 10th Apr)
	Unlimited Infinity 2	-	Up to 76Mb	Unltd	W/E	£44.99 for 12 months	£53.99	(£108.00)	£29.99	12 months	10-Apr-17	£125 vch (ends 10th Apr)
	Unlimited Infinity 1 + Starter TV	YouView (non-PVR) + BT Sport Pack	Up to 52Mb	Unltd	W/E	£29.49 for 12 months	£47.49	(£216.00)	£69.99	12 months	10-Apr-17	£125 vch (ends 10th Apr)
	Broadband & Weekend Calls	-	Up to 17Mb	Unltd	W/E	£21 for 18 months	£28.50	(£135.00)	£7	18 months	n/a	-
	TV, Broadband & Weekend Calls	EE TV	Up to 17Mb	Unltd	W/E	£32 for 18 months	£33.50	(£27.00)	£7	18 months	n/a	-
	Fibre & Weekend Calls	-	Up to 38Mb	Unltd	W/E	£28.50 for 18 months	£34.50	(£108.00)	£7	18 months	n/a	-
	TV, Fibre & Weekend Calls	EE TV	Up to 38Mb	Unltd	W/E	£36.50 for 18 months	£39.50	(£54.00)	£7	18 months	n/a	Free vDSL connection (normally £25)
	Fibre Plus & Weekend Calls	-	Up to 76Mb	Unltd	W/E	£32.50 for 18 months	£40.50	(£144.00)	£7	18 months	n/a	-
	TV, Fibre Plus & Weekend Calls	EE TV	Up to 76Mb	Unltd	W/E	£40.50 for 18 months	£45.50	(£90.00)	£7	18 months	n/a	-
	Brilliant Broadband	Entertainment Pass	Up to 17Mb	Unltd	None	£29.99 for 12 months	£32.98	(£35.88)	£22 or £44 (no contract)	1 or 12 months	n/a	-
	Fab Fibre	Entertainment Pass	Up to 38Mb	Unltd	None	£29.99 for 12 months	£42.98	(£155.88)	£22 or £44 (no contract)	1 or 12 months	n/a	-
	Super Fibre	Entertainment Pass	Up to 76Mb	Unltd	None	£37.99 for 12 months	£50.98	(£155.88)	£22 or £44 (no contract)	1 or 12 months	n/a	-
	Unlimited	-	Up to 17Mb	Unltd	None	£20 for 12 months	£27.98	(£95.76)	£10.00	12 months	25-Apr-17	-
	Unlimited	-	Up to 17Mb	Unltd	None	£22.99 for 12 months	£30.48	(£89.88)	£50.00	1 month	n/a	-
	Unlimited Fibre	-	Up to 38Mb	Unltd	None	£25 for 12 months	£32.98	(£95.76)	£25.00	12 months	25-Apr-17	-
	Unlimited Fibre Extra	-	Up to 76Mb	Unltd	None	£30 for 12 months	£37.98	(£95.76)	£25.00	12 months	25-Apr-17	-
	-	Original	-	-	-	£75 Reward	£22.00	(£75.00)	£15.00	18 months	n/a	-
	Broadband Unlimited	-	Up to 17Mb	Unltd	None	£18.99 for 12 months	£28.99	(£120.00)	£10.00	12 months	n/a	-
	Broadband Unlimited	Original	Up to 17Mb	Unltd	None	£45.99 for 12 months	£50.99	(£60.00)	£25.00	12 months	n/a	-
	Fast Broadband	-	Up to 17Mb	Unltd	None	£20 for 24 months	£25.50	(£132.00)	£9	18 or 24 months	11-Apr-17	Packages also available on 12 contract, standard prices apply
	Faster Fibre Broadband	-	Up to 38Mb	Unltd	None	£27 for 24 months	£32.00	(£120.00)	£9	18 or 24 months	11-Apr-17	
	TV with Fast Broadband	YouView (non-PVR)	Up to 17Mb	Unltd	None	£20 for 24 months	£25.50	(£132.00)	£34	18 or 24 months	11-Apr-17	
	TV with Faster Fibre Broadband	YouView (non-PVR)	Up to 38Mb	Unltd	None	£27 for 24 months	£32.00	(£120.00)	£34	18 or 24 months	11-Apr-17	
	TV Plus with Fast Broadband	YouView & 6 PTV Channels	Up to 17Mb	Unltd	None	£25 for 24 months	£30.50	(£132.00)	£34	18 or 24 months	11-Apr-17	
	TV Plus with Faster Fibre Broadband	YouView & 6 PTV Channels	Up to 38Mb	Unltd	None	£32 for 24 months	£37.00	(£120.00)	£34	18 or 24 months	11-Apr-17	
	Unlimited Fibre 38	-	Up to 38Mb	Unltd	None	£1 set-up	£23.00	None	£1.0	18 months	11-Apr-17	£26 for non-mobile subs
	Unlimited Fibre 76	-	Up to 76Mb	Unltd	None	£1 set-up	£28.00	None	£1.0	18 months	11-Apr-17	£31 for non-mobile subs
	VIVID 100 broadband and calls	-	Up to 100Mb	Unltd	W/E	£32 for 12 months	£40.00	(£96.00)	£14.99	12 months	28-Jun-17	-
	Player Bundle	70+ channels	Up to 100Mb	Unltd	W/E	£32 for 12 months	£45.00	(£156.00)	£14.99	12 months	28-Jun-17	-
	Mix Bundle	150+ channels, V6	Up to 100Mb	Unltd	W/E	£39 for 12 months	£52.00	(£156.00)	£14.99	12 months	28-Jun-17	-
	Fun Bundle	190+ channels, V6	Up to 100Mb	Unltd	W/E	£49 for 12 months	£57.00	(£96.00)	£14.99	12 months	28-Jun-17	-
	Full House Bundle	245+ channels (inc. BT Sport), V6	Up to 200Mb	Unltd	W/E	£55 for 12 months	£73.00	(£216.00)	£14.99	12 months	28-Jun-17	-
	Full House Movies Bundle	245+ channels (Sky Cinema; BT Sport), V6 box	Up to 200Mb	Unltd	W/E	£65 for 12 months	£93.00	(£336.00)	£14.99	12 months	28-Jun-17	-
	Full House Sports Bundle	245+ channels (Sky Sports; BT Sport), V6 box	Up to 200Mb	Unltd	W/E	£75 for 12 months	£103.00	(£336.00)	£14.99	12 months	28-Jun-17	-
	VIP Bundle	245+ channels, BT Sport, Sky Cinema & Sports HD, 1TB TiVo, V6 box x2	Up to 200Mb	Unltd	Anytime	£85 for 12 months	£120.00	(£420.00)	£14.99	12 months	28-Jun-17	-

52. Enders regularly reports on the broadband market contains some useful information (UK broadband, telephony and pay TV trends Q4 2016). On page 8 Enders shows the following table:



53. In the quarters for which the numbers are given BT’s wholesale customers reported added on marginally fewer customers than BT Retail (45k and 22k in Q4 2015 and ’16 respectively). Enders also compares the UK with the EU5 (p.16); the UK has the second highest share of SFBB and the highest internet connection speed. These metrics do not indicate that competition is currently weak or that it will weaken over the next three years.
54. In a more recent report Enders comments on TalkTalk’s financial results and its change in strategy:³²

“They have stated a determination to grow the base going forward, but have admitted that this requires a rebasing of their EBITDA to spend the necessary amount on marketing, and guided to an EBITDA drop in the 2017/18 year. This looks much more realistic than their previous plans, but will in itself generate even more competitive intensity in the UK broadband market, which is already squeezed given the market volume slowdown and Virgin Media network extension.” [our emphasis].

55. To summarise, Ofcom adduces no evidence that prices are excessive or that competition is impaired under the current wholesale pricing freedom plus margin squeeze test. Instead, Ofcom points to a future risk of higher prices and impaired competition. Ofcom’s answer is to set wholesale prices at cost. It does not ask whether a less intrusive remedy is required to balance the benefits of lower prices against the risk to investment; instead it simply asserts that these incentives are preserved. Rather than erring on the side of caution with respect to investment, this trade-off is not confronted. Our analysis shows that there is a risk to competing investment because, as Ofcom acknowledges, lower wholesale prices mean lower retail prices further up the chain. If Ofcom has not abandoned its strategic shift then this should motivate a less intrusive remedy. In section 4 below we set out the case for an alternative safeguard CPI-CPI cap.

³² Enders Analysis: TalkTalk Group Q4 2016/17 results: Rebasing profits for growth 22 May 2017

Section 3: Flaws in Ofcom's assessment of the market

56. Ofcom argues that SBB is of diminishing importance as a constraint on SFBB. However, Ofcom's evidence is incomplete and in some instances Ofcom has drawn unwarranted conclusions. Thus Ofcom is significantly underestimating the constraint of SBB on SFBB. We discuss this further below.

Ofcom's analysis of the migration to SFBB

57. Ofcom suggests that: “[t]he continued migration to SFBB suggests that ... the constraint of SBB on SFBB is weakening.”³³ However, the conclusion does not follow from the premise. To take a parallel, there has been a continued migration to cars with cupholders, but this does not suggest that a cheaper car without a cupholder would not represent a substantial constraint on those cars with a cupholder. A related point is that Ofcom appears to presume that the migration was entirely at the customer's choice. To the extent to which consumers were switched to SFBB products at the *provider's* discretion, the migration can hardly be taken as evidence that consumers are showing a significant preference for SFBB.
58. In practice, there have been several such upgrades by providers. For instance, between March 2012 and mid-2013, Virgin Media gave its 20 and 30 Mbps customers a free upgrade to 60 Mbps.³⁴ (Those on 10 Mbps were upgraded to 20 Mbps, and later to 30 Mbps). More recently, Sky offered a free upgrade to FTTC for all its Sky Sports customers (who also took broadband from them).³⁵ Notably, the period of Q2 2012 to Q2 2013 (covering Virgin's upgrade to 60 Mbps) saw the largest increase in SFBB uptake recorded by Ofcom by some margin – 14 percentage points compared to just 7 percentage points in the year to Q2 2016, for example.³⁶ At the time of the last WLA review Ofcom noted Virgin's upgrade was “the main driver” of the 2012-2013 increase.³⁷
59. Thus Ofcom is attaching too great a significance to the past migration to SFBB as evidence of a weakened constraint exerted by SBB. Moreover, Ofcom's forecasts of migration appear aggressive. As Ofcom noted in its most recent *Connected Nations* report, “the rate of superfast take-up appears to be slowing”.³⁸ The left hand side of the graph below illustrates this. The increment in superfast's share of all broadband from 2013 to 2014 was 6.5%. By 2016 it had dropped to 4.6%, despite the fact that there was a substantial (6 percentage point) increase in broadband coverage that year. However, Ofcom's forecast sees the rate of increase jump back up to 6-7%, a rate not seen since 2014. Moreover, 2014 was a year that saw both growing superfast coverage (which is now slowing appreciably) and free superfast upgrades from Virgin Media.

Superfast broadband lines as portion of all broadband³⁹

³³ ¶3.20

³⁴ BBC, [Virgin Media to double the speed of customer broadband](#), 8 March 2012

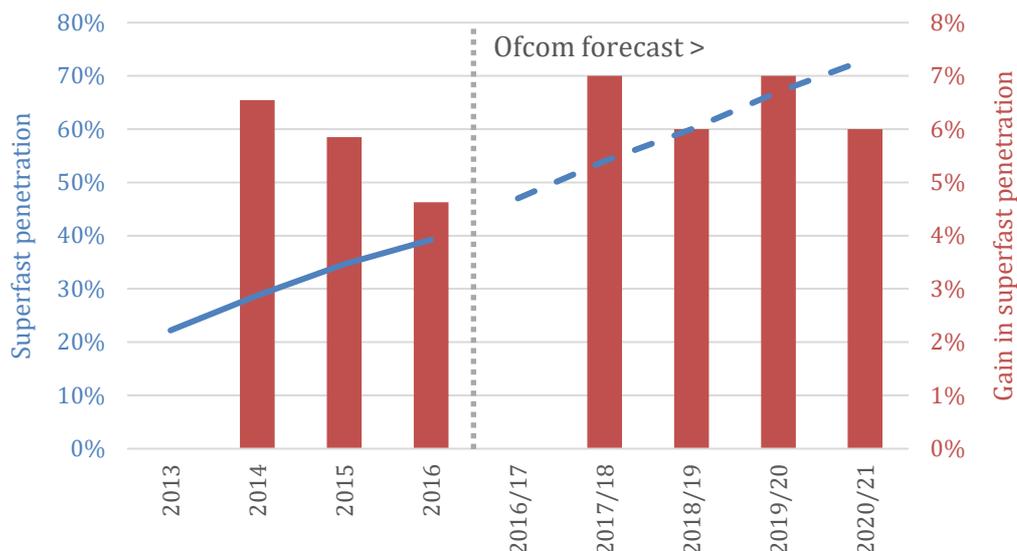
³⁵ Campaign, [Sky Sports customers get free fibre broadband in pay-TV war with BT](#), 22 July 2016

³⁶ Fig 3.2

³⁷ Ofcom, [Review of the wholesale broadband access markets - Statement on market definition, market power determinations and remedies](#), 26 June 2014

³⁸ Figure 12, Ofcom, [Connected Nations 2016](#), 16 December 2016

³⁹ Historic figures from Ofcom, [Communications Market Report 2016](#), 4 August 2016; Ofcom, [Connected Nations 2016](#), 16 December 2016. Historic penetration calculated as follows (using



60. This all suggests that Ofcom’s forecasts may well be too aggressive. This is material for two reasons. Firstly, it weakens the argument that “*the constraint of SBB on SFBB is weakening*”. If Ofcom is overestimating the migration, it is (by extension) underestimating the constraint. Secondly, SFBB volumes are a critical input to Ofcom’s VULA costing model, since there are substantial fixed costs to be allocated across the active lines. If Ofcom has overestimated volumes, it has underestimated the unit cost of the VULA product.

Ofcom’s analysis of usage of SFBB

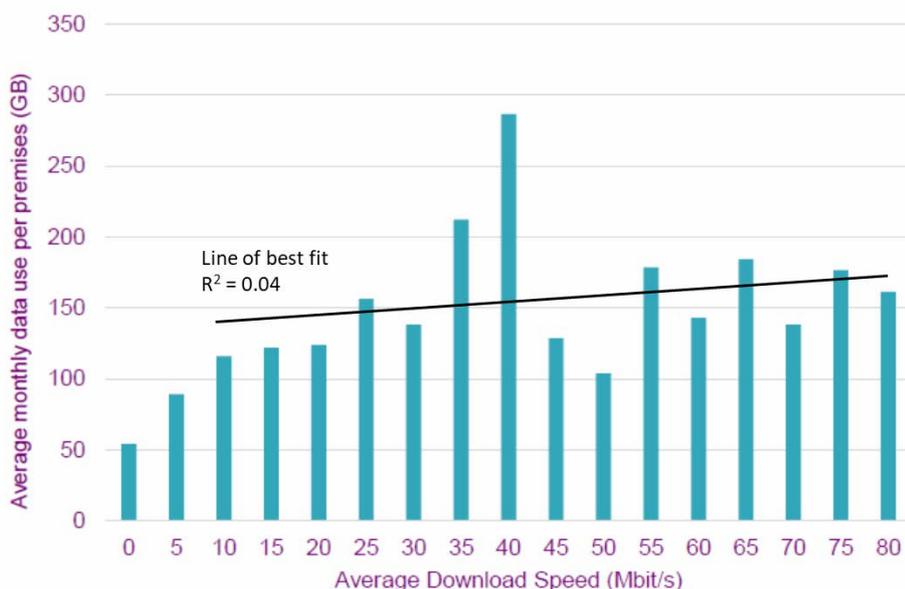
61. Ofcom claims that: “*customers with higher broadband speeds generally consume higher volumes of data ... This suggests consumers get significant value from SFBB lines.*”⁴⁰ Ofcom’s evidence of this is shown in the graph below. Far from showing a strong linkage between speed and data use, the data shows almost none at all ($R^2=0.04$, lines of less than 10 Mbps excluded).

Variation in 2016 data use with download speed per Ofcom with overlaid regression⁴¹

2016 as example): Superfast take-up: 31% (per CN). Fixed broadband take-up: 79% (per CMR). Superfast penetration: 31%/79%=39%. Forecast figures from Ofcom, [WLA Market Review Volume 1](#), 31 March 2017. Note the series break since Ofcom’s forecast uses financial rather than calendar years

⁴⁰ ¶3.27

⁴¹ Fig 3.5



62. Ofcom notes the very high data consumption by lines receiving 40 Mbps. However, in 2015 data usage by such lines was actually substantially *lower* than usage of lines receiving 45 Mbps.⁴² Such volatility in the data—in addition to the lack of any clear pattern—suggests the need for extreme caution in drawing conclusions about the linkage between bandwidth and traffic, and (by extension) any supposed ‘significant value’⁴³ delivered by SFBB.
63. Ofcom also attaches significance to growth in internet traffic, commenting that: “*increase in usage reflect trends which mean that, in many cases, SBB speeds will no longer be sufficient for household needs*”.⁴⁴ Again, this is not supported by the data. According to evidence from the Connected Nations report, average growth in usage per premise in 2016 was 36%. However, this rate of growth was exceeded by *all* speed brackets below 30 Mbps.⁴⁵ In other words, usage on non-superfast lines was growing faster than on superfast lines. This certainly does not suggest that traffic growth inherently creates a requirement for superfast.
64. Indeed, there is no reason necessarily to expect a strong linkage between bandwidth and traffic. To take a simple example: if a household expands its usage of Netflix from an hour per week to an hour per day, this will have significant impact on its traffic. But if Netflix usage was already part of its ‘busy minute’ usage (as is likely), this increased usage would likely have no impact at all on its peak bandwidth requirements. In reality, increased usage of video has indeed been a prime driver of increased traffic, but for this reason has had a far less significant impact on bandwidth requirements.

Ofcom’s analysis of the premium for SFBB

⁴² Figure 14, Ofcom, [Connected Nations 2016](#), 16 December 2016

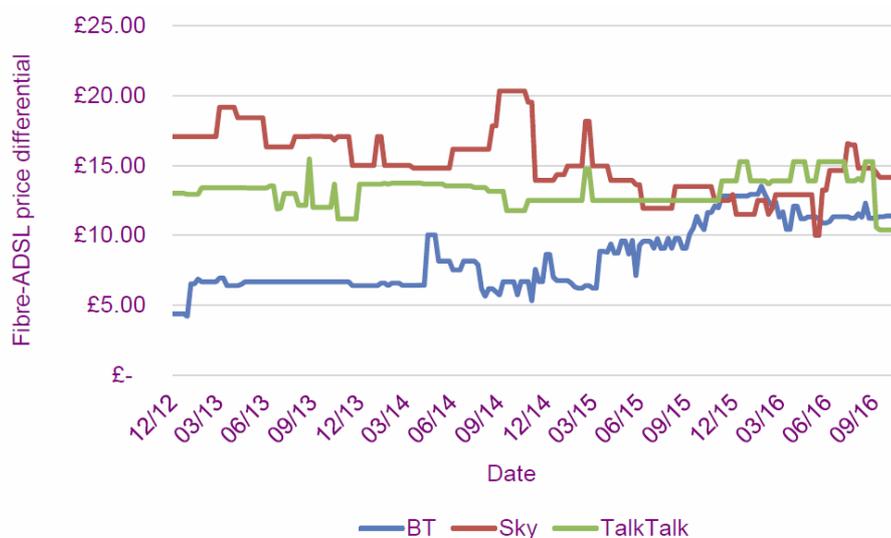
⁴³ ¶3.27

⁴⁴ ¶3.21

⁴⁵ Analysis of data from Figure 14, Ofcom, [Connected Nations 2016](#), 16 December 2016

65. Ofcom, as part of its case for SFBB being unconstrained by SBB, claims that “[p]ricing data also suggests that the premium for SFBB has been increasing”.⁴⁶ The main evidence that Ofcom offers for this is shown in the diagram below. In the last WLA review (based on March 2014 data), Ofcom declined to identify a distinct market for SFBB, on the basis that there was only a small premium for SFBB over SBB, and this was entirely consistent with a chain of substitution.⁴⁷
66. As the diagram below shows, while BT’s premium for SFBB has risen, that of both Sky and TalkTalk has actually *fallen* since March 2014. Given this mixed picture, it is hard to see why Ofcom has now entirely reversed the conclusion it reached in 2014.

SFBB price premium vs SBB, (monthly non-promotional retail prices) per Ofcom ⁴⁸



67. Moreover, data provided in Ofcom’s *Pricing Trends* report shows a very different picture from that in the diagram above and paragraph 8.26. The premium for SFBB has not been rising, but falling steadily since 2008 (and is also down since the date of the last WLA review):

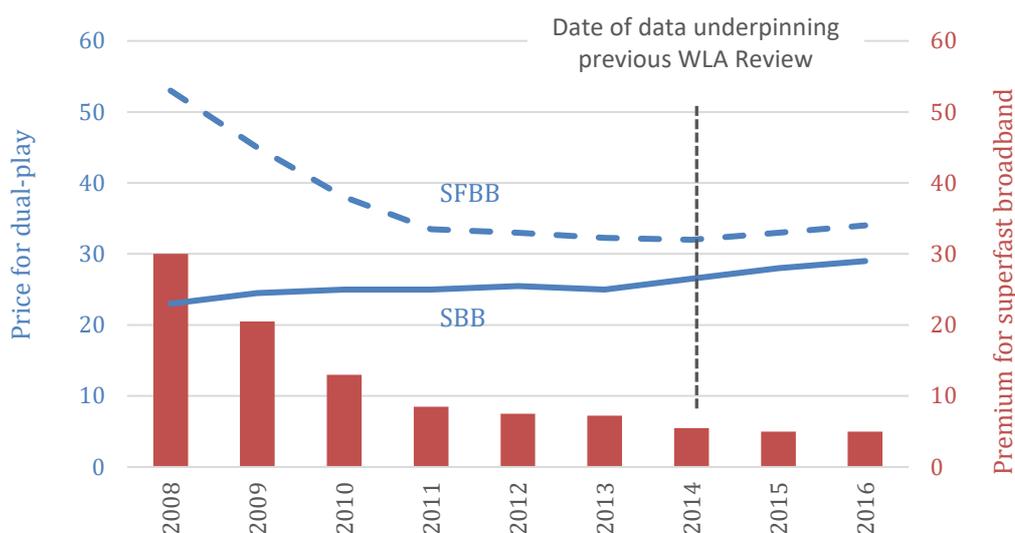
Price premium for SFBB vs SBB dual plays (average of cheapest tariffs)⁴⁹

⁴⁶ ¶8.26

⁴⁷ ¶3.43-3.55, Ofcom, [Review of the wholesale broadband access markets - Statement on market definition, market power determinations and remedies](#), 26 June 2014

⁴⁸ Fig 3.1. Underlying data from SimplifyDigital

⁴⁹ Adapted from Fig 1.22 Ofcom, [Pricing trends for communications services in the UK](#), 2017



68. Thus Ofcom’s view that the SFBB premium is rising is simply not consistent with the weight of the evidence. On the contrary, the declining premium suggests that providers are working harder to attract today’s marginal SFBB customer, and (by extension) the marginal constraint imposed by SBB was growing.
69. However, even if *were* true that premiums were rising, it would still not justify treating SFBB as a distinct market. Indeed, in the prior WLA review, Ofcom said that an increase in the premium would not mean that it had to define a separate market:

“To the extent that prices for SFBB could increase because of the premium some consumers are willing to pay for SFBB rises, it is not clear that this means we should define a separate market. ... [C]harging a premium for SFBB is consistent with a chain of substitution.”⁵⁰

Ofcom’s analysis of the propensity to downgrade

70. Ofcom reports that relatively few customers downgrade from SFBB to SBB, and concludes that SFBB is a ‘distinct’ market. However, once again Ofcom is looking at similar evidence to that at the time of the 2014 WLA review and reaching an opposite conclusion. In the prior review Ofcom said:

“[E]ven if consumers are reluctant to trade down once they have experienced SFBB, prices for SFBB are likely to remain low in order to make it attractive for the large number of consumers still on CGA to migrate to SFBB.”⁵¹

71. Further, the propensity to downgrade needs to be seen in the context of the price premium. As we have set out above, that premium is narrow and has been falling. If the premium is low, then there is limited reason to go through the process of switching to a lower speed. In effect, the SBB constraint on SFBB is working – the question is not whether there is

⁵⁰ ¶3.70, Ofcom, [Review of the wholesale broadband access markets - Statement on market definition, market power determinations and remedies](#), 26 June 2014

⁵¹ ¶3.70, Ofcom, [Review of the wholesale broadband access markets - Statement on market definition, market power determinations and remedies](#), 26 June 2014

material switching now, but rather whether there *would be* if SFBB premium rose appreciably.

72. Indeed, Ofcom’s own evidence suggests this is what would happen. Ofcom notes that available inter-provider switching data for one operator in the period 2014 and 2015:

*“showed that the large majority of customers who switched from one specific provider’s SFBB products to its own products took a SBB product, rather than an SFBB product. However, we believe that this was because the gaining provider’s SFBB retail offer was not particularly attractive to consumers over the period in question”.*⁵²

73. In other words, SBB did act a constraint on a poorer SFBB offer (perhaps due to the latter’s higher price).
74. Moreover, Ofcom’s evidence of limited downgrading is unconvincing. It notes that “only 2%” of residential customers had switched to a lower speed.⁵³ However, this figure needs to be seen in the context of the portion of customers who had the *possibility* to switch to SBB from SFBB. To be a ‘downgrader’ a respondent would need to have earlier upgraded to SFBB, served out their contract, and then had a reasonable period to make the switch to a lower speed. The research Ofcom cites was conducted in November 2015. If we allow for an 18-month contract term for superfast⁵⁴ and also allow 12 months for a subsequent decision to downgrade, our universe of potential downgraders is those who had superfast at around May 2013.
75. As of March 2013, there were 3.8m superfast subscribers.⁵⁵ This compares with 24.7m broadband customers at Q4 2015 (roughly the date of Ofcom’s consumer research).⁵⁶ This means that just 15% of those in Ofcom’s survey had had the opportunity to downgrade. The fact that 2% had done so (or approximately 13% of those with the opportunity) suggests that downgrading is actually quite material, contrary to Ofcom’s conclusion.

Ofcom’s analysis of mobile as an alternative to SFBB

76. Ofcom considers the possibility mobile networks will be a substitute for SFBB, but concludes they will not. Here too though, Ofcom’s analysis contains errors:
- Ofcom compares an average 4G speed of 21 Mbps to an average fixed speed of 66 Mbps for SFBB. However, the latter average self-evidently contains lines of much greater than 40 Mbps, which is inappropriate. If mobile is sufficient to constrain 40 Mbps, then there is no need for the artificial constraint of a price cap at this speed (as Ofcom proposes). Thus the relevant SFBB benchmark in this case is 40 Mbps. But further, Ofcom is comparing an individual speed (for mobile) to a household speed (for fixed). As Ofcom points out, simultaneous use—generally across household members—is one of the key drivers of a need for higher speeds. If two household members each have their own 4G connection, the aggregate speed available to them is actually greater than 40 Mbps. Finally, while the 40 Mbps benchmark will remain fixed across the charge control period, performance of 4G networks will likely improve.

⁵² ¶3.37

⁵³ ¶3.34

⁵⁴ Based on typical BT Infinity contract terms in 2013, via the [Internet Archive](#)

⁵⁵ Ofcom, [Communications Market Report 2013](#), 1 August 2013

⁵⁶ Ofcom, [Telecommunications market data tables, Q3 2016](#), 26 January 2017

- In considering the cost of mobile data, Ofcom makes a cost comparison to standard fixed broadband. However, if the question is whether mobile acts as a constraint on SFBB, it is SFBB that is the proper price comparison.
 - Ofcom fails to take an appropriately incremental approach. It compares the full cost of a SIM-only tariff to the cost of fixed broadband. However, more than 70% of adults already have a smartphone. If they were to substitute for SFBB, the cost would be that of transferring the incremental data across, not the entire cost of a mobile data subscription. The incremental cost for (say) a Vodafone customer moving from a 2GB allowance to a 50GB allowance is £19 per month.⁵⁷ For a two-person household this would provide for 96 GB per month that could be transferred from fixed, for a total incremental cost of £38. This compares with £39 per month for a Sky Superfast tariff with an average speed of 34 Mbps.⁵⁸ For such a household, the costs of mobile data are already comparable to carrying the same volume on fixed, and unit charges for mobile data are falling briskly. (Indeed, they are already down appreciably since the January 2017 data in Ofcom’s consultation document).
 - Ofcom confuses median (typical) and mean usage. It says: “[d]ata allowances on mobile packages are also significantly below the typical average usage of fixed line broadband of 120 GB per month in 2016”. However, data from Ofcom’s *Infrastructure Report 2013* (the latest available source that we are aware of) suggest that the median user has usage *one-fifth* that of the mean.⁵⁹ Even allowing for heavier usage of superfast lines (169 GB),⁶⁰ if this ratio persisted it would suggest that the median superfast household had traffic of just 34GB – well within the capacity of mobile tariffs with a reasonable cost. [Note that Akamai’s recently published “First Quarter, 2017 State of the Internet Report” finds that the UK has the highest average mobile connection speeds.⁶¹
77. None of the above is to suggest that mobile can substitute for *all* superfast. But that is not the relevant test. The evidence suggests that on a household basis, the speed and incremental cost of relevant data allowances for mobile are surprisingly comparable to superfast, and thus mobile will act as a constraint on superfast – particularly as the performance of mobile continues to improve and/or if there was a sharp increase in superfast pricing.

Conclusion

78. The EU Costing and Non-Discrimination Recommendation⁶² advocates pricing flexibility in circumstances where there is:

“a demonstrable retail price constraint from infrastructure competition or a price anchor from a cost oriented wholesale copper product”. [emphasis added]

⁵⁷ Vodafone, [Data-only SIM](#), accessed 20 May 2017

⁵⁸ Sky, [Sky Broadband and Fibre](#), accessed 20 May 2017. Standard tariff after discount period. No account taken of applicable set-up fee (which would not apply to mobile)

⁵⁹ Ofcom, [Infrastructure Report 2013](#), 24 October 2013

⁶⁰ Ofcom, [Connected Nations 2016](#), 16 December 2016

⁶¹ <https://www.akamai.com/us/en/about/news/press/2017-press/akamai-releases-first-quarter-2017-state-of-the-internet-connectivity-report.jsp>

⁶² EC, [Commission Recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment](#), 11 September 2013. Discussed by Ofcom at ¶8.67-8.70

79. In the last two market reviews, the Ofcom has argued that both were present in the UK, but now Ofcom contends that these two constraints are insufficient. However, as we have seen, there are material omissions and misinterpretations in Ofcom's evidence to support its contention that SFBB is no longer constrained by SBB. In particular it has not provided evidence to suggest that the market has transformed since 2014, especially given the expansion of Virgin Media's coverage. This implies there is serious risk of regulatory error if interventions are designed on the shaky premise of a 'distinct' market for SFBB.

Section 4: The Fair Bet and investment incentives

80. The danger of any price regulation is that it discourages investment. Ofcom acknowledges this, and discusses both BT's 'fair bet' on FTTC and network investment by other players more generally.
81. In this section, we consider Ofcom's analysis of these issues, and find it to be incomplete and flawed (and, as we will see later, Ofcom ultimately ignores investment incentive issues in designing its proposal). We consider first the issue of whether BT's fair bet on FTTC has been discharged. We note however that even if the fair bet was discharged, this would not mandate intervention by Ofcom, but merely mean it wasn't precluded.

The 'fair bet' initially offered

82. One element of the bet made by BT in investing in FTTC was the regulatory context. This was and is important since it helps us understand the bet BT thought it was making in 2008 and onwards, and because it sets a parameter for future investors. As Ofcom understands, how this past bet is treated will affect the willingness of BT and others to make future bets.
83. Ofcom warned, in 2006:

“the application of mandated access at regulated prices would limit the returns available to investors, whilst the risk of losses remains unlimited. This asymmetry may distort incentives to invest in next generation access ...

[P]rospective owners of bottleneck next generation access networks need to be confident that they will be allowed to earn risk-reflective returns for much of the life of the asset.⁶³ The problem is that, at some point in the future, it may be hard to recall that deploying these assets was ever risky at all. The temptation therefore will be for future regulators to return to regulating assets using a cost-based approach assuming lower levels of risk and hence a lower cost of capital”⁶⁴

84. In its 2009 statement establishing pricing flexibility for WLA, Ofcom said:

*“Although ... changes in competitive conditions may require us to revisit our pricing approaches in the future, we believe that it is appropriate that any prices set by the regulator in the future, including potentially for active products, **should reflect the risks present at the time of a particular investment.** Such an approach is necessary to create efficient incentives to invest and to provide clarity for potential investors. This principle would be taken into account, alongside our other principles on cost recovery in any review of our pricing approach in the future.”⁶⁵ [emphasis added]*

85. However, Ofcom has resiled from this position, and now says:

⁶³ The average life of BT's network assets is over 24 years. Calculation based on GBV and depreciation charge per BT's accounts. BT Group plc [Annual Report 2016](#), 4 May 2016

⁶⁴ ¶3.29 and 4.63, Ofcom, [Regulatory challenges posed by next generation access networks](#), 23 November 2006

⁶⁵ ¶8.50, Ofcom, [Delivering super-fast broadband in the UK - Promoting investment and competition](#), 3 March 2009

“[O]ur judgement at this stage is that BT has had a fair opportunity to make a return on its original risky investment and a charge control would be consistent with the ‘fair bet’. We therefore believe this is no longer relevant to our price regulation of superfast broadband”⁶⁶

86. In other words, **Ofcom in 2017 has fallen into exactly the trap that the Ofcom of 2006 warned about.**

The trap of a retrospective view

87. One source of Ofcom’s error is that in assessing the ‘fair bet’ it takes a retrospective view. Ofcom says in its current consultation:

“An assessment of the impact on BT’s investment incentives as a result of a transition to some form of charge control entails a significant degree of judgement. In making our assessment we have considered:

- *how much time has elapsed compared to the expected payback period at the time the investment was committed;*
- *the perceived riskiness of the initial investment;*
- *the performance of the investment against initial expectations; and*
- *the level of returns”⁶⁷*

88. It is completely inappropriate to assess the fairness of a bet based on ‘the performance of the investment against initial expectations’ – this is akin to judging whether the odds on a horse at the Grand National were fair, based on the hindsight that it was in fact first past the post. It is self-evidently the case that investment incentives cannot be changed by ‘the performance of the investment against initial expectations’, since only those expectations are available at the point of investment decision.
89. Future risky investments decisions will face just the same challenge faced by the FTTC investment: investment incentives will be distorted if “*the application of mandated access at regulated prices ... limit[s] the returns available to investors, whilst the risk of losses remains unlimited*”. Ofcom, in this consultation, signals strongly that all such investments will face the risk of a hindsight-driven assessment of acceptable returns, capping the upside while leaving the investor with the downside.

Erroneous view that a ‘fair bet’ becomes irrelevant beyond the expected payback period

90. Ofcom asserts that:

“Setting a cost-based charge control at, or after, the original expected payback period for an investment should be sufficient to ensure a fair bet”⁶⁸

91. But this is incorrect. Ofcom appears to be assuming that if it forbears from regulating up to the end of the payback period (when the expected NPV reaches zero), then the overall expected NPV must be at least zero, and the investment would have proceeded even if – ex-ante – the company knew a charge control might be imposed.

⁶⁶ ¶8.23

⁶⁷ ¶8.19

⁶⁸ ¶8.20

92. However, this allows for no possibility for scenarios where the investment earned less than its cost of capital after the payback period. In such a scenario, the actual NPV of the project would be less than zero from the point of expected payback onwards.
93. If such less-than-zero scenarios are possible, then there must be the possibility of greater-than-zero NPV scenarios (*after* the payback period) to ensure that the overall expected NPV of the investment is at least zero. In other words, Ofcom needs to allow for positive returns even after the payback period.
94. Of course in most industries companies would not continue to invest in a persistently negative NPV project. But in a regulated industry, a company might be required to do exactly that. For example, from the perspective of 2008, it might have been that by 2018 there would have been widespread deployment of other technologies such as FTTH or fixed wireless, and that competition from these would have forced down the returns from VULA below BT's cost of capital. However, given wholesale customers riding on the VULA infrastructure, it seems likely in this scenario that Ofcom would have been reluctant to allow BT to 'turn off' the VULA product, forcing it to continue make NPV negative investments.
95. Given the above, Ofcom's position that the 'fair bet' is necessarily discharged at the point of expected payback is simply wrong.

Unrealistically purist approach to NPV economics

96. There is an additional practical problem with Ofcom's view that as long as the prospective NPV was above zero, the investment would proceed. This view is based on three implicit assumptions:
 - That the discount rate used to calculate the discounted payback fully reflected the ex-ante risk of the project;
 - That the forecast cashflows used to inform the investment decision represented the expected (that is, risk weighted) cashflows for the investment;
 - That investment capacity is unconstrained.
97. However, if any of these assumptions are not true, then Ofcom's approach (starting to capture any excess returns after the notional payback date) could result in disincetivised investment, even though the notional NPV was still positive.
98. Certainly a purist economic approach to investment assessment would reflect all of the above. However, in practice in a commercial environment, these assumptions rarely apply, and as a consequence companies reject apparently NPV-positive projects.
99. Very often a company will have a standard investment hurdle rate that is applied to all investments, independent of risk. It is simply impractical to generate a new discount rate for each project to reflect its specific risk. A 2007 survey found that 80% of firms with multiple divisions "always" or "almost always" use firm-wide hurdle rates, thus ignoring differences in division risk (and certainly, therefore, ignoring differences in project risk).⁶⁹ This is not to say that investment decision makers ignore the risk level of particular investment options. Rather, they make a qualitative judgement, assessing the NPV (calculated using the standard hurdle rate) against the perceived risk. An apparently NPV-positive project may be rejected, if the scale of that NPV does not justify the risk involved.

⁶⁹ Iwan Meier and Vefa Tarhan, [Corporate Investment Decision Practices and the Hurdle Rate Premium Puzzle](#), January 2007

100. Nor is it a safe assumption that cashflows used for investment decisions are risk weighted, representing an expected outcome (in the probabilistic sense). Very often the base case reflects the outcome that things go reasonably well, rather than a calculated assessment integrating a range of potential outcomes.⁷⁰ Again this is for practical reasons. It is difficult to assess the range of potential outcomes, and even harder to guess their respective probabilities. Moreover, human biases often play an important role in the forecasting. According to Professor Richard Ruback of HBS:

*“[T]here is likely to be an inherent optimism in the forecast of managers that are both championing the projects as well as trying to value them. The likely result is that the forecasted cash flows over-estimate the expected cash flows so that the forecasted cash flows are an upward biased estimate of the expected cash flows”.*⁷¹

101. As with project risk, investment decision makers are not oblivious to this problem. Rather, it is another reason why potential investments with returns only moderately above hurdle rates may be rejected.

102. The third unsafe assumption is that firms will invest in all projects that clear the hurdle rate (after qualitative adjustment for the issues above). But this would only be true if a firm had both ample financial and people resources to undertake all available investments. In practice, this is never the case, and firms therefore prioritise amongst available projects. Thus NPV-positive projects may be rejected because they have a lower IRR than alternate uses of a firm’s investment capital or staff.

103. Without access to BT’s Board Papers from 2008 (Ofcom’s source for the payback period), it is impossible to know how many of these assumptions of Ofcom are valid. But it is no criticism of BT to suspect that in several of these regards they may have conformed to general commercial practice, rather than an economically purist approach. If this is the case, then BT will likely have required appreciable returns *after* the payback date in order to justify investment. It is these returns that Ofcom threatens by constraining prices from the payback date onward.

The weak ex-ante investment case for FTTC

104. Again, without access to BT’s board papers we cannot know what NPV was expected from the FTTC investment. But it was not one that the financial markets necessarily expected to be high. At the time the announcement was made, most analysts believed it was too early. A 2008 survey of financial institutions (shortly before the announcement) found that most thought “*NGA is not justified now economically*”, in part because there was doubt whether “people [would] be prepared to pay for services above 8-20Mbps”.⁷² Indeed, BT shares dropped appreciably on the announcement, falling 5.0% (compared to a 2.3% fall for the market as a whole). This all suggests that the wider market’s ex-ante expectations of the NPV for the project were marginal or even negative.⁷³

⁷⁰ Some organisations do use approaches such as Monte Carlo simulation to grapple with such issues, though these are dependent on a wide range of highly uncertain assumptions

⁷¹ Richard Ruback, [Valuation when Cash Flow Forecasts are Biased](#), October 2010

⁷² Teleq Consulting [for Openreach], [BT Openreach WACC study – preliminary findings](#), 21 July 2008

⁷³ It is possible that investors were pricing in the possibility of Ofcom doing exactly what it is now proposing – imposing strict price controls. If so, this just underlines the threat that such controls represent to investment incentives

105. Thus it is entirely possible that had investors expected that Ofcom would impose cost oriented pricing in future, they would not have supported the investment. If Ofcom goes ahead with cost oriented pricing, potential investors in the next risky investment will have exactly that expectation.

Insufficient time for 'fair bet' on later tranches

106. Even if we believed that price controls were reasonable after the expected payback period (and we do not), there would still be no case for imposing them now. Ofcom notes that:

*"BT would have expected payback on the first tranche of its FTTC investment to occur within the period spanned by this review"*⁷⁴

107. But Ofcom is not proposing only to price-regulate the first tranche of investment, but rather the totality of BT's VULA offering nationwide. In May 2010, BT announced an expansion of its FTTC deployment, from 40% coverage to 66% coverage.⁷⁵ In subsequent years (with the support of BDUK) BT has further increased its coverage to over 90%. These subsequent tranches represent the majority of BT's FTTC, and thus the fact that the earliest tranche may now be approaching its expected payback date is of limited relevance (assuming that the payback period is relevant at all).

108. Ofcom argues that later tranches will have faced lower risk.⁷⁶ Whilst this may be partially true (at least as regards demand risk), again there is the danger that hindsight clouds the perception of the ex-ante risk. These later tranches undoubtedly carried risk, and as late as 2014 Ofcom took the view that:

*"there remains uncertainty about future demand for NGA services and the time profile over which NGA investment should be recovered"*⁷⁷

109. Further, demand risk is not the only kind of risk faced by FTTC investment. There is also (for example) the risk of overbuild by other networks, and/or obsolescence of the FTTC plant due to a need to upgrade to (say) G.fast. Such scenarios would significantly reduce the returns of FTTC, and these risks are actually *greater* for later tranches. Increasing consumer demand for higher bandwidths over time means that these scenarios were much less far in the future for the later tranches, and hence their impact on the risk associated with the FTTC investment were greater.

110. Therefore it is not safe for Ofcom to assume that the overall risk for the later tranches was lower, simply because near term demand was more certain.

Wrong significance attached to FTTC's outperformance

111. Finally regarding BT's investment incentives, we turn to the operational outcome of FTTC. As it happens, the outcome was an 'upside case'. As Ofcom puts it:

*"BT's FTTC has outperformed its initial assumptions in several important areas: capex was less than expected; and both take-up and FTTC rental charges are higher than expected."*⁷⁸

⁷⁴ ¶8.20

⁷⁵ ["BT vows to spend extra £1bn bringing super-fast broadband to UK homes"](#), *Independent*, 13 May 2010

⁷⁶ ¶8.21

⁷⁷ ¶1.35, Ofcom, [Fixed Access Market Reviews – Statement: Volume 1](#), 26 June 2014

⁷⁸ ¶8.22

112. It is in precisely such cases where it is all the more important to *allow* ‘excess’ returns. If robust returns are not allowed in upside cases, there can be no compensation for downside cases. (It would be a different matter if operational metrics had been disappointing, but nonetheless returns were high). However, Ofcom’s response to the outperformance against assumptions is:

“Were we to continue to allow pricing flexibility across VULA services and then impose a cost based charge control in 2020/21, we estimate the IRR of BT’s commercial investment would exceed 15%. ... Our proposals will bring this down to under 12%.”⁷⁹

113. Far from seeming excessive, a 15% IRR appears modest for an upside case, and seeing outperformance on operational metrics as a reason to intervene is precisely backwards. Moreover, there is a great danger in using an IRR calculation as a basis for pricing decisions. The IRR is a metric that looks back to the beginning of the project. BT’s calculation runs for 20 years from the initial FTTC investment; this means it covers the period of the ‘fair bet’. Any superior returns from that period will be incorporated into the overall IRR calculation. If the IRR is then used as a basis to impose charge controls in a post-‘fair bet’ period, then de facto Ofcom will be clawing back the gains made within the ‘fair bet’ period. This undermines the entire concept of the ‘fair bet’, and is a dangerous approach to take.

Ofcom’s approach amplifies downside risk for other investors

114. The issues of a fair bet for Openreach’s infrastructure competitors are exacerbated by the fact that the downside risks for them are linked. For Openreach, stricter price controls are linked to higher line volumes. Under cost based regulation, as volumes increase the fixed and shared costs are amortised across more lines, and the unit line charge falls. This acts to offset the benefit to Openreach of higher volumes, but it is a problem of success.

115. However, for Openreach’s rivals the reverse is true. Openreach’s high line volumes will in part likely be because of higher share amongst infrastructure players. In other words, regulation will link low Openreach prices to situations where its rivals have low market share, lining the downside risk. This is particularly problematic for the risk profile of investors in these rival networks, since it will make a bad situation worse.⁸⁰

⁷⁹ ¶8.22

⁸⁰ The reverse is also true – if Openreach has poor share, Ofcom’s approach will make a good situation better for OR’s infrastructure rivals. However, the volatility of the rival’s expected returns is increased, requiring a higher risk premium for investors

Section 5: An alternative approach

116. As Ofcom acknowledges, in WLA regulation (as in many other areas of regulation) there are trade-offs to make. Most obviously, there is a balance between securing lower prices for consumers in the short term versus maintaining investment incentives to support infrastructure competition and hence service innovation and lower prices in the long term.

117. For the reasons set out in previous sections, we believe Ofcom has:

- Underestimated the negative impact of its proposed approach on investment;
- Underestimated the existing constraints on SFBB pricing, and hence overestimated the need to impose a cost-based control on the VULA price

118. By extension, it follows that the trade-off made in selecting a cost-based VULA as Ofcom's proposed outcome is inappropriate.

119. But even setting aside these issues with Ofcom's evidence base, it is hard to see that Ofcom has made any trade-off at all. Consider a hypothetical case where Openreach had an absolute monopoly of the local loop, with no existing or prospective competition; where there was no other potential substitute product available from Openreach; where Openreach's investment in FTTC was decades old, rather than recent and ongoing; and where there was no ambition for upgrade of the current network. In this scenario, the appropriate regulatory outcome would be a cost-based tariff for an anchor VULA product.⁸¹

120. This is of course the exact same outcome that Ofcom is proposing in today's reality. Thus the existence of substitute products (from competitors and BT), the need to incentivise investment and issues of fair bet seems to have no impact whatsoever on Ofcom's trade-offs.

121. Further, the regulatory risks are highly asymmetric - somewhat higher consumer prices, but still full consumption on the one hand, versus underinvestment in next generation broadband on the other. Ofcom acknowledges this,⁸² but again there is no evidence that this consideration has had any practical impact on its conclusions.

122. Below we set out variations to Ofcom's approach, which would allow it to give some weight to these other issues, rather than simply setting them aside.

Case for safeguard cap

123. Ofcom appears to believe that Openreach's current prices are 'excessive'. However, it has provided little in the way of evidence for this. It has made two main arguments – based on BT's return on capital and its IRR.

124. Ofcom suggests that BT's "2015/16 returns [on SFBB] are significantly above the benchmark cost of capital". However, it is not clear whether this benchmark is appropriately risk adjusted.⁸³ Moreover, as Ofcom itself acknowledges:

⁸¹ Note that even in this scenario, the logic for an anchor product approach would apply, and there would be no basis for the heavier regulatory intervention of specifying prices for each product individually

⁸² ¶8.18

⁸³ The source for the benchmark returns is Ofcom, [Business Connectivity Market Review – Annexes 29 & 30](#), 22 March 2016. This calculates WACC for 'BT Group', 'Openreach copper',

“High returns on capital are not necessarily an indication of prices being above the competitive level – a pattern of early accounting losses offset by later profits might be appropriate where a new product is introduced and volumes are initially low. Furthermore... ensuring that the fair bet is satisfied may entail BT earning returns above the cost of capital to compensate for the additional downside risks that were faced when the investment was made.”

125. Even this understates the case. We would argue that a period of returns above the cost of capital is essential for any investment with start-up losses, to compensate for those losses. Moreover, because (ex-ante) those higher returns come much later than the initial losses, the time-value-of-money typically means that those higher returns may need to continue for an extended period. Thus Ofcom has not made the case that BT’s current ROCE on SFBB is a problem that justifies an intervention to sharply reduce prices.

126. Regarding IRR, as we discussed above, Ofcom appears to regard a 15% return as inherently problematic, but such a return does not seem problematic in context of a risky investment. Moreover, an IRR based approach risks clawing back better than expected returns from a ‘fair bet’ period, fundamentally undermining the very principle of the ‘fair bet’. Thus Ofcom is on weak grounds by proposing that Openreach’s return on capital must be reduced to a standard benchmark return via the mechanism of a cost-oriented price cap.

127. However, a cost oriented cap is not the only path forward. Ofcom says its concern is that:

“[T]here is a significant risk that retail competition would be weaker and consumers would face considerably higher prices if there was no control on VULA pricing given the risk of excessive pricing by BT”⁸⁴

128. The difference between current VULA pricing and that proposed by Ofcom for 2019/20 - the midpoint of the charge control period - is £2.65 per month (£3.18 grossed up for VAT). This compares with Sky’s standard retail price for 40 Mbps fibre broadband service of £38.99, for example. The difference the VULA price change is likely to make in the charge control period is thus relatively small even if it were all passed through to consumers. The absence of such a reduction does not appear to represent “*considerably higher prices*”.

129. Perhaps Ofcom’s concern is that Openreach might actually increase its prices. However, this risk is far more easily addressed via a CPI-CPI cap on the wholesale price of 40/10.

130. Not only would such a cap strike a better balance between investment incentives and consumer price risk, it would also be advantageous to have a simpler charge control mechanism, given that the market already has a cost-oriented cap for MPF and will likely soon have a regulated USO offer. The risk of mechanically driven, interlocking tariffs is real. New Zealand for instance found in 2012 that its mechanism for setting wholesale copper prices had generated such a low price that the economics for fibre deployment were damaged. The copper price cuts were reversed in 2015.

Case for removing the MPF cap

‘Other UK telecoms’ and ‘Rest of BT’. It is not clear which of these Ofcom is using for the current purpose, but none of them seem relevant to the ex-ante risk of FTTC

⁸⁴ ¶8.11

131. Finally, we note that while Ofcom has argued that SBB does not constrain SFBB, it appears to accept that, conversely, SFBB does constrain SBB.⁸⁵ If this is true, there is no requirement for two separate cost-based remedies in the market.

Conclusion

132. Ofcom has reached an incorrect conclusion regarding constraints on SFBB. However, even within its own assessment, it sounds a number of notes of caution, such as the need to preserve investment incentives for ultrafast and the challenge of asymmetric risk in regulation.

133. It appears to set these entirely aside in making its recommendation. This would be more comprehensible if Ofcom had a simple yes/no choice, where it was forced to make a binary decision. But in fact Ofcom has considerable flexibility in designing an intervention (if it concludes that one is required). There is no reason not to use this flexibility to balance the risks of regulatory error and indeed to underpin Ofcom's strategic shift.

⁸⁵ See for example ¶3.20 and 3.46

Section 6: Answers to specific questions (Volume 1)

134. Question 3.1: Do you agree with our proposed product and geographic market definition? Please provide reasons and evidence in support of your views.

Question 3.2: Do you agree with our proposal that BT holds SMP in the supply of WLA products in the UK excluding the Hull Area? Please provide reasons and evidence in support of your views.

Virgin Media agrees with the product and geographic market definitions and that BT holds SMP.

135. Question 5.1: Do you agree with our proposed general remedies? Please provide reasons and evidence in support of your views.

Virgin Media agrees with the proposed general remedies, although please see our answer to 9.1 below.

136. Question 6.1: Do you agree with our proposals for access regulation in respect of LLU, SLU and VULA? Please provide reasons and evidence in support of your views.

Virgin Media supports the proposals for access regulation.

137. Question 7.1: Do you agree with our proposal to impose a quality of service SMP condition? Please provide reasons and evidence in support of your views.

Virgin Media has no comment on this question.

138. Question 8.1: Do you agree with our proposals for the price regulation of VULA? Please provide reasons and evidence in support of your views.

Cost-orientation for VULA

No, we do not agree with Ofcom's proposals to regulate the price of VULA at cost. If investors are to have confidence that Ofcom's strategic shift has substance then its actions should be congruent with its statements. Put another way, Ofcom has to do something *different* from its previous approach of setting the price of BT's wholesale product at cost to stop it earning a return in excess of its cost of capital.⁸⁶ After its strategic shift, Ofcom's focus should be on the returns earned by *rival builders*, not BT's.

Instead, the effect of Ofcom's proposals is to say to those currently renting BT's infrastructure: don't bother doing anything different (i.e., investing) because, in time, you can buy access to the services at higher speeds—if they turn out to be popular—at BT's efficient costs. In contrast, to those already investing, it says that that your efforts will now earn a lower return, but we expect your incentives to invest to remain unaffected. This is not a strategic shift; it is just doing what Ofcom has done for LLU prices, mobile termination rates, leased lines etc, etc.

Ofcom has not made the case that there is a great consumer harm that needs to be averted through setting wholesale prices at cost. In its other publications it notes that customers are getting a good deal because the increase in ARPU per line is vastly outpaced by the

⁸⁶ i.e., not the "natural evolution" referred to in 1.37

consumption of megabytes. There is therefore a more proportionate approach that can both protect customers and incentives to invest: a safeguard cap of CPI-CPI on VULA prices. If SBB really does become a less effective constraint on SFBB in the next three years this cap will prevent BT from exploiting this trend; it will also preserve the expected profitability of those that wish to invest in end-to-end infrastructure to compete with BT.

The irony is that this is precisely the type of remedy that Ofcom is proposing in its consultation on poles and ducts. Ofcom recognises that there is a risk of higher prices: “[t]here is a risk that BT would set excessively high prices to increase the overall cost of building a network using PIA” [7.11] and that this could have adverse consequences by undermining “the case for investment by competing telecoms providers” [7.12]. However, a cap on prices would represent “an effective and pragmatic means of providing certainty to investors over the market review period and would result in PIA rental charges being at a level which should avoid undermining network investment.” [7.26].

Choice of anchor

Ofcom proposes to apply charge control to the 40/10 VULA service. The consultation document is not explicit as to why this speed has been chosen, but it appears to be because: “most external telecoms providers expect to compete based on the 40/10 VULA service or services that are very similar to it. Our forecast volumes for the review period show that the large majority (approximately 80%) of lines purchased from Openreach by retail providers other than BT Consumer will be for the 40/10 service or below.”⁸⁷

However, it is absolutely not the case that an anchor product functions by being the product most people use. Indeed, an anchor product can be entirely effective even if no provider (currently) uses it. It exists to be something customers could switch to, *in the event that prices for other services became excessive*. An anchor product is an emergency exit – it need not be the front door.

Ofcom has much more flexibility in selecting an anchor product than it appears to have considered. There is nothing in the consultation document to indicate that Ofcom looked at any possibility *other than* 40/10. For example, Ofcom could apply price controls (including the safeguard cap advocated in section 5) to the 18/2 product. This product would be significantly above SBB in its capabilities - the average speed of an ADSL 2+ connection is 9.9 Mbps downstream, and below 1 Mbps upstream.⁸⁸ Consequently an 18/2 anchor would represent a closer constraint on other FTTC products, particularly the ‘near’ ones such as 40/10. Ofcom has commented that its “forecasts of SFBB services suggest limited demand for speeds above 40 Mbit/s”,⁸⁹ and thus an 18/2 anchor would be a proximate constraint on much of Openreach’s VULA volume.

139. Question 9.1: Do you agree with our proposals for the price regulation of LLU and SLU? Please provide reasons and evidence in support of your views.

No. Whilst Ofcom has argued that SBB does not constrain SFBB, it appears to accept that, conversely, SFBB does constrain SBB. Given this, there is no requirement for two separate cost-based remedies in the market.

140. Question 10.1: Do you agree with our proposals for BT’s regulatory financial reporting? Please provide reasons and evidence in support of your views.

⁸⁷ ¶8.42, Ofcom

⁸⁸ Ofcom, [UK Home Broadband Performance](#), 12 April 2017

⁸⁹ ¶3.51



Virgin Media has no comment on this question.

Section 7: Comments Ofcom's Cost Model

141. In this section we provide comments on Ofcom's modelling of BT's costs.

Choice of cost standard

142. Virgin Media stands by the views expressed in our response to the May 2016 consultation on fibre cost modelling. Respondents to the consultation, with uncharacteristic uniformity, opposed Ofcom's proposal to use a bottom-up LRIC+ standard to estimate GEA 40/10 costs. In response, Ofcom has not presented compelling arguments to justify the adoption of a bottom-up LRIC+ approach. To the contrary, adjustments such as: shortening the time horizon of the model; the use of CCA depreciation; the use of simplifying assumptions on network technologies and the need for extensive calibration of the model to BT's actual data further weaken the case for the use of bottom-up modelling because they make the bottom-up model more akin to a top-down model.

143. Ofcom justifies its preference for a bottom-up model on the basis that it better captures cost-volume relationships; it provides more transparency and it is more consistent with the 2013 EC Recommendation.⁹⁰ We addressed these points in our response to the previous consultation in pages 5-7. For brevity, we do not repeat them in this response, but we believe that our points remain valid.

Complexity but not transparency

144. Ofcom's model is large, complex and contains a significant number of 'disguised' inputs. It therefore provides limited transparency compared with a top-down FAC approach. As Ofcom notes in paragraph 4.5 that stakeholders are familiar with RFS-based cost models and that they benefit from using audited cost data. These are important advantages in the top-down approach. They are highlighted when the calibration exercise reveals that the bottom-up model systematically under-dimensions the network and underestimates the costs.

145. Ofcom's proposal to use a bottom-up LRIC+ GEA 40/10 cost standard will result in an even greater patchwork of cost attribution approaches applied across a range of inter-related services. These services share common costs and may be subject to material changes in volumes, varying regulatory remedies and changes in consumer demand over time. This is likely to undermine stakeholders' ability to comment meaningfully on this analysis.

146. To illustrate: Ofcom intends to use TD-LRIC+ for WLR rental, TD-FAC for MPF rentals, BU-LRIC for GEA 40/10 connections and BU/hybrid-LRIC+ for GEA 40/10 rental (which will receive EMPU common cost attributions, spread across bandwidth variants based on historical and static 2016 BT retail price ratios).

GEA pricing glidepath

147. Ofcom recognises that one of the benefits of glidepaths, in contrast to one-off adjustments, is that they avoid discontinuities in prices over time and "*lead to a more stable and predictable background against which investments and other decisions may be taken*".⁹¹

⁹⁰ In paragraph 5.73, Ofcom reiterates that it may be entirely appropriate to deviate from these Recommendations in light of the context of the UK market. Ofcom's strategic objectives and the significant risk to investment incentives provide adequate justification for such a deviation in our view.

⁹¹ ¶2.86

148. Our views on the potential impact of Ofcom's approach on investment are set out in section 1. It should be obvious that the steeper the glidepath, the worse the potential impact on incentives to invest in ultrafast networks.

PIA

149. Ofcom specifies three alternative scenarios for PIA rollout and take-up during the period of the market review. Assuming that Ofcom has a fixed assumption about take-up across the scenarios, the range of homes passed by PIA-based alternative networks is ~200k. We recognise that there is uncertainty about how extensively operators will use PIA. However, the basis of Ofcom's assumptions seem vague; described as being based on informal and formal responses to information requests and Ofcom's 'high' estimate in particular appears to be simply based on the theoretical maximum that it thinks BT and operators could deliver.

150. Better (and possibly cheaper) access to Openreach's poles and ducts is an important part of the Digital Communications Review. However, Ofcom's central assumption before is 167k homes passed per year. Based on these estimates, it would be more than 70 years before the coverage target in the DCR is met. Perhaps this reflects an unstated view that the proposed reduction in wholesale prices will reduce the likelihood that Openreach's customers will use PIA? If not, Ofcom could be more ambitious in its projections for PIA.

Model calibration

151. Virgin Media welcomes Ofcom's efforts to calibrate the model. We also support the appropriate weight applied to BT's actual cost data. However, we are concerned that the uncalibrated model consistently and significantly underestimates actuals, and the outputs from BT's in-house models. There is a risk that the model will be unable to *forecast* accurately costs if Ofcom's forecasts of the important inputs are incorrect.

152. Below we detail a list of concerns that we have with the extent of Ofcom's calibration exercise:

- **OLT and OCR dimensioning:** Ofcom appears to conclude from its analysis that a lack of geographic disaggregation causes an underestimation of the quantum of these network elements in the uncalibrated model. The extensive use of national-average information was a concern that Virgin Media raised in response to the cost modelling consultation (see page 2 and 9-10 of our response). Rather than remedy this, Ofcom has lowered the utilisation factor on these elements, but not sufficiently to replicate BT's asset counts. This is concerning, a limitation of the model has not been corrected, and the model still underestimates the number of network elements.
- **Cable chamber joints:** Ofcom appears to have generated asset counts consistent with BT's planning and capacity rules but it still underestimates the asset count. Ofcom says that its outputs better reflect efficiently incurred costs. It is more likely that this reflect the use of national averages the under-dimensioning of the OLT/OCR above.
- **Aggregated cost measures:** Ofcom states that it gives equal weight to BT's LRIC and FAC figures. However, we note that the model still appears to produce outputs that are lower than BT's RFS for total annual CCA cost and total annual operating costs.

153. We are concerned that the modelling of costs has a ‘downward bias’. Ofcom’s uncalibrated model underestimates costs. After calibration, although the cost model produces outputs similar to BT’s in-house LRIC modelling in many cases, its estimates fall short of BT’s calculations of FAC. Ofcom’s assumptions on FTTP and G.Fast (see below), as well as conservative expectations about PIA rollout, all lead to a low estimate of costs. The net effect is to exacerbate the risk to investors in end-to-end infrastructure.

Answer to specific questions (Volume 2)

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

The bulk of our response addresses this question. Virgin Media does not support the imposition of an inflation indexed price cap in the manner proposed by Ofcom. Despite noting that allowing a greater proportion of common costs to be recovered from MPF instead of GEA, could:

“[...] disincentivise new network build and impair the promotion of sustainable competition. This is because wholesale costs of buying inputs to SFBB (e.g. MPF + GEA) would decrease, [...]. This would push down retail prices of SFBB, decreasing the profitability of an alternative full fibre network that relies upon demand for higher bandwidth services”.

Ofcom has not evaluated the impact on its proposals on investors in infrastructure. Neither has it highlighted other policy objectives that would justify regulation that could compromise Ofcom’s strategic shift. If Ofcom is concerned about BT’s ability to increase prices, as constraints on its pricing weaken, a more proportionate approach is the use of a safeguard CPI-CPI cap at current prices.

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

Please see Section 7.

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

We do not agree that it makes sense to exclude G.Fast and FTTP technologies from the cost modelling. One reason that Ofcom proposes to apply the anchor pricing principle and therefore use FTTC is because assuming FTTP as the MEA would require cost abatement: the functionality of the modelled network would be overstated. It follows that the exclusion of G.Fast and FTTP therefore understates the functionality and cost of the modelled network. It is also likely that defining the increment broadly (by including G.Fast and FTTP volumes within FTTC) Ofcom may be underestimating unit costs using inflated volumes.

We recognise that using FTTP as the MEA may not be practical. However where newer technologies are already being used, or are about to be installed, these should be included. Alternatively, an appropriate adjustment to volumes and cost should be made in the model.

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

Please see our answer to 2.1 above.

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

Please see our previous comments in Section 7.

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

Virgin Media has no further comments on these proposals beyond those previously expressed in this response.

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

Please see our previous comments in Section 7. Whilst we disagree with Ofcom's choice of cost standard and modelling approach with respect to GEA, the logical flow and design of the model appears reasonable.

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

No. Virgin Media continues to be concerned that the exclusion of FTTP and G.Fast is inappropriate. Since the publication of this consultation, BT has announced its intention to consult with industry on the potential for further FTTP investment.⁹² Using FTTC as the MEA (when other technologies are being deployed) risks significant departures from reality over time.

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

Virgin Media broadly agrees the approach to MPF service cost modelling. The adjustments for the MPF accounting error and the separate modelling of cumulo costs appear to be reasonable. We agree that restructuring and property rationalisation provision costs should be included and that Ofcom's decision to smooth these costs over the three-year period is appropriate.

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

Please see our response to Question 4.1.

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

⁹² <http://www.btplc.com/News/#/pressreleases/openreach-to-consult-on-future-investment-in-britains-digital-infrastructure-1961399>

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

Virgin Media broadly agrees with Ofcom's approach and has no specific comment on this question.

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

Virgin Media has not reviewed the AVE and CVE parameters in detail, however we agree with Ofcom's general approach and its data sources.

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

Virgin Media has no specific comments on these proposals at this time.

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

Virgin Media has no specific comments on these proposals at this time.

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

Conceptually it may be reasonable to reflect the future profit or loss from sales of copper in the cost model. To the extent that BT finds it profitable to undertake reclaim its redundant copper, the profits can be used to offset the cost of services in future.

However, it also follows that the estimated cost of reclamation should also included to reflect accurately the net profit/loss from copper. If Ofcom is able to estimate the expected NPV of scrap copper, it should be able to calculate the capitalised labour required to undertake this work. Even if this work were to be undertaken alongside other 'civils' activities, an appropriate share of this cost should be associated with the residual asset value that Ofcom proposes to include in its model.

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

Ofcom's proposed approach to property sales appears to be reasonable.

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

Virgin Media has no specific comments on these proposals at this time.



Virgin Media
June 2017