CityFibre response to the copper retirement consultation

Non confidential

8 December 2020

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1 Executive Summary

1.1 This document comprises our formal response to Ofcom's consultation entitled 'Copper retirement – conditions under which copper regulation could be completely withdrawn in ultrafast exchanges: Supplementary consultation to the Wholesale Fixed Telecoms Market Review, published on 15 October 2020, hereafter referred to as the 'Copper Retirement Consultation'.1

1.1 Introduction and summary of our concerns

- 1.2 We welcome the opportunity to provide input on the critical questions of when and how to transition regulation from Openreach's legacy copper-based network, onto its planned new Full Fibre network. We feel strongly that the switch-over process is matter of national importance and will have profound impact on the ultimate market structure in the market for Full Fibre.
- 1.3 We consider that the currently proposed process for the retirement of Openreach's copper network raises very material concerns in terms of foreclosure of Openreach's rivals (building competing Full Fibre infrastructure). Fundamentally, the proposals disrupt the fine balance that Ofcom has sought to strike between encouraging investment from the incumbent (Openreach) and promoting a competitive infrastructure market.
- 1.4 As observed in markets in all over the world, the copper switch-over strategy can be used as tool to support investment in fibre and to thereby modernise the country's fixed telecommunications infrastructure. But if not carefully designed and calibrated to the needs of a competitive infrastructure market, it can confer a very material advantage on the incumbent. enabling it to force ISPs on to its own network, foreclosing alternative fibre investment.
- 1.5 As a result, and for the reasons we set out in this submission, we consider that Ofcom must reconsider its proposed approach to regulation of the copper switch-over or else it risks undermining all of its other efforts to promote competition and investment in fibre networks.
- Ofcom's clear overarching regulatory objective, as set out in its Strategic Statement of July 2018 and reflected in the January 2020 Wholesale Fixed Telecommunications Market Review consultation (the 'WFTMR Consultation'), is to promote investment in Full Fibre networks via an infrastructure competition model. We commend this approach and in our recent submissions have sought to highlight how this strategy is already starting to achieve its desired intentions, by stimulating wide-spread alternative Full Fibre network investment.
- 1.7 At present somewhere between £7bn and £10bn of inward fibre investment is being deployed into the UK communications infrastructure market by alternative operators. This will deliver substantial benefits for end-consumers, not only in the short-term in the form of improved service quality, but also into the future as the market tends toward more a vibrant and sustainable competitive market structure.

¹ Ofcom (2020) 'Consultation: Copper retirement – conditions under which copper regulation could be completely withdrawn in ultrafast exchanges: Supplementary consultation to the Wholesale Fixed Telecoms Market Review'. 15th October 2020. [Link]

- 1.8 In CityFibre's case, this takes the form of a commitment to deploy Full Fibre to up to 8 million premises, which is significantly larger than our ambition from just a few years ago (of 5 million premises). Furthermore, we are increasingly confident that our business model will in fact support rollout to a footprint even greater than 8 million premises. In parallel, we are exploring with the Government whether CityFibre can make a major contribution to the Outside In programme, which would allow us to expand our network into poorly served rural areas and contribute to the Government's ambition of ubiquitous fibre networks.
- 1.9 Furthermore, the upcoming market review period (2021 2026) will be critical for rivals seeking to achieve operational scale to compete with Openreach in the long term. For instance, between now and 2026, we expect to rollout the vast majority of our 8 million premises plans.
- 1.10 However, the delivery of such plans is highly contingent on the right regulatory environment being in place, to promote investment while protecting nascent competition from anti-competitive conduct by BT. In particular, as a wholesale-only operator dependent on communications providers (CPs)² consuming our network, and with Openreach and CityFibre competing head-to-head for these CPs to anchor the fibre build, it is critically important that there is a competitive 'level playing field' between ourselves and Openreach. Ofcom is well aware of the importance for fibre investors of securing such CP commitments (at present, 89% of customers are with one of the 'big four' retail ISPs, BT, Virgin Media, Sky and TalkTalk).³
- 1.11 We have long argued that a true level playing field would be one in which CityFibre and other fibre builders are themselves in a position to trigger a copper switch-over once their network has been deployed in a given area under similar terms as those that apply to Openreach. Such a model would align operators' overall incentives to delivering the goal of rapid national rollout of Full Fibre as well as ensuring that as many consumers as possible get the benefits of Full Fibre.
- 1.12 In the run-up to the January 2020 WFTMR Consultation, we had considered that (in line with what DCMS set out in its FTIR) Ofcom would implement a copper switch-over that was competitor-neutral and thereby inferred no competitive advantage on Openreach. Failing this (e.g. if Ofcom was not able to figure out how to ensure the switch-over is competitor neutral) we considered that Ofcom would be minded to delay the switch-over until such time as nascent competitors had started to achieve efficient scale; we consider that this is unlikely to occur before 2026. These are the expectations upon which we have been building our business plans over the past few years.
- 1.13 However, it now seems that Ofcom is minded to adopt neither of these approaches. Instead it proposes a copper switch-over process that is not competitor-neutral and thereby confers an enormous advantage on Openreach. We have become increasingly concerned that Ofcom has given insufficient attention to the advantage bestowed on Openreach, by allowing it to compel its CP customers, and in turn end-consumers, to migrate onto its own Full Fibre network via a forced migration programme. The ability for Openreach to forcibly migrate CPs' existing customers onto its network confers an

² For example, retail ISPs.

³ Ofcom set out in the WFTMR Consultation (Volume 2, Table 2.2) the retail ISP shares as of 2018, which are – BT: 35%, Sky: 23%, Virgin Media: 20%, TalkTalk: 11%, and 'Other': 11%.

enormous strategic advantage which is an artefact of Openreach's existing dominant position.

- 1.14 With levels of consumer switching in the broadband sector being very low, the most important transactional process in the migration from copper to fibre is the upgrading by CPs of their existing customer base from copper to fibre. Furthermore, once customers have been upgraded to Full Fibre on a given network (e.g. Openreach), prevailing levels of switching and the likelihood that consumers will be even less interested in shopping around (once they actually have a Full Fibre connections) raises very material barriers for rivals who would seek at some point to win those customers. In short, there is a very large advantage in being the first operator to bring a customer onto Full Fibre.
- 1.15 While we believe that more must be done to encourage consumer switching, and hence voluntary adoption of Full Fibre, the fact remains that, at present, it is the ISPs' decisions about when and how to migrate their existing customer bases onto fibre that will determine the competitive shape of the market. Our expectation is that, where ISPs are forced to consume Openreach fibre in a given area by the copper switch-over programme, they are highly unlikely to wish to then commit to subsequently switch those customers onto a different Full Fibre network.
- 1.16 This is in no small part due to customer resistance to further disruption (e.g. engineer visits) but is also because the CP will itself have had to incur substantial upfront costs to migrate those customers. Whatever the theoretical possibility of further switching down the line, the reality is that in these circumstances we would simply not plan to build to areas where it was clear CPs would be effectively forced to migrate onto Openreach fibre or lose their customers to another CP (most obviously the captive retail CPs of the BT Group which at present only consume services from Openreach).
- 1.17 Not only would we stop building further network in affected cities, but we might be compelled to abandon some investments already made. This would also have knock-on effects on the other business 'verticals' that we would otherwise have been in a position to serve in those locations business, the public sector and mobile network operators (MNOs). The broader economic benefits to the towns and cities in question would also be foregone.
- 1.18 CityFibre has scaled up its plans as described above to become a Full Fibre competitor to Openreach. But by its nature, a network connecting 8 million customers or more will take time to complete. We have shared our latest build programme with Ofcom, and we believe it understands and agrees that it represents an ambitious but achievable plan given sufficient time to deploy it. We have taken great strides in this past year and stand poised to ramp up our build programme still further to deliver the full 8 million plan by the middle of the decade. But we need a competitor-neutral switch-over (or failing that a window of opportunity to complete that plan and achieve sufficient scale) in order to ensure the delivery of this plan.⁴
- 1.19 A further risk of allowing Openreach to engage in selective exchange copper retirement is that this could significantly destabilise the Government's aims to promote

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⁴ Furthermore, it will allow us to go beyond our existing urban footprints and expand into rural areas, potentially by making a significant contribution to the Government 'outside in' programme. Ofcom should consider the interlinkages between these proposals and that separate area of policy activity. It now looks likely that the rural intervention programme will run beyond 2025 and hence this market review period.

competition in the 'Outside In' programme. For instance, Openreach could render any competitive bids for rural intervention areas nugatory by selectively forcing migration onto its fibre in the exchanges that form part of an intervention area. In other words, regardless of the timescale on which copper retirement is permitted, Ofcom must be mindful of the risk that any premature or targeted policy by Openreach will undermine infrastructure competition, a concern which is particularly acute in relation to the rural intervention programme areas.

- 1.20 In our response to the January WFTMR Consultation we noted that Ofcom could mitigate the enormous strategic advantage conferred on Openreach (via its ability to force migrate customers onto fibre) by encouraging as much voluntary migration as possible in the next market review period. This could be achieved through a series of targeted demand-side interventions; such as through addressing misleading fibre advertising, and also levelling the competitive playing field in other respects, such as through strict prohibitions on anti-competitive pricing and agreements of any kind that have the effect of foreclosing rivals to Openreach.
- 1.21 These arguments remain important in our assessment, and we have developed the arguments further in this response. In relation to pricing, it will be vital to apply the restrictions on geographic pricing set out by Ofcom in Annex 15 of the WFTMR Consultation, to any attempts by Openreach to introduce selective discounting of Full Fibre products in copper switch-over areas. If such pricing was adopted, this would further compound the anti-competitive advantages that Openreach has by virtue of being able to force ISPs to migrate customers onto its Full Fibre network by making it even less likely that ISPs would subsequently migrate their customers to alternative networks.
- 1.22 Whilst these mitigation measures are important, ultimately the only real mitigation to the issues we have identified is a fundamental rethink of the approach to the copper switch-over in order to ensure that it does not confer a competitive advantage on Openreach; i.e. by making it competitor-neutral.
- 1.23 Finally, we wish to note that rushing to forcibly migrate customers onto fibre raises substantial risks of consumer harm, particularly in relation to the unintended consequences of removing copper connectivity that currently supports specific features and functionality on which some consumers, notably vulnerable consumers, rely. Nothing we have seen to date reassures us that these unintended consequences are fully understood or have been properly mitigated.⁵
- 1.24 As a result, and for the reasons we set out in this submission, we consider that Ofcom must reconsider its proposed approach to regulation of the copper switch-over or else Ofcom faces a very substantial risk of undermining all its other efforts which are seeking to promote competition and investment in fibre networks.

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⁵ This is a view that is also shared by consumer and business user groups. Nothing in Openreach's recent history of effecting major infrastructure programmes leads us to feel confident that these issues can be left entirely to Openreach to manage without close and proactive regulatory scrutiny. The reputational risks of a badly planned and executed forced migration process are shared across the entire industry as well as Ofcom itself. In addition to all the potentially serious impacts on competition of allowing an accelerated forced migration process, we urge Ofcom to exercise extreme caution in relation to these potential consumer impacts.

1.2 Key messages from this submission

- 1.25 We set out below the key messages from this submission in which we seek to set out our analysis on the impact of Ofcom's copper switch-over proposals:
 - i. Ofcom must fully consider the impact of switch-over on rivals to Openreach. Ofcom have not undertaken a detailed competition assessment. Doing so would highlight the impacts of the proposals for rivals to Openreach, which as we seek to set out in this paper, are likely to be very significant.
 - ii. The investment case for Full Fibre is highly sensitive to take-up. In order to assess the impacts of the copper switch-over, one must first understand the importance of take-up for the Full Fibre business case. We demonstrate with sensitivity analysis from our own business model, that even very small reductions to anticipated levels of take-up will result in a very significant reduction to our expected investment returns. Furthermore, our analysis shows that take-up is by far the most important factor driving returns.
 - iii. The copper switch-over will (as currently proposed) materially slow/reduce Full Fibre take-up for rivals to Openreach. Allowing Openreach (through removing SMP regulation) to more easily migrate customers onto its fibre network, will by implication affect rivals to Openreach who will also be seeking to secure those customers. Furthermore, by allowing the switch-over to take place before Openreach's rivals have achieved sufficient scale, introduces the risk that such rival investment will not be perceived as being viable at all and will, therefore, never be made in areas where Openreach is building or intends to build. There will then be no infrastructure competition in those areas where competition would otherwise have been viable.
 - iv. CityFibre is endeavouring to mitigate take-up risk as best we can, but we cannot fully mitigate this risk. While commercial terms with CPs can mitigate some of the take-up risk for our planned build, it does not fully address the risks we face. Specifically, while we have been able to secure some commitments from retail ISPs in terms of take-up/revenues, these commitments fall far short of that required to underpin investment. This is critical given that as a wholesale-only network, we rely entirely on our relationships with retail CPs to get consumers onto our Full Fibre network. Given this, any copper switch-over process which erodes or dampens take-up for rivals to Openreach, especially in the early years of deployment, will directly introduce additional investment risk, and thereby reduce the incentives for such investment.
 - v. There is a material competition concern from the copper switch-over proposals in locations where Openreach faces (or could face) rival Full Fibre networks: Analysis we have undertaken on our own business plan shows that under fairly conservative assumptions, the current proposed copper switch-over proposals will undermine our investment incentives in a number of locations where we currently have plans to deploy our Full Fibre network. This is for the reasons outlined above in terms of the switch-over providing greater fibre take-up for Openreach, at a cost of lower fibre take-up for its rivals (such as CityFibre). Given the highly sensitive nature of take-up to the Full Fibre investment case, even slightly slower take-up can materially reduce investment returns, and undermine the business case.
 - vi. Given these issues, Ofcom must ensure that the copper-switch over does not confer a competitive advantage: By allowing Openreach (and only Openreach) to forcibly migrate customers onto Full Fibre before 2026 (e.g. by allowing a 'stop sell' on copper), Ofcom risks undermining the investment case of rivals to Openreach. This

will ultimately result in less fibre deployment from rivals to Openreach, and a less competitive market outcome, to the detriment of consumers. Conversely, implementing a competitor-neutral switch-over process that can be used by all fibre builders will help to ensure all investors have the same opportunities. Failing that, the only way to ensure a level-playing field for the upcoming market review period would be to push-back the switch-over date, to ensure that Openreach and its rivals face the same market opportunities (in terms of voluntary customer migrations) during the period in which rivals to Openreach are deploying networks and seeking to establish scale.

- vii. In addition, Ofcom should consider what measures can be adopted to address the competition concerns once the switch-over has begun, which should include:
 - Imposing behavioural remedies in regard to the switch-over process to ensure consumers are fully informed about all the various Full Fibre options available to them at the point that OR triggers 'stop sell'.
 - Promoting a more level playing field more generally through regulatory interventions not (directly) related to the copper switch-over process which could include: make switching as easy as possible for consumers; promoting consumer engagement and eliminating harmful advertising and marketing practices that sow consumer confusion; and ensuring the WFTMR Annex 15 proposals are fully implemented:
- 1.26 The remainder of this document is structured as follows:
 - **Section 2:** sets out a high-level introduction, including an overview of DCMS's key principles for a copper switch-over, as well as a summary of Ofcom's existing proposals for the copper switch-over programme.
 - Section 3: sets out our assessment of the need for a revised approach to the copper switch-over. We set out the different types of location in which the copper switch over will have different impacts as well as demonstrate the risk of competitor foreclosure in those locations where Openreach faces rival networks.
 - **Section 4:** sets out the approaches Ofcom can take to ensure a competitor-neutral copper switch-over.
 - Annex 1: sets out evidence on BT Retail advertising 24-month Full Fibre contracts, which is relevant to our discussion in paragraph 3.19.

2 Introduction

2.1 This section provides relevant market context for this response, including the principles that should be applied to the copper switch over as set out by DCMS (Section 2.1), as well as a summary of Ofcom's copper switch-over proposals (Section 2.2).

2.1 DCMS's key principles for a copper switch-over

2.2 The question of how to best manage the transition away from legacy copper infrastructure (and onto Full Fibre networks) was raised by DCMS in the Future Telecoms Infrastructure Review (FTIR):⁶

"As full fibre networks are rolled out, maximising the number of people using them will secure the full benefits of the technology. This will involve customers moving onto new fibre networks and retiring the legacy copper networks. [...] A fibre switchover strategy is necessary to stimulate demand for fibre, to enable new networks to achieve scale quicker, and to ensure a smooth transition process for customers. This should be led by industry, working closely with Ofcom and Government.

2.3 Critically, the FTIR flagged the important role for Ofcom in ensuring there is no anticompetitive behaviour in regard to the copper switch over:

"Ofcom will have an important oversight role in ensuring industry readiness for switchover. It will need to protect the interests of consumers and guard against any anti-competitive behaviour."

2.4 Furthermore, the FTIR set out a number of policy conditions for the copper retirement process, one of which was about ensuring it is 'pro-competitive' [emphasis added]:

The Government will set up a mechanism with Ofcom and industry for planning the switchover process. Switchover should meet a number of policy conditions:

- Plans support a timely switchover;
- Efficient, so that switchover is smooth with minimal consumer disruption;
- Transparent, so that customers have the information they need to make informed choices and clearly signalled via notice periods so operators have certainty;
- Consistent, with existing regulatory and consumer obligations;
- Pro-competitive, so processes are in place to support easy switching between networks; and
- A fair deal for consumers, including adequate safeguards for vulnerable customers"
- 2.5 Finally, the FTIR gave mention of the likely timelines for the switch-over but ultimately stated that:

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⁶ DCMS (2018) FTIR. Pages 8 – 9.

"We would only expect switchover to start when a significant proportion of the population has taken-up new fibre services."

- In regard to the above point we note that the latest Ofcom data shows that Full Fibre is currently only available to 14% of UK premises. Furthermore, Ofcom data from the 2019 Connected Nations Report showed that only 30% of those that could take Full Fibre services, do so. On this basis we can estimate that less than 5% of UK premises currently take Full Fibre services. We consider (in reference to the above quote) that this is far less than a 'significant proportion of the population'.
- 2.7 Furthermore, prematurely triggering the forced migration of customers onto Full Fibre ahead of their being significant availability and take up nationally would be unprecedented when compared with previous forced migration exercises (e.g. analogue-to-digital terrestrial television and analogue-to-digital satellite) and raises substantial challenges in terms of creating the necessary public acceptance of the need for the technology shift. This is exacerbated by the ongoing customer confusion about the differences between part-fibre and Full Fibre technologies. The reputational risk in this approach applies across the whole industry and is not confined to Openreach.

2.2 Summary of Ofcom's copper switch-over proposals

- 2.8 We set out below a summary of Ofcom's overall proposals regarding the copper switch over. These are based both on Ofcom's original proposals as set out in the January 2020 WFTMR Consultation, as well as the new addition as set out in the October 2020 Copper Retirement Consultation.
- 2.9 In Ofcom's January 2020 WFTMR consultation, it proposed a two-phase process for the copper switch-over:
 - Phase 1: Stop-sell on copper (after 75% FTTP coverage) Based on Openreach achieving a 75% FTTP coverage and giving 12 months' notice, Ofcom would allow Openreach to stop selling copper-based broadband services to new customers. Given Openreach have achieved 75% coverage in 117 exchanges as at June 2020 and have announced this to Ofcom, under the proposals Openreach will be able to trigger the stop sell in June 2021, i.e. from this date they can stop offering copper services to new customers.
 - Phase 2: Removing copper price cap (after complete coverage) Based on Openreach achieving 'complete' exchange coverage of FTTP, Openreach can give 12 months' notice, after which the copper broadband price cap will fall away (and be replaced by a cap on a 40Mbps FTTP equivalent 'anchor' product. This cannot happen earlier than 24 months since the stop-sell date (i.e. since the completion of Phase 2), meaning in reality, this phase will take 2 years.
- 2.10 In the January Consultation Ofcom proposed that at least for the duration of the market review period (2021 2026) Openreach will still have to provide copper-based broadband for customers who wish to remain on it by choice. In other words, Openreach, could not force migrate customers off copper in order to retire the legacy network. A key reason for this was

⁷ Ofcom (2020). 'Connected Nations Update Summer 2020' (10 September). Page 1 [Link]

⁸ Ofcom (2019). 'Connected Nations 2019: UK report' (20 December). Page 18 [Link]

Ofcom's view at that time that Openreach were in fact not planning to withdraw copper before 2026 anyway:9

"At this stage we are not proposing to remove the general and specific access obligations that apply to existing copper services [...] Openreach has already said that the earliest it would withdraw legacy copper services would be April 2026. We therefore do not anticipate that retaining the general access requirement on existing services would be a constraint to fibre migration in practice."

- 2.11 However, following submissions made by Openreach, Ofcom are now proposing (as set out in the Copper Retirement Consultation) to add a third phase, which would enable Openreach to force migrate customers off the copper network ahead of 2026.
- 2.12 **Phase 3** requires a 24-month notice period and can be triggered once Openreach has declared an exchange as 'complete' and when less than 10% of customers are on copper-based services within the given exchange area. Once this occurs, Openreach will be free to remove service from existing customers (if it wishes) and force them onto a Full Fibre connection.
- 2.13 In the remainder of this submission, we provide our views on the overarching copper switchover proposals. While we recognise this latest consultation is focussed only on a narrow question over the introduction a third phase to the process (as described above) we continue to believe (as set out in our response to the January WFTMR Consultation) that the copper switch over raises very material competition risks.
- 2.14 In Section 3 (below) we describe these risks and set out our assessment of the possible impacts on competition from Ofcom's prevailing copper switch-over proposals.

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⁹ WFTMR Consultation. Volume 3. Paragraph 2.21

3 The need for a revised approach to the copper switch-over

- 3.1 In this section we set out our views regarding Ofcom's proposals to migrate regulation away from Openreach's copper services and onto its fibre services.
- 3.2 As we set out below, we consider that the current proposed approach raises very material risks of foreclosing investment from rivals to Openreach. Specifically, in locations where Openreach does or could face direct competition from rival Full Fibre builders, the current proposals would provide them with the ability to undermine rivals' network deployments, potentially foreclosing them in that location.
- 3.3 This directly undermines Ofcom's overarching regulatory strategy of promoting competition and investment in fibre networks.
- 3.4 The remainder of this section covers the following:
 - Section 3.1: briefly sets out the importance of take-up for the Full Fibre investment case
 - **Section 3.2:** sets out our assessment of the impact of the various phases of the copper switch-over, as currently proposed
 - **Section 3.3:** breaks down the geographic area types, based on different level and type of presence of rivals to Openreach
 - Section 3.4: provides our risk-mitigation efforts regarding the copper switch-over
 - **Section 3.5:** presents our analysis on the impact of proposed copper retirement process on our Full Fibre investment case

3.1 The highly sensitive nature of take-up to the Full Fibre investment case

- 3.5 Consistent with corporate finance theory, investments will only take place if the investor expects to make a reasonable return on that investment. In the case of Full Fibre broadband, or indeed any investment involving large sunk costs, there are broadly two phases to the investment. Firstly, there is the build phase in which assets are deployed and the functional network is rolled out. Secondly, there is a recovery of build costs by selling network services (e.g. to business and residential customers), to pay off the upfront capital for that investment.
- 3.6 Ahead of any investment being made, both of these phases will be considered in order to determine whether, over the lifetime of the investment, sufficient revenues can be generated to pay-back the requisite capital and operating expenses. As such, the anticipated future revenues, based on anticipated take-up and willingness to pay for the service will determine whether or not the investment proceeds.
- 3.7 In most cases, the above assessment involves undertaking a forward-looking discounted cash flow (DCF) analysis over the lifetime of the investment, to compare the anticipated costs that will be incurred, with the expected revenues that will be generated.¹⁰
- 3.8 The critical output of DCF analysis is an estimate of the expected return across the lifetime of the investment, this is often defined as the internal rate of return (IRR). According to corporate finance theory, investments could go ahead whenever the expected return from an

¹⁰ These constitute the private costs and benefits from the investment and does not account for social costs or benefits.

investment (IRR) is sufficiently greater than the firm's cost of capital to reflect the risk of the project.11

- 3.9 The DCF implicitly involves assessing both the supply-side and demand-side:
 - Supply-side: Relates to all the factors affecting the supply of services, in the case of telecommunications, this largely means the deployment of the physical network. In broad terms, this constitutes the network operator's (i.e. private) costs of network deployment; and
 - Demand-side: Relates to the take-up and usage of the network (once it is built). For instance, the number of people taking services, as well as the price they are willing to pay for those services. In broad terms this constitutes the network operator's (i.e. private) benefits (in terms of revenue) of network deployment.
- 3.10 Both factors influence the investment case. For example, in regard to the supply-side, obviously if the anticipated costs fall (e.g. as a result of improvements in efficiency or falling input prices) then, all else being equal, the expected returns (IRR) will go up.
- 3.11 Similarly, if, all else being equal, the expected demand increases (e.g. as a result of greater consumer interest or awareness) then this will also cause the IRR to go up. In other words. both supply and demand-side considerations are critical for the underlying investment case. Failure to consider both demand and supply-side facts would lead to a flawed analysis.
- 3.12 What is critical to understand however is that in considering all the various supply and demand-side factors that impact the business case, take-up is one of the most critical, and sensitive factors. In other words, even very small changes in take-up will significantly alter the overall business case for investment, and therefore the incentives of investors.
- 3.13 To demonstrate this reality, we have undertaken some sensitivity analysis to assess the impact from changes in various key assumptions for CityFibre's overall investment IRR. We present this below which shows the IRR impact for a given change in assumption.

Figure 3.1 IRR sensitivity analysis [Highly Confidential]

[Figure redacted from non confidential version]

Source: CityFibre

Notes: The figures are modelled from our latest Long Range Business Plan (LRBP3.0), and are based on our 8-million deployment plan. All parameters represent a 5% increase except for 'cost per homes passed' which is a 5% decrease. In other words, all sensitivities were to quantify the increase in IRR. 'Operational productivity' relates to the speed of the rollout, i.e. number of premises passed per day.

3.14 The above figure makes clear that take-up is the most critical assumption driving IRR and therefore investment incentives. Specifically, the IRR from changes in take-up is about double that for an equivalent change to prices, and around five times greater than when compared to PIA usage.

¹¹ In the real world, investments are rarely made on such a 'knife edge' and instead higher levels of expected return simply mean that the investment is more likely to proceed. This is because even if the IRR was in excess of a firms WACC, there could be other factors which mean the investment doesn't proceed immediately, including; alternative and more attractive opportunities, as well as access to the required resources (e.g. labour) and capital. It could also be that the investment decision involves other (e.g. qualitative) considerations which are not factored into the IRR analysis.

3.2 The impact of the various phases of the copper switch-over on take-up

- 3.15 On the basis of the above analysis, we now discuss the current copper switch-over proposals, and our assessment of their implications on Full Fibre take-up, both for Openreach and rivals. As we set out in Section 2.1, the current switch-over proposals involve three phases. We discuss each of these below.
- 3.16 We wish to flag that while this consultation specifically asks about the third phase, we consider that the majority of the impact is from Phases 1 and 2. In other words, by the time Openreach gets to Phase 3, the majority of harm to competition has already been done. We now discuss the three phases in turn.

3.2.1 Phase 1 - Stop-sell on copper

- 3.17 Under Ofcom's proposals, once Openreach have deployed Full Fibre to 75% of premises in a given exchange area, Openreach would be allowed to stop selling new copper services (to those customers. In other words, where fibre is available, Openreach would no longer be required to provide copper services for new connections or for changes to bandwidth or provider, and instead could offer only fibre services.
- 3.18 We consider that this approach coveys a very material benefit on Openreach in that they would effectively be able to force all 'new connections' and 'bandwidth changes' onto its Full Fibre network, by removing the option of the consumer taking a copper service.
- 3.19 The key issue here is that once a consumer has migrated onto an Openreach Full Fibre connection, the consumer is unlikely to consider switching to an alternative provider in the short-medium term. We consider there to be three key reasons why this is the case:
 - Consumer contract lengths: Consumers are usually locked into lengthy contracts, often 24 months, meaning they are unable to switch to an alternative provider without facing significant financial penalties. As a result, these contractual barriers act as a material impediment to consumer switching. We note that currently BT Retail present only 24-month contract offer for its Full Fibre broadband packages, we provide a screen shot of this in Annex 1. This is clear evidence of BT seeking to lock in customers for as long as possible.
 - Consumer engagement and switching: Even if the switching barrier of contractual terms (discussed above) did not exist, recent research shows that consumers in the broadband market are not especially engaged, and overall switching is fairly low. This means that consumers are fairly inert and only consider switching provider infrequently, and often only when something has gone wrong with their existing connection; i.e. push factors are the key driver of broadband switching, not 'pull' factors. This reality is also likely driven by prevailing advertising practices which in many cases leave consumers confused about the specific product they are purchasing (i.e. partial vs Full Fibre).
 - Fibre installation: The process for installing Full Fibre to a premise can involve an
 engineer visit to drill a hole through a wall in the customers home, order to install a
 fibre access point. This may be seen by consumers as an inconvenience which they
 may not wish to have repeated in a short time frame. This alone could materially
 reduce incentives for consumers to consider switching Full Fibre provider once lockedin with Openreach.

- 3.20 The implications for rivals to Openreach (present in that area) are fairly obvious given that Openreach and its rivals will be competing for the same customers.
- 3.21 If Openreach were able to lock-in these customers through a stop-sell provision, then these customers (for the reasons described above) are likely to be unavailable to rivals for some time, e.g. for the following 2-3 years. Furthermore, a number of them may not bother to consider switching for many years into the future.
- 3.22 Given this, rivals' to Openreach will face suppressed (expected) take-up as a result of the copper switch-over. As we discussed in Section 3.1, take-up is the most critical and sensitive factor for the Full Fibre investment case. As such, even a very small suppression of take-up for a rival to Openreach could undermine the incentives to invest.

3.2.2 Phase 2 - Removing copper price cap

- 3.23 Under Phase 2, Ofcom propose to remove the charge control on Openreach in regard to the provision of copper services for premises where fibre is available. Ofcom propose to implement this by providing for the copper charge control to fall away in relation to any exchange where Openreach has reached 'complete' ultrafast coverage.
- 3.24 This phase is triggered once Openreach's Full Fibre coverage in an exchange area is 'complete' that is, Openreach has "made fibre services available at all premises or has taken all reasonable steps to make services available." Under Ofcom's existing proposals, this phase could come into effect no sooner than two years since the introduction of the 'stop sell'.
- 3.25 This Phase sits in complement to Phase 1 for Openreach in that while the first Phase enables Openreach to migrate 'new' connections or 'bandwidth upgrades' Phase 2 provides the mans for Openreach to incentivise existing customers to move off copper and onto its fibre network. Ofcom call this out explicitly:¹²

"We anticipate that the removal of the charge control on copper services at the end of the transition period will provide a strong incentive for customers to migrate to fibre services, which in turn strengthens Openreach's case for investment in fibre."

- 3.26 The above quote makes clear that in considering the impact of this phase, Ofcom believe that it will support Openreach's investment case. However, at that time no reference was made to the implications for rivals.
- 3.27 Our expectation is (consistent with the views of Ofcom in the above quote) that Phase 2 provisions will provide Openreach with the ability and incentive to quickly migrate consumers off its copper network and onto its Full Fibre network.

3.2.3 Phase 3 – Force migrating remaining copper customers

3.28 This is triggered once Openreach has declared an exchange as 'complete' and when less than 10% of customers are on copper-based services within the given exchange area. A 24-month notice is required.

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¹² Ofcom (2020) WFTMR Consultation (8 January) Volume 3. Paragraph 2.16 [Link]

- 3.29 Once this comes into effect, Openreach will be free to remove copper-based service from existing customers (if it wishes) and force them onto a Full Fibre connection. In other words, this phase will allow the final remaining group of customers to be forcibly migrated off copper.
- 3.30 However, we consider that Phases 1 and 2 will be the most material in that by the time Phase 3 comes into effect, the vast majority (i.e. at least 90%) of broadband customers will already have migrated off Openreach's copper network. In other words, the majority of the impact (e.g. to competition) will have already been done.
- 3.3 In certain geographic locations, the copper switch-over proposals will raise very material risks of anti-competitive foreclosure
- 3.31 We consider that a critical starting point for assessing the impacts of the copper switch-over is to understand the different deployment scenarios. In this regard, we have identified two key factors which define different geographic areas, these are; i) whether or not Openreach is present (currently or will be in the future), and ii) whether or not a rival to Openreach is present (currently or will be in the future).
- 3.32 On the basis of these two dimensions we can identify four deployment area types, however given that the scenario where neither are planning to be present is not of interest to us for the purpose of this exercise, we ignore that scenario. We therefore identify three area types, as shown in Figure 3.1, and discuss these further below.¹³

Figure 3.2 Types of deployment areas based on whether or not Openreach is present, and whether it does/could face rival networks

		Openreach present?	
		Yes	No
Rival(s) to Openreach present?	Yes	Type A	Туре С
Rival(Openreact	No	Type B	

Source: CityFibre.

- 3.33 The above table sets out broad categorisation on the basis of a future looking perspective, in other words, locations which could support one, two or three+ operators
- 3.34 From the above figure, we consider that the implications and effects of the proposed switchover process will vary considerably:
 - Openreach plus rival(s) ('Type A' locations): Where Openreach faces actual or
 potential competition in a location, we consider that Openreach will have the incentive

¹³ We note that this analysis is simplistic in that it takes as given all areas that could support Openreach plus one other rival. In reality some such areas may be hard to define. However, we wish to start from the point of view of the right approach in theory, before discussing what can be achieved in practice. On this point however, we consider that the vast majority of such areas could be identified by Ofcom.

and (under Ofcom's proposals) the ability to effectively foreclose rival networks through the copper switch-over process. As such, in these location Ofcom must reconsider its approach, specifically to allow more time for rivals to establish themselves and compete for customers on a fair bases, before Openreach is allowed to mass migrate customers onto its fibre network. We consider that as much as 80% of the UK could fall into this category (i.e. locations that can support at least two fibre networks).

- Openreach-only ('Type B' locations): In locations that can support only a single
 operator, and where Openreach has deployed there, we consider there the copper
 switch-over proposals are reasonable and appropriate, and serve to promote
 consumer migration, without raising material competition concerns.
- Non-Openreach ('Type C' locations): In locations that can support only a single operator, and where Openreach has not deployed there (and has no plans to), we note there is no concerns in regard to Openreach conduct to locally foreclose rivals. However, we do note that the currently proposed copper switch-over process provides no support for investment by rivals. In other words, rivals to Openreach are not afforded the same opportunities in terms of migrating customers, which overall puts Openreach at a substantial advantage when considering the business case across its entire planned footprint. We consider that this sits directly counter to Ofcom's overarching ambition of promoting competition and investment in fibre networks. As such, we encourage Ofcom to consider how it can support rivals to Openreach in order to provide a more level playing field.
- 3.35 In regard to those locations where Openreach will face Full Fibre rivals (i.e. 'Type A' locations), we consider that the copper switch-over raises a significant risk of anti-competitive effects, which could have very detrimental impacts on competition in the market.
- 3.36 This anti-competitive concern arise because Openreach has today a very dominant position in the market for broadband services; 70-80% of UK broadband customers are today on the Openreach network.¹⁴ ¹⁵ Given this, the switch-over would allow Openreach to simply leverage its existing customer base, and further entrench its dominant position.
- 3.37 The manifestation of the concern would be to distort market incentives for fibre investment, in a way that would favour Openreach over other operators. This is based on the following logic.
 - The investment case for deploying fibre networks (by any operator) critically relies on there being sufficient consumer demand for those (fibre) services.
 - The vast majority (70-80%) of UK broadband customers are today on the Openreach network (most of these take copper-based services).
 - The copper switch-over (as currently proposed by Openreach) would allow Openreach
 to eliminate take-up risk in respect of its fibre network. In sharp contrast, the take-up
 risk for alternative networks remains very significant.

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¹⁴ Ofcom stated in its 2018 WLAMR Statement [Link, Paragraph 4.27], that Openreach 'has a very high share of the WLA market in the UK excluding the Hull Area, currently around 80%'. Ofcom went on to state that they expect this very high market share to prevail going forward: "[w]e forecast that BT's market share will remain high at around 80% by 2020/21". This is consistent with Ofcom's findings in the WFTMR Consultation in which Ofcom sets out that Openreach currently have around a 79% market share in the WLA market. (Ofcom sets out in Volume 2, Table 8.2 of the WFTMR Consultation that, Openreach have c.70% share of Area 2 (comprising 21.3 million premises) and c.100% share in Area 3 (comprising 9.2 million premises). This gives: 21.3 * 70% + 9.2 * 100% = 24.1 million premises, which is 79% of the assumed 30.5 million premises)

¹⁵ Ofcom (2020) WFTMR Consultation. Volume 2. Page 123. Paragraph 8.97

- This significant divergence in take-up risk between Openreach and entrant network operators significantly distorts fibre investment incentives, in favour of Openreach.
- If this occurs, Openreach's market dominance could be further entrenched and the scope for a competitive market will be destroyed.
- 3.38 In short, the copper switch-over provides an enormous incumbency advantage to Openreach which would, relative to other operators, reduce their risk of fibre deployment given that it is effectively able to eliminate all take-up risk on its Full Fibre network by leveraging its existing overall broadband market dominance.
- 3.39 Furthermore, as we discussed above, the ability for Openreach to quickly and easily migrate consumer onto its network will represent a material barrier to competition in that once those consumers have moved onto Openreach Full Fibre they are unlikely to be interested in moving away for several years. This is for the reasons we laid out in paragraph 3.19.
- 3.40 In Ofcom's WFTMR Consultation and its recent Copper Retirement Consultation, it provided only limited commentary on the impact on infrastructure competition. In the latter it set out the following:16

"Our proposal continues to support network competition by providing the incentive to Openreach to complete coverage in an area. We require ultrafast coverage in an exchange area to be complete (with scope for certain premises to be excepted) as a prerequisite for the removal of the copper charge control and subsequent notification of the removal of copper services. This is to address our concern that, absent this proposed obligation, Openreach would not have an incentive to complete exchanges and would be better able to target strategic overbuild where altnets are currently building networks."

- 3.41 In this passage Ofcom are referring to the risk of strategic overbuild by Openreach, who could seek to foreclose rivals by utilising partial deployments, in an attempt to deter others from also rolling out.
- 3.42 We agree that this is a critical issue and commend Ofcom for taking steps to mitigate the risk that Openreach will use strategic overbuild, by amending Openreach's incentives e.g. to complete deployment in a given exchange area.
- 3.43 However, Ofcom seem to give no regard to the fundamental advantages that the regulatory relief (i.e. 'stop sell' and removal of copper price cap) will be bestowed on Openreach. As we have described above, Openreach will be able to migrate customers onto its Full Fibre network faster and more easily than would any other operator. Not only does this provide an un-level playing field from the outset, but it raises very material barriers to ongoing competition.
- 3.44 As such, we consider that Ofcom have failed to fully assess the implications of its copper switch-over proposals on competition, and that following such an assessment Ofcom would likely need to materially revise its proposals to ensure that rivals to Openreach are not put at a material disadvantage in those areas where Openreach and rivals are (or could potentially) deploy alongside each other (i.e. overbuild areas).

¹⁶ Ofcom (2020), 'Consultation: Copper retirement – conditions under which copper regulation could be completely withdrawn in ultrafast exchanges Supplementary consultation to the Wholesale Fixed Telecoms Market Review' (15 October). Paragraph

3.4 CityFibre's efforts to mitigate take-up risk

- 3.45 In light of the copper switch-over proposals, we note that we have made significant efforts to (as best we can) mitigate the risks it raises to our business, most especially in terms of take-up.
- 3.46 As a wholesale-only network, we rely entirely on our relationships with retail ISPs to get consumers onto our Full Fibre network. We are very pleased to have already established long term agreements with a number of major ISPs including Vodafone, Zen and TalkTalk.
- 3.47 [%]
- 3.48 The copper switch-over therefore poses a very real threat for a Full Fibre builder like us, in considering where and when to build. If for example we were to observe that locations we had planned to deploy into were less attractive, in that our anticipated penetration was lower than originally expected, then this could well cause us to reconsider the investment in that location.
- 3.49 Give all this, we highlight that we are unable to ourselves mitigate all of the risk that the copper switch-over raises, in terms of providing advantages to Openreach regarding Full Fibre customer take-up, relative to (and at the expense of) its rivals.

3.5 Impact of proposed copper retirement process on rivals' Full Fibre investment case

- 3.50 We set out below some analysis we have undertaken to quantify the impact of take-up suppression on our investment case. This analysis helps to quantify the impact of the copper switch-over by considering (as discussed above) how a slower rate of take-up of Full Fibre for rivals to Openreach (as a result of the copper switch-over proposals) will impact investment incentives for said rivals.
- 3.51 We have produced this analysis from our Long Range Business Plan, by varying the take-up assumptions over time (i.e. the implicit take-up curves).
- 3.52 In order to focus just on the impact of faster and slower rates of take-up, in all scenarios we assume that the final level of take-up is the same, that is we assume that ultimately we always get to the same level of take-up, the only difference is in the amount of time it takes to get there.
- 3.53 [%]
- In the figure below we present a number of scenarios for take-up curves. The key distinguishing feature is the level of take-up achieved by year 5 (i.e. 5 years after deployment began). To observe a range, we have modelled a base case along-side three scenarios (80% target take-up by year 5, 60% target take-up by year 5, 40% target take-up by year 5).

Figure 3.3 Modelled take-up rate scenarios [Highly Confidential]

[Figure redacted from non confidential version]

Source: CityFibre.

3.55 On the basis of the above, we have the impact in terms of overall IRR for CityFibre's investment plan (across some 8 million premises). We present this in the table below, which shows that significant reductions in IRR (shown as an Index) as a result of slower take-up rates.

Table 3.1 Impact on IRR of modelled take-up scenarios

	Index	% impact vs base-case
Base-case	100	-
80% by year 5*	85.3	14.7%
60% by year 5	72.2	27.8%
40% by year 5	61.2	38.8%

Source: CityFibre.

Notes: Index based on the 'base-case' being 100 and the other scenarios showing the relative change in absolute IRR. The take-up rates are the proportion of the total target take-up rate, which for the purposes of this analysis is $[\mbox{\ensuremath{\%}}]$

- 3.56 The table above shows that the impact on IRR is very significant, indeed a very slightly slower take-up rate, relative to the base case (as presented by the '80% by year 5' scenario) results in a 15% reduction in IRR. For slower rates of take-up the impact can be very large, e.g. a 40% reduction in IRR if only 40% of target take-up is achieved by year 5.
- 3.57 Following what we set out above, this analysis shows that if the copper switch-over were to slow the rate of expected take-up for rivals to Openreach, even by only a couple of years, this will have a very material impact on overall IRR.
- 3.58 We urge Ofcom to undertake such similar analysis in order that it can understand better the implications of the switch-over on Openreach and (most critically) on Openreach's rivals. Without doing so Ofcom will be unable to make an informed judgement about the right approach to the copper switch-over, give its overarching strategy of promoting competition and investment in fibre networks.

4 Approaches Ofcom can take to address anti-competitive effects of the copper switch-over

4.1 In this section we set out our proposals regarding how Ofcom can mitigate the risks to competition (and investment) from the copper switch-over. This goes directly to the point raised by DCMS in the FTIR regarding how to ensure the switch-over is competitor neutral and does not result in any anti-competitive behaviour.

4.1 Developing a 'competitor neutral' switchover process

- 4.2 We consider Ofcom can address the concern most directly and effectively by developing a 'competitor neutral' switchover process. This could for example involve allowing any Full Fibre builder that reaches an objective threshold (e.g. 75% exchange-area coverage) to trigger the 'stop sell' on Openreach copper services.
- 4.3 Such an approach would provide efficient investment incentives to all operators deploying Full Fibre networks that are ubiquitous in a given geography. Furthermore, this approach would be closely aligned with the Government's objective of completing national Full Fibre coverage by the end of the decade and would also encourage build outside of core urban territory into rural areas.
- 4.4 We consider that the 'first-best' approach to the copper switch-over is a competitor neutral one, as we set out above. However, if Ofcom consider that its unable to implement such a process (for whatever reason), then Ofcom must consider alternate ways of ensuring that rival's to Openreach are not put at a competitive disadvantage.
- 4.5 While we are fully in favour of an expedited switch-over process, to ensure the quickest possible Full Fibre deployments, we consider that if Ofcom cannot create a fair and procempetitive switch-over process, it may be left with no choice but to delay the forced-migration process (e.g. 'stop-sell'), else risk undermining the infrastructure competition model.
- 4.6 This would provide a period in which Full Fibre competition can be played out on a fair and even basis, and as much voluntary migration as possible be affected ahead of an eventual forced migration, without any incumbency advantages for Openreach. We consider that this would provide a basis for effective competition to play out.

4.2 Impose behavioural remedies in regard to the switch-over process

- 4.7 While Ofcom (and Openreach) have tended to discuss the copper switch-over purely in terms of the process for removing regulation on copper services, we note a complete absence of discussion on how specifically consumers will be informed about the copper switch-over process and therefore their awareness of all the options available to them.
- 4.8 Specifically, we consider that in locations where an operator is planning to trigger the switchover, Ofcom should impose strict rules regarding how consumers are informed about all the
 choices available to them. In this regard, we wish to note our concern that under existing
 proposals, BT will have the incentive to ensure that consumers are only migrated onto an
 Openreach Full Fibre product and therefore to ensure the consumers are not aware of other
 potential offers, which may involve alternative networks.
- 4.9 To solve this, we would encourage Ofcom to impose strict rules on how CPs engage with consumers regarding the copper switch-over. For instance, this could involve requiring CPs to inform consumers of alternative providers in any marketing material they send out to

specific customers regarding Full Fibre tariffs. What must be avoided at all costs is a quasipublic information campaign, akin to that which supported the analogue-to-digital TV switchover, that infers that the transition is a unipolar process of upgrading from Openreach copper to Openreach fibre.

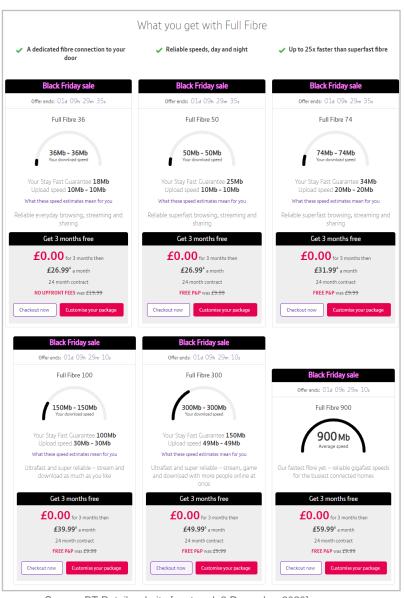
- 4.3 Promote a more level playing field generally through regulatory interventions not (directly) related to the copper switch-over process
- 4.10 Notwithstanding the above points, we note that there are a number of other (seemingly unrelated) actions that Ofcom can take, that ultimately would help minimise the potential harm to competition from the copper switch-over proposals. We set these out below:
 - i. Make switching as easy as possible for consumers: Anti-competitive foreclosure is less of a concern if consumers are able to switch provider quickly and easily. This would mean that alternative operators are more easily able to compete for these customers. We understand Ofcom are planning to publish a consultation in December 2020 on its proposed approach to implementing cross-platform switching, to ensure it meets the Gaining Provider Led (GPL) standard. We look forward to this, and hope that Ofcom do indeed propose a switching process that will make switching much easier and simpler for consumers.
 - ii. Promote consumer engagement and understanding: Further to the above point, without effective consumer engagement, we are unlikely to see material switching and therefore risk Openreach continuing to main its dominant market position. In particular it is imperative to address current consumer confusion about the technology options and to ensure that advertising and other marketing treatments are rigorous in highlighting the qualitative differences between full and part-fibre products. This should not be left to be addressed through the kind of 'quasi-public information campaign' described above but should be addressed to ensure as much voluntary migration as possible ahead of eventual forced migration away from copper.
 - iii. Ensure WFTMR Annex 15 proposals are fully implemented: Ofcom set out in Annex 15 a number of proposals to address its concerns about Openreach having the ability and incentive to use wholesale offers (e.g. targeted geographic discounts) to foreclose rivals. These proposals are absolutely key to ensuring that Openreach is not able to proactively foreclose rival Full Fibre providers through wholesale offers. We stress to Ofcom that without these protections, the prospect of effective competition emerging for Full Fibre is poor. It is particularly important to ensure that the proposed restriction on geographic discounts is applied rigorously to prevent Openreach from introducing differential Full Fibre pricing in areas where it is triggering the switchover process or has proceeded to switch off copper. Allowing such selective discounting of fibre pricing in SO areas would compound the advantages that Openreach has by virtue of being able to dictate the forced migration of customers onto copper by allowing it to cement this ISP business by offering targeted pricing.
 - iv. Monitor BT Retail's apparent lack of willingness to purchase from rivals to Openreach: We wish to highlight that many of the risks we have identified in regard to the copper switch-over, seem to arise as a result of BT Retail (by far the biggest ISP in terms of market share) being unwilling or uninterested in considering buying wholesale broadband services from anyone other than Openreach. This is surprising given that other ISPs have managed it (e.g. Vodafone, Zen and TalkTalk) and given that Openreach should be fully independent from BT's downstream retail arm. In other words, we consider that if BT Retail were to be open to buying from rivals to

Openreach, its incentives would provide much better market outcomes in terms of incentives on rivals to Openreach to invest, and therefore ultimately for greater levels of infrastructure competition.

Annex 1 Evidence of BT using 24-month Full Fibre contracts

A1.1 We provide below a screenshot from BT Retail's website showing that all Full Fibre packages are advertised with a 24-month contract term. We discuss this point in paragraph 3.19 (above).

Figure A1.1 Screenshot of BT Retail Full Fibre packages (December 2020)



Source: BT Retail website [captured: 2 December 2020]

https://www.bt.com/broadband/full-fibre