

Non-domestic rates and the price for regulated Dark Fibre

Final statement

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About this document

This document sets out amendments to the calculation of the price that BT charges for access to its dark fibre products. The need for the amendments arises from an appeal against the April 2016 Business Connectivity Market Review by TalkTalk. The Competition and Markets Authority found that Ofcom was wrong to use a measure of BT's non-domestic rates costs as part of the calculation for the price of dark fibre products. We consulted on our proposals to amend the calculation on 11 April 2017, and this document sets out our decisions.

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Section 1

Executive summary

Executive summary

Context

- 1.1 This statement amends the calculation of the price that BT charges for access to its dark fibre products.
- 1.2 In the April 2016 Business Connectivity Market Review Statement¹ ("BCMR Statement"), Ofcom imposed a condition requiring BT to provide communications providers ("CPs") with dark fibre products.
- 1.3 Ofcom decided that the price of dark fibre should be determined by subtracting an "active differential" from the price of the corresponding BT wholesale Ethernet 1Gbit/s leased line service.
- 1.4 Ofcom decided that the active differential should consist of the following three components:²
 - i. the long run incremental costs avoided by BT when providing dark fibre instead of the corresponding active service³ ("First Component");
 - ii. if appropriate, a deduction of BT's non-domestic rates ("NDRs") associated with the corresponding active service⁴ ("Second Component"); and
 - iii. the long run incremental costs of any objectively justifiable differences between dark fibre and the corresponding active service ("Third Component").

The Appeal

- 1.5 TalkTalk appealed Ofcom's decision in relation to the Second Component.⁵ TalkTalk argued that Ofcom was wrong to decide that, in the absence of Ofcom's preferred option where the Government would change the relevant rules applicable to NDRs, the Second Component should be based on an attribution of BT's NDR costs.⁶ It contended that, in the absence of Ofcom's preferred option, this component should be based on some other appropriate measure, such as a measure of access seekers' (competitors) NDRs.

¹ See: <https://www.ofcom.org.uk/consultations-and-statements/category-1/business-connectivity-market-review-2015>

² Ofcom's decision as how to set the active differential is explained in A23.96 to A23.116 of the BCMR Statement.

³ This includes active (i.e. powered) equipment.

⁴ This deduction is made because under the relevant rules, it is the person lighting the fibre who pays the applicable NDRs.

⁵ See: <http://www.catribunal.org.uk/237-9284/1259-3-3-16--Talktalk-Telecom-Group-PLC-.html>.

⁶ Ofcom's preferred option is for Government to change the relevant rules such that BT is responsible for the NDRs on the dark fibre services that it leases to other operators.

- 1.6 The issues raised in TalkTalk's appeal were referred by the Competition Appeal Tribunal ("Tribunal") to the Competition and Markets Authority ("CMA") for determination as a specified price control matter under section 193(1) of the Communications Act 2003 ("CA03") and Rule 16 of the Competition Appeal Tribunal Rules 2015 (SI 2015 No. 1648).
- 1.7 On 6 April 2017, the CMA determined that Ofcom was wrong to decide that the Second Component should be based on an attribution of BT's NDR costs (rather than on some other appropriate measure) ("Final Determination").⁷
- 1.8 On 29 June 2017, the Tribunal made an order directing Ofcom to re-consider the decision in respect of the Second Component of the active differential taking into account the CMA's findings in the Final Determination.

Our decision in response to the CMA's Final Determination

- 1.9 In determining the question referred to it by the Tribunal, the CMA did not recommend that Ofcom should adopt a specific alternative approach and stated that Ofcom should consider how the price may best be derived in a manner which takes into account the Final Determination. It therefore recognised that there are a number of alternative approaches that Ofcom might adopt.
- 1.10 We consulted on an alternative approach on 11 April 2017 ("NDR Consultation").⁸ We received 12 responses to the NDR Consultation from a number of stakeholders.⁹ In this document we explain how we have taken account of these responses and set out our decision.
- 1.11 In summary, our decision is to amend the calculation of the Second Component for CPs whose NDRs are calculated using the Direct Rentals Comparison method. In doing this the NDRs payable by a CP with an existing fibre network with a total contiguous length of 1,000km or more will be used and this will be applied to the different BT dark fibre services as follows:
 - (i) For Dark Fibre Access ("DFA") and Dark Fibre Access – Local Access ("DFA LA") services a single fixed adjustment will be made to the rental charge, using a route length of 1.9km.
 - (ii) For the Main Link component of DFA services an adjustment will be made to the rental charge on a per metre basis, based on the radial distance between the two connected exchanges.
- 1.12 As a consequence of these changes, we have adjusted the leased line charge control ("LLCC") (Ethernet basket) by reducing the value of X in the final year of the control from -13.50% to -12.75%.
- 1.13 Our decisions are broadly the same as the proposals that we consulted on. We have relaxed the value of "X" for the sub-baskets in the LLCC (Ethernet basket) as a result of the NDR adjustment to provide BT with more flexibility. We have also refined our

⁷ The CMA's Final Determination is available at: <http://www.catribunal.org.uk/237-9284/1259-3-3-16--Talktalk-Telecom-Group-PLC-.html>

⁸ See: https://www.ofcom.org.uk/data/assets/pdf_file/0024/100698/non-domestic-rates-dark-fibre-consultation.pdf

⁹ We have listed the stakeholders that responded to our consultation at Annex 3. The non-confidential versions of the responses are available on our website at: <https://www.ofcom.org.uk/consultations-and-statements/category-2/ndr-regulated-dark-fibre>

assessment of the impact of the changes on the LLCC by excluding volumes purchased by Virgin Media who are assessed on the R&E basis (although in practice this does not affect the value of “X”).

Section 2

Amendment to the SMP conditions and guidance

Introduction

- 2.1 In this section we determine the amendment to the Second Component of the active differential which is appropriate for reflecting a measure of NDRs that BT's competitors pay when they use dark fibre. Our amendment takes into account the different ways in which NDRs are calculated and applied. We then consider the effect of our amendment on BT's cost recovery and make adjustments to the LLCC. We also consider the impact of our amendment on BT's obligation to provide network access on an Equivalence of Inputs ("EOI") basis. Finally, we consider the implications of our changes to the remedy for the assessment of the benefits and risks of the dark fibre remedy.
- 2.2 Our decisions in this statement are implemented by modifications of SMP conditions 10C, 10A.10 and 4.2 as set out in the notification under section 48(1) CA03 which is included in Annex 1 to this statement. In addition, in Annex 2 we have shown these modifications against the SMP conditions imposed in the BCMR Statement; the insertions and deletions shown in red colour are the modifications proposed in the NDR Consultation and those shown in green colour are additional amendments which we have decided to make in light of the consultation responses.

Background on NDRs and valuation methodologies used to assess NDRs for fibre networks

- 2.3 NDRs are a form of property tax. Ratepayers pay NDRs on their rateable assets, which include telecoms assets such as fibre and duct. In general, the liability is calculated by multiplying a rateable value ("RV") by a "rate in the pound".¹⁰ RVs are assessed by the relevant rating authority in each nation, for example the Valuation Office Agency ("VOA") in England and Wales. The RV is specific to each property or assessment. Rates in the pound are set centrally by each nation and are generally the same for all ratepayers in a nation. RVs are published in each nation's rating lists and are normally updated every five years.¹¹
- 2.4 With respect to fibre assets the VOA has determined that "*as a general rule of thumb, the person who lights the fibre is considered to be in rateable occupation*".¹² This means that, if BT sells an active leased line service then BT is liable for the NDRs,

¹⁰ The main exception is the impact of transition schemes in England. For more information on these see paragraph A17.38 to A17.40 in Ofcom's Consultation of March 2017 on the Wholesale Local Access Charge Control.

¹¹ We use the term rating lists to cover lists of RVs (in Northern Ireland the RV is called the net annual value or NAV). In England and Wales this list is called the Rating List. In Scotland, it is the Valuation Roll. For more information, see: SAA, The Valuation Roll, <https://www.saa.gov.uk/valroll.html> accessed 7 April 2017.

¹² Paragraph 5.2 of Section 871 of the VOA's 2017 Rating Manual: <http://app.voa.gov.uk/corporate/Publications/Manuals/RatingManual/RatingManualVolume5/sect871/rat-man-vol5-s871.html>

whereas if it sells a dark fibre service then the purchasing CP is liable for the NDRs once it lights that fibre.

- 2.5 The VOA publishes a manual explaining how it approaches the valuation of different types of assets. For fibre optic networks it explains that the valuation is made “*on a rental tone basis*”.¹³ In its Final Determination, the CMA referred to this approach as the Direct Rental Comparison (“DRC”) method and we use the same terminology in this statement. The VOA applies the DRC method to most fibre telecoms networks, but applies the alternative Receipts and Expenditure (“R&E”) method to some operators, including BT, KCom, and cable TV networks, such as those operated by Virgin Media.¹⁴ We understand that the rating authorities in Scotland and Northern Ireland adopt a very similar approach to the rating of fibre networks.

Direct Rental Comparison method

- 2.6 The effect of the DRC method is that CPs are required to pay NDRs for each fibre that they use (light). There are several factors that determine the amount of NDRs that a CP is required to pay for a given fibre. These factors include:
- the size of the CP’s existing fibre network (total contiguous route length) to which it attaches the fibre;
 - the length of the route of the fibre; and
 - the number of fibres the CP has lit on the route.

Receipts and Expenditure method

- 2.7 As noted above, BT’s and KCom’s RVs are assessed using the R&E method. Under the VOA’s latest guidance, cable networks such as those operated by Virgin Media are also assessed under the R&E Method.¹⁵ Under the R&E method all contiguous rateable assets are valued together in a single assessment.
- 2.8 For example, the assessment of BT’s RV covers all of BT’s rateable assets including its copper and duct assets as well as all of its fibre assets (including those fibres that are used to supply services outside the scope of the BCMR). Under the R&E method RVs are assessed by considering a set of forecast cash flows across all the rateable assets. Such an assessment is sometimes referred to as a “cumulo” assessment because all the assets are valued together. It is therefore not possible to estimate how much NDRs BT pays on its leased lines, or indeed on any of its individual services, and so in designing regulatory controls on BT’s charges we use an attribution of BT’s “cumulo” rates costs.

¹³ Paragraph 1 of the Section 871 of the VOA’s 2017 Rating Manual.

¹⁴ See paragraph 1 of Section 871 of the VOA’s Rating Manual.

¹⁵ See paragraph 4, VOA Practice Note 2017: Revaluation 2017: Telecommunications Cable Networks

<http://app.voa.gov.uk/corporate/Publications/Manuals/RatingManual/RatingManualVolume5/sect870/e-rat-man-vol5-s870-pn-2017.html>

The adjustment to the active differential

Summary of consultation proposals

- 2.9 On 11 April 2017, we published our NDR Consultation in which we set out our proposed adjustment to the Second Component.
- 2.10 We considered that the current approach to pricing Openreach's dark fibre adequately reflects NDR costs for CPs whose NDRs are assessed using the R&E method. We proposed to amend the calculation of the Second Component in the price of dark fibre paid by CPs whose NDRs are assessed using the DRC method. We sought to make the adjustment simple and practicable.
- 2.11 We considered which rate in the pound and relevant RV should apply. For the rate in the pound, we proposed using the rating multiplier in England because we considered that this would be where the majority of demand for dark fibre would occur. For the relevant RV, we proposed that it should be those provided by the VOA in their rating manual for fibres connected to a network of 1,000km or more. We also considered it appropriate to have different adjustments for single and dual fibre configurations to reflect that the rating authorities set different RVs depending on the number of fibres on a route.
- 2.12 BT will be offering two variants of dark fibre, corresponding to variants of its Ethernet EAD leased line services: a local-access variant, DFA LA, which is an access segment connecting a served location to the local BT exchange; and a "standard" variant, DFA, which can be used to connect any two served locations. The standard variant consists of up-to two local access type segments, depending on whether (and how many of) the two served locations require connecting to their corresponding local BT exchanges. If the locations are served by different BT exchanges, a "Main Link" which connects the two exchanges.
- 2.13 In line with our aim to make the adjustment simple and practicable, we proposed that a single fixed adjustment be made to the annual rental price of dark fibre access segments to reflect the fact that Openreach's charges for those segments do not change with their lengths. For the Main Link charge element of dark fibre, we also sought to reflect Openreach's charging structure, which is calculated based on the radial distance of the Main Link.
- 2.14 While the price for DFA LA access segments (single and fibre pair variants) is fixed regardless of length, the NDRs payable by CPs whose NDRs are assessed under the DRC method depend on route length. We proposed to proxy the route length for DFA LA (single fibre and fibre pair) using the median of the radial distances of 1Gbit/s EAD LA circuits outside the Central London Area, multiplied by a routing factor of 1.4. This resulted in a route length of 1.9km. We considered that the median was more representative than the mean because it avoids distortions created by a small number of very long circuits.
- 2.15 For the access segments of DFA services (single fibre and fibre pair) we concluded that on average there is about one actual access segment per 1Gbit/s EAD service. We therefore proposed to make an adjustment for a single access segment using the same average length as those used for DFA LA services (i.e. 1.9km) and apply the same calculation to these services.

Stakeholders' responses and our conclusions

Ofcom's overall approach to addressing the CMA's decision

- 2.16 As noted above, we considered in the NDR Consultation that the current approach to pricing Openreach's dark fibre adequately reflects NDR costs for CPs whose NDRs are assessed using the R&E method. We therefore proposed to amend the Second Component in calculating the prices for dark fibre only for CPs whose NDRs are assessed using the DRC method. In doing this a primary objective was to keep the adjustment simple and practicable.
- 2.17 TalkTalk welcomed our approach, noting that it means that the difference in NDRs paid by BT and CPs *"will be largely neutralised, removing most distortion [...]"*¹⁶ Similarly, the Passive Access Group ("PAG") stated that we have *"largely reflected the CMA's determination"*, and that our proposal will better simulate the choices CPs would face had Government changed the NDR rules.¹⁷
- 2.18 BT contended that dark fibre prices should be the same for all customers, not differentiated between CPs, because, in its view, although NDR differentials are determined by government tax policy, CPs *"have a degree of control over the NDRs they pay"*.¹⁸
- 2.19 First, we note that BT has not explained or provided any supporting evidence for its suggestion that there is a difference in the extent of control that CPs, including Openreach, have over the NDRs that they pay. Our approach differentiates dark fibre prices between CPs only to the extent that their NDR liabilities are assessed by the VOA using different methods, and we consider that CPs have little or no control over the VOA's choice of those methods.
- 2.20 BT has also stated that setting prices differentiated by reference to the costs of the purchaser sets *"an extremely worrying precedent"* which creates *"very significant regulatory risk for BT"*.¹⁹
- 2.21 It is important to note that the approach we have taken is specific to NDRs and the circumstances of this case and is not intended to set a precedent. The differentiated price for dark fibre that we have set is in response to the CMA's Final Determination, which explicitly states at §4.146 that *"[T]he problems created by the NDR Differential are specific to this case"*.
- 2.22 Virgin Media claimed that it may be disadvantaged by the adjusted dark fibre pricing, arguing that we had not considered whether all CPs assessed using the R&E method pay the same NDRs for lighting a fibre.²⁰ However, Virgin Media did not submit with its consultation response any evidence to support its claim. We therefore issued a statutory information request to obtain the relevant information.
- 2.23 On the basis of information we obtained from Virgin Media about its past and forecast NDR payments,²¹ we have no reasons to believe that any additional NDR liabilities

¹⁶ TalkTalk response §2.5.

¹⁷ PAG response §5.

¹⁸ BT response §1.2

¹⁹ BT response §4.23.

²⁰ Virgin Media response page 4.

²¹ Virgin Media response to s135 Notice dated 25 May 2017.

which Virgin Media would face in lighting Openreach dark fibre circuits would be significantly different from those BT would face in lighting the same circuits.

- 2.24 In the context of its comments on the level of NDRs paid by CPs assessed using the R&E method, Virgin Media also stated that we did not consider the NDR liability in cases where a DFA circuit is purchased for resale as part of a wholesale solution. In particular, Virgin Media stated that it would be disadvantaged in the supply of wholesale DFA to end customers as its supply would be at a higher cost price than if that end user had purchased the identical circuit from a CP assessed under the DRC method.²²
- 2.25 Virgin Media did not provide any explanation or evidence as to why this could impact its business or be of concern more generally. In any event, we note that the ability of R&E assessed CPs to compete downstream (e.g. in the provision of active services) is unaffected by the NDR adjustment, and DRC-assessed CPs remain able to buy regulated dark fibre directly from Openreach (or from a CP who is also assessed on the DRC-method).
- 2.26 BT also stated that we did not fully consider the possibility of arbitrage amongst CPs through an active merchant market to lower the effective NDRs paid.²³
- 2.27 BT seems to be concerned that a CP whose NDRs are assessed with the DRC method could purchase dark fibre from Openreach at the lower price and then sell that dark fibre to a CP whose NDRs are assessed using the R&E method. We do not anticipate that the incentives for this will be significant, particularly given the DRC-assessed CP will likely also require a margin to make such activity worthwhile (for example, for an EAD LA circuit, the difference between BT's NDR allocation and our NDR adjustment is approximately £[3<] per circuit). As such, any margin opportunity is likely to be small.²⁴ However, if this did materialise as a major concern, it is something which could be considered as part of the next review. Further, it may be practical for BT to restrict this specific type of resale in its terms and conditions for the sale of dark fibre if it was of significant concern.²⁵
- 2.28 CityFibre argued that in the CMA's final determination of the reference question in CityFibre's appeal concerning the appropriate cost standard for setting the LLCC,²⁶ the CMA had identified two errors in Ofcom's assessment which Ofcom had failed to take into account in the NDR Consultation.²⁷
- 2.29 The CMA found in Ofcom's favour in relation to CityFibre's appeal; the CMA did not find in relation to CityFibre's appeal that Ofcom had erred in its assessment of the costs and benefits of dark fibre. Our decision is consistent with the conclusions reached by the CMA.
- 2.30 CityFibre also argued that instead of simply adjusting the Second Component, Ofcom should amend the entire dark fibre pricing methodology, moving away from the active differential pricing approach so as to address the NDR differential issues that were

²² Virgin Media response page 4.

²³ BT response §1.4.

²⁴ We also note that there may be some practical differences in such cases which would need to be considered by the CP (e.g. the process for repair of any faults in Openreach's fibre).

²⁵ It should be noted that Ofcom would not expect restrictions on resale more generally, beyond this very specific scenario.

²⁶ CityFibre Infrastructure Holdings plc v Office of Communications (Case 1261/3/3/16).

²⁷ CityFibre response §§3.1.3.

considered during the CMA process, and also to make dark fibre compatible with a cost-based Duct and Pole Access (“DPA”) remedy (in accordance with Ofcom’s separate Wholesale Local Access market review).²⁸

- 2.31 First, as noted above, our decision is consistent with the conclusions reached by the CMA, which was specific to the Second Component, rather than the pricing methodology as a whole. Secondly, our decision not to introduce DPA in the BCMR in this review period was not a result of the dark fibre pricing approach, but rather because we considered that the dark fibre remedy (and not a DPA remedy) was the most appropriate way of managing the transition towards competition based on passive remedies.²⁹
- 2.32 In light of the Final Determination and having taken into account the consultation responses, we continue to believe that it is appropriate to amend the Second Component only for CPs whose NDRs are assessed using the DRC method. We consider that the current approach to pricing Openreach’s dark fibre adequately reflects NDR costs for CPs whose NDRs are assessed using the R&E method such as BT, KCom and Virgin. Our original approach set out in the BCMR Statement provides a reasonable proxy for the NDRs payable by those CPs when they light new fibres.
- 2.33 As explained above, under the DRC method the exact NDRs that CPs pay each time they use (light) a fibre varies by reference to the size of the CP’s network to which the fibre is attached, the length of the fibre and the number of fibres the CP is using in the same route.
- 2.34 We continue to consider it important to ensure that the adjustments are simple and practicable. We have therefore decided to make the same adjustment for all the qualifying CPs, regardless of the size of their existing network or location in the UK of these circuits.

Calculation of the dark fibre price for CPs rated using the DRC method

- 2.35 We now set out guidance for how BT should calculate the Second Component in setting the dark fibre price for CPs rated using the DRC method. To do this, we need to consider the following:
- a) The rateable value and rate in the pound relevant for DRC-rated CPs;
 - b) The specific adjustment which should be made for each dark fibre component (i.e. DFA LA, DFA, and Main Link); and
 - c) The approach to dual fibre dark fibre circuits.

Rateable value and rate in the pound

- 2.36 In designing the appropriate adjustment, we considered not only the relevant RV but also what rate in the pound should apply.
- 2.37 Several stakeholders commented that we appeared (at paragraph 2.15 of the NDR Consultation) to propose that the rate in the pound multiplier should be the England

²⁸ CityFibre response §§4.1.6 to 4.1.10.

²⁹ BCMR Statement §1.37.

multiplier in 2017/18 (47.9p) and that instead this should reflect that there are higher rates in other UK nations and, further, that a higher multiplier will prevail in 2018/19. It was noted that Ofcom had already estimated the impact of making both these adjustments in the wholesale local access (WLA) market review consultation of March 2017 (Table A17.5). The average multiplier for 2018/19 from that table is 49.8p.^{30,31}

- 2.38 In the interests of clarity and simplicity, we have decided not to require BT to reflect higher rates in the pound in other UK nations. To do so would have required assumptions on how to weight the English, Welsh, Scottish and 11 Northern Ireland council area together, which adds complexity and may only deliver a very limited change to the value.³² Therefore consistent with our approach to keeping our adjustments simple and practicable, we retain our proposal that Openreach should set the value of the Second Component using the England multiplier.
- 2.39 With regard to the comment about a higher multiplier prevailing in 2018/19, we should clarify that our proposal was that the value of the Second Component should reflect any revisions in either the rate in the pound or the RVs contained within the VOA's guidance on rates on fibre services. That requirement is captured in SMP condition 10C.4A. Under our decisions Openreach would be required to calculate the value of the Second Component in 2018/19 using the England Multiplier in 2018/19. That is currently unknown but is likely to be higher than the rate in 2017/18.
- 2.40 Stakeholders also commented on our proposal in respect of the RVs to be used:
- 2.40.1 TalkTalk noted that Ofcom assumed a contiguous network of 1,000km in the NDR adjustment. TalkTalk suggested that Ofcom should consider only the situation in 2018/19, rather than the longer-term situation, and that it may be that not all dark fibre circuits would be contiguous with an operator's network in different parts of the UK.³³
- 2.40.2 Capita argued that Ofcom should use a network route distance of 300km, not 1,000km in its NDR adjustment.³⁴
- 2.41 We are of the view that using a measure based on shorter network contiguity (and therefore higher NDRs) would typically over-compensate the larger operators and risk promoting inefficiency and/or arbitrage.
- 2.42 In particular, we believe that a 1,000km network represents an efficient (scale) operator. We understand that several potential larger users of dark fibre already have networks of over 1,000km, or are currently purchasing large volumes of active products from BT that could at some point in the future be converted to dark fibre. Therefore we expect that a minority of circuits will be taken by CPs that are contiguous with smaller networks. We recognise that CPs with smaller networks, and CPs connecting circuits not contiguous to their existing network, will pay somewhat higher NDRs (until they grow their networks). However, we would expect that those

³⁰ TalkTalk response §§3.13-3.15.

³¹ PAG response §§10-11.

³² For example, an appropriate weighting scheme might reflect the likely locations of circuits. According to our database of 1Gbit/s EAD circuits, the vast majority of circuits (>90%) of circuits outside the Central London Area start and end in England. Using such circuit weights – or alternatively weighting using the proportions of BT's UK "cumulo" RV in each UK nation (and NI district) – makes very little change to the English rate: the uplift would be between 0.5-1.0%.

³³ TalkTalk response §3.12.

³⁴ Capita response §§9-11.

CPs would in any event take a longer term view over the eventual size of their network even if the payment of NDRs did affect their short term calculation of the cost of a dark fibre circuit. For circuits that are contiguous to smaller networks with higher NDRs, we also note that CPs could potentially purchase (dark fibre-based) actives from CPs with larger contiguous networks.

The adjustment for DFA LA service

- 2.43 Openreach's DFA LA, which corresponds to BT's 1Gbit/s Ethernet Access Direct Local Access ("EAD LA") active service, is a fibre connection between an end user's premises and BT's local serving exchange. DFA LA can be supplied as either a single fibre or two fibres (fibre pair).
- 2.44 Although the length of the fibre for this service will vary, depending on the location of the end user's premises, the price for a 1Gbit/s EAD LA and for DFA LA services are fixed regardless of their length. Therefore, in order to ensure that the pricing structures remain aligned, consistent with our design of the dark fibre remedy, we consider a simple and practical adjustment to the DFA LA price should be fixed regardless of the length of the fibre.
- 2.45 We proposed in the NDR Consultation to base the fixed adjustment to the DFA LA price on the average length of existing 1Gbit/s EAD LA services.
- 2.46 We explained that information available to us from Openreach's inventory of 1Gbit/s EAD LA services provided the locations for both ends of these services, as of May 2015.^{35,36} This allowed us to determine the straight-line distance between the ends of the services. However, the NDR payable is determined by the route length, not the straight-line distance. We therefore proposed to calculate a proxy of the route distance by multiplying the straight-line distance by a routing factor of 1.4. The 1.4 routing factor is commonly used in these situations and is also the factor which was used as a reference in the CMA's hearings that considered TalkTalk's appeal.
- 2.47 Based on this method, we calculated the cumulative distribution of the route lengths of 1Gbit/s EAD LA services. Our analysis of BT's existing 1Gbit/s EAD LA circuits outside the Central London Area³⁷, shows that over 90% of circuits have route lengths shorter than four kilometres. Across all circuits the median length is 1.9km, and the mean length is [X]km.³⁸
- 2.48 Based on that analysis we proposed to base the adjustment on the median length (1.9km).
- 2.49 TalkTalk stated in its consultation response that Ofcom should have used the mean instead of the median circuit length to derive the Second Component, because it argued that the median ignores the skewed distribution of longer lines, so that the mean is likely to be materially higher than the median.³⁹

³⁵ BT's response to Question 7 of the 13th 2016 BCMR s135.

³⁶ We have used information obtained for the purposes of the BCMR Statement. We do not consider that an updated data set would be likely to lead to a material change given that the underlying information concerns distances between exchanges and premises. We do not consider that updating the data set would be a proportionate use of Ofcom's resources.

³⁷ Our geographic market in central London is set out in the BCMR Statement.

³⁸ Based on a database of EAD circuits provided by BT showing all active circuits at April 2015.

³⁹ TalkTalk response §3.2.

- 2.50 We proposed an adjustment based on the median length as we considered this is more representative than the mean, precisely because it excludes the small number of very long circuits that skew the distribution.

The adjustment for standard DFA

- 2.51 Openreach's standard DFA service (which corresponds to Openreach's EAD active product) is a fibre connection between two points (A end and B end) specified by the customer. These points could be an end user premises, co-location spaces within a BT exchange or one of each. Further, the two points do not need to be served from the same BT exchange, although where they are not, a Main Link will need to be purchased in addition. As for the DFA LA service, the standard DFA service can be supplied as either a single fibre or two fibres (fibre pair).
- 2.52 The approach we proposed for the standard DFA service was the same as that we proposed for the DFA LA services, in that a fixed adjustment to the rental was to be made and this was to be based on the average length of the access segments of the existing 1Gbit/s EAD services. In order to achieve that, we assessed the average route length of the local access segments of the existing 1Gbit/s EAD services.
- 2.53 We noted that given the flexibility the customer has when specifying the locations of the A end and the B end of these services there were three possible configurations for these services.
- i. Both ends could be in a co-location space within a BT exchange, in which case there are no local access segment as such.⁴⁰
 - ii. One end could be a customers' premises and another could be a BT exchange, in which case there would be one local access segment.
 - iii. Both ends could be a customers' premises, in which case there would be two local access segments.
- 2.54 In light of this, we considered varying the NDR adjustment according to the number of local access segments in a circuit. However, we proposed to make a single adjustment for simplicity and to maintain alignment with BT's current charging structure. To inform our proposals, we therefore calculated the average (mean) number of local access segments for EAD 1Gbit/s services⁴¹ and found that to be [X]. Given this, for simplicity we assumed that on average a EAD circuit has one local access segment.
- 2.55 No consultation response suggested we vary the number of local access segments by circuit, so we maintain this approach.
- 2.56 We then calculated the average route length of the local access segments for the existing 1Gbit/s EAD services. As set out in the NDR Consultation, this required some additional data manipulation.⁴² We did this by mapping the A ends and B ends to the respective local serving exchange and then treating each end as a separate

⁴⁰ These circuits connect two BT exchanges for backhaul, typically connecting an exchange outside a CPs network with an exchange connected to its network.

⁴¹ For the reasons as set out at footnote 36 we do not consider that an updated data set would be likely to lead to a material change given that the underlying information concerns distances between exchanges and premises. We do not consider that updating the data set would be a proportionate use of Ofcom's resources.

⁴² NDR Consultation, §2.36.

local access connection. As per the EAD LA analysis we then determined the radial lengths for these segments and multiplied them by the 1.4 routing factor. Across all 1Gbit/s EAD circuits this approach yielded a median length of [§<]km, and a mean length of [§<]km.

- 2.57 These averages are slightly different to those for existing 1Gbit/s EAD LA circuits described above. In the NDR Consultation, we said that we did not believe that there should be a systematic difference between the lengths of these circuits, and we suspected that the small difference that we do see is a result of the additional data manipulations needed to estimate the length of the local access segments within EAD.
- 2.58 BT argued that the median length of EAD local access segments (“tails”) of [§<]km is a more robust and appropriate estimate of length than the 1.9km median length of EAD LA “tails” used by Ofcom.⁴³ BT provided no evidence why there should be a systematic difference, and indeed accepted that *“there is no a priori reason for considering that over the long term these should be materially (or statistically) different from each other”*. We do not therefore consider it necessary to change our approach – rather our estimate is based on almost 10,000 local access segments which we believe gives us a robust estimate of the median route length of local access segment, which is applicable to both DFA and DFA LA services.

Conclusion on the adjustments for the DFA LA and standard DFA

- 2.59 For the reasons set out above, we continue to believe that it is more appropriate to use the median length of EAD LA “tails” for the DFA LA and standard DFA services (i.e. 1.9km). We have therefore decided that when determining the value of the Second Component for the DFA LA and standard DFA services BT should use the NDR per km per annum payable by a CP when lighting a fibre contiguous to a network of 1,000km or more, multiplied by 1.9.

The adjustment for Main Link

- 2.60 Main Link is a component of the rental charge which applies to standard DFA services where the two ends are served from two different BT exchanges. Main Link is charged on a per metre basis multiplied by the radial distance between the two exchanges.
- 2.61 We proposed in the NDR Consultation that an adjustment should be made to the DFA Main Link charge on a per metre basis, in line with the current structure of that charge, i.e. using the radial distance between the two exchanges without making a routing factor adjustment.
- 2.62 TalkTalk stated that Ofcom was wrong to not make a routing factor adjustment and suggested that we should apply a routing factor of between 1.2 and 1.3.⁴⁴
- 2.63 We recognise that the route distance will be slightly higher than the radial distance, however, as set out in the NDR Consultation, we did not propose to apply a routing factor as we believed that, given the network topology and the typical lengths of Main

⁴³ BT response §1.10, §4.11.

⁴⁴ TalkTalk response §§3.3-3.10.

Link, the radial distance between the exchanges is a reasonable approximation for the route length.⁴⁵

- 2.64 Introducing a routing factor on the Main Link would increase the complexity of the adjustment, as BT would be required to apply this routing factor to each Main Link it sold. It should be noted that this is different to the position for local access segments where a single price applies regardless of length. Further, there is currently no data available on actual circuit length versus radial distance for Main Link, hence no data to calculate a reliable routing factor.⁴⁶ Again, this differs to the position for local access segments where a commonly used routing factor is available.
- 2.65 It needs to be understood that we are trying to keep this adjustment simple and practical. There are many parameters that feed into the NDR adjustment and we could plausibly make many kinds of minor refinements to all or some of them. Whilst these would undoubtedly increase complexity and make the adjustment more difficult to understand and implement, we do not consider that they will necessarily result in a better or materially different result. Each such refinement would bring with it its own uncertainties and approximations. Some will pull the result in one direction while others will pull the result in the other direction, for example where CPs have more than one dark fibre circuit on the same route between exchanges their NDR liability reduces, but we are not proposing to capture this. We therefore do not consider it would be appropriate to approach this decision by engaging in single minor refinements of the kind sought by TalkTalk in the absence of robust data and a clear indication of their materiality.
- 2.66 Given the above, we have decided to adopt our consultation proposal not to make a routing factor adjustment for Main Link circuits.
- 2.67 Therefore when determining the value of the Second Component for a single fibre Main Link, BT should use the NDR cost per km per annum for a single fibre payable by a CP with a network of 1,000km or more multiplied by the radial distance. This is also the case for Main Link provided as part of a resilient service (where the fibre follows a different route to a single fibre service to provide resilience).

Dual-fibre circuits

- 2.68 We have also considered how the adjustment should operate in respect of BT's dual-fibre circuits given that the rating authorities charge different NDRs per km for single-fibre and dual-fibre configurations. In particular, as noted in the NDR Consultation, the NDRs for two lit fibres on a route are significantly less than twice the NDRs for just one lit fibre on the same route (i.e. the NDR per fibre is less in a dual-fibre configuration).
- 2.69 We have decided to adopt our consultation proposal and use two NDR cost per km values in the adjustments: one for single-fibre configurations and the other for dual-fibre configurations. We explain below the treatment for each of DFA LA Dual- Fibre, standard DFA Dual- Fibre and Main Link.

⁴⁵ NDR Consultation §2.40.

⁴⁶ In its response TalkTalk estimated a Main Link routing factor, however this was based on a sample of only 15 Main Links and TalkTalk had to make certain assumptions about how BT's duct and fibre routes follow roads and paths.

- 2.70 For the DFA LA Dual-Fibre service BT should therefore use the NDR cost per km per annum for two fibres payable by a CP with a network of 1,000km or more, multiplied by 1.9.
- 2.71 For the DFA Dual-Fibre service the adjustment will be exactly the same as that for the DFA LA Dual-Fibre service, as we assume that on average there is one local access segment.
- 2.72 With regard to the Main Link services for a dual-fibre service (where both fibres follow the same route), BT should use the NDR cost per km per annum for two fibres payable by a CP with a network of 1,000km or more multiplied by the radial distance.
- 2.73 Our approach in respect of pricing of dual-fibre configurations is reflected in SMP condition 10C.2 which sets out requirements for pricing of multiple-fibre configurations, including the dual-fibre variants. We note that BT has raised a point about the wording of that condition which we address below.

Final NDR adjustment

- 2.74 Based on the VOA's 2017 fibre rent tables the adjustment for 2017/18 is:
- £182.02 (£95.80*1.9) for DFA LA (single fibre);
 - £182.02 (£95.80*1.9) for standard DFA (single fibre);
 - £227.53 (£119.75*1.9) for DFA LA Dual-Fibre service;
 - £227.53 (£119.75*1.9) for DFA Dual-Fibre service;
 - 9.58p/metre for a single fibre Main Link;
 - 11.975p/metre for a dual fibre Main Link; and
 - 9.58p/metre for a resilient Main Link (in addition to a single fibre Main Link).

Recovery of BT's efficiently incurred costs

Summary of consultation proposals

- 2.75 We considered if it was appropriate to adjust the LLCC to account for the risk which our adjustment to the calculation of the Second Component of the active differential could pose a risk to BT's ability to recover its efficiently incurred costs.
- 2.76 We proposed a focussed and proportionate approach to the adjustment to the LLCC, only adjusting for the change in the approach to NDRs included in the Second Component.
- 2.77 To do this, we multiplied the external dark fibre volume forecasts in 2017/18 and 2018/19 by the difference in the active differential between (1) NDRs as calculated under Condition 10C before any amendment, and (2) the deduction for NDRs based on the methodology described above, which we updated for inflation on the assumption that the rate in the pound increases. As we did not include a specific forecast for dark fibre Main Links in the BCMR Statement, this was estimated based on the percentage of 1Gbit/s EAD circuits to which Main Link charges apply, and the average Main Link radial distance.

- 2.78 This resulted in an estimate of the total deductions from the dark fibre revenue of around £5m. This lower revenue could pose a risk to BT's opportunity to recover its efficiently incurred costs if not adjusted for.
- 2.79 Following the approach we adopted in the BCMR Statement when previously implementing an uplift to the LLCC to provide BT with an opportunity to recover its efficiently incurred costs, this resulted in a change in X for 2018/19 from -13.50% to -12.75%.

Stakeholders' responses and our conclusions

- 2.80 Several stakeholders argued that there is no need for any upward adjustment of the charge control to ensure overall cost recovery.^{47,48,49,50}
- 2.81 Verizon commented that making an adjustment to the charge control now without updating the analysis fully (including volume forecasts) is not appropriate, and will add regulatory uncertainty to the detriment of competition and customers.^{51,52}
- 2.82 The adjustment that we proposed to make to the LLCC is to compensate for the changes we are making to the dark fibre price, and hence revenue, as a result of the NDR adjustment, everything else being equal.
- 2.83 The reasons advanced for not making an adjustment to the LLCC bring in factors that are beyond the scope of the NDR adjustment that is being considered in this decision, e.g. BT's over-recovery of costs in prior years or in other markets such as ISDN. These reasons are therefore not consistent with everything else being equal.
- 2.84 The adjustments we have made to the dark fibre pricing methodology are in response to a narrowly-scoped appeal, and do not constitute a complete re-consideration of the BCMR or LLCC. Rather, in accordance with the Final Determination, these changes only concern the elements of our approach to dark fibre pricing which fell within the scope of the relevant appeal; namely the Second Component and other elements directly affected by this. We consider that it would be inappropriate to selectively (or even wholly) update inputs which are not directly affected by the error which was identified by the CMA. Therefore in effect, the updated LLCC reflects the position that would have occurred if we had adopted the NDR adjustment at the time of the BCMR Statement.
- 2.85 In relation to the volume forecasts specifically mentioned by Verizon, we note that volumes are always subject to uncertainty. Consistent with the approach outlined above, we have considered whether our assumptions on dark fibre take-up are affected by the NDR adjustment. We have concluded that any impact is unlikely to be significant for the reasons set out below in paragraphs 2.107 to 2.112. We do not therefore think that it is necessary to update the volume forecasts.

⁴⁷ TalkTalk response §§3.17-3.18.

⁴⁸ PAG response §9, §§41-44.

⁴⁹ Verizon response §9.

⁵⁰ Vodafone response §§23-24.

⁵¹ Verizon response §10.

⁵² In addition, TalkTalk argued there were other issues relating to our volume projections which appear to be unrelated to the NDR adjustment (see for example, TalkTalk response §§3.20, 3.25).

Approach to adjusting the LLCC

- 2.86 In assessing the impact of the NDR adjustment on BT's cost recovery, we have only considered the 'external' volume forecasts (i.e. forecasts for CPs' use) of DFA and DFA LA from the LLCC,⁵³ as the NDR adjustment would not apply to BT's internal volumes.
- 2.87 TalkTalk and the PAG argued that it is incorrect to assume that all external volumes will be consumed by CPs paying the lower dark fibre price, based on NDRs valued using the DRC method since at least Virgin Media's NDR liability is valued using the R&E method.^{54,55} We recognised in the NDR Consultation that our use of external lines may overstate the number of dark fibre lines which are subject to the amended Second Component for the reasons identified by TalkTalk and the PAG. In light of responses, we have excluded an estimate for Virgin Media from the inputs to our volume forecasts. However, this had no impact on the output due to our modelling approach, which uses rounding.
- 2.88 We multiplied these external volume forecasts in 2017/18 and 2018/19 by the difference in the active differential between (1) NDRs as calculated under Condition 10C before any amendment⁵⁶ and (2) the deduction for NDRs based on the methodology described above, which we update for inflation on the assumption that the rate in the pound increases. As we did not include a specific forecast for dark fibre Main Links in the BCMR Statement, we have estimated this by calculating the percentage of 1Gbit/s EAD circuits to which Main Link charges apply, and then applied this to the forecast number of DFA circuits. Similarly, we based the average length of the DFA Main Links on the average length of the 1Gbit/s EAD Main Links.
- 2.89 BT noted that in making this calculation of the reduction in external dark fibre revenues, we use current estimates of BT's NDR liabilities (which have increased significantly since the BCMR Statement following the VOA's revaluation), but we have not correspondingly updated our estimates of the NDR costs which BT can recover under the LLCC or reflected the loss of internal revenue which will also result given the revaluation. It argued that this inconsistency in updating the LLCC poses a risk to BT's cost recovery and creates uncertainty.⁵⁷

⁵³ The total dark fibre forecasts (made up of both internal and external volumes) are shown in Figure A33.1 of the BCMR Statement.

⁵⁴ TalkTalk response §3.21.

⁵⁵ PAG response §46a.

⁵⁶ Before any adjustment, the NDRs included in various dark fibre charges in 2018/19 will be BT's allocation for the corresponding active products in 2017/18. We have assumed that these are equal to their allocation in 2016/17 multiplied by 2.09, as we expect BT's NDR charge to increase, as detailed in our 2017 WLA Charge Control consultation, Annex 17, paragraphs A17.22 and A17.41. Available at: <https://www.ofcom.org.uk/consultations-and-statements/category-1/wholesale-local-access-market-review> We have assumed that the 2016/17 NDR allocations are as presented to us by BT on 1 November 2016. This means that we have assumed that BT's 2018/19 allocation of NDR for the 1 Gbit/s EAD LA is £[>], for the 1 Gbit/s EAD is £[>], and for the main link is £[>] p/m.

⁵⁷ BT response §5.7-9. BT also argued that assuming no change in the volumes of active and dark fibre services poses a risk to cover recovery, and it is inconsistent with: the revised main link assumptions; the CMA finding that our NDR approach would significantly reduce the take-up of dark fibre (compared with a scenario in which there was no NDR distortion); and the implicit (and illogical) conclusion that a change in relative prices leads to no change in the overall volumes of each product. BT response §5.10. We set out our view of the impact of the NDR adjustment on volumes below.

- 2.90 We do not consider our approach to be inconsistent. Rather, this adjustment reflects the loss of revenue that would have occurred if we had adopted the NDR adjustment at the time of the BCMR Statement, and BT's rates had subsequently increased. In particular, the existing dark fibre pricing guidance required BT to use its actual rates attribution (lagged one year), and so BT would have had to bear this increase in costs (and subsequent reduction in dark fibre revenue), in the absence of the NDR adjustment. As such we do not think it is appropriate to compensate BT for this as part of making the NDR adjustment. We have therefore updated BT's rates in our counterfactual when calculating the cost recovery at risk as a result of the NDR adjustment.
- 2.91 The above calculations result in around a £5m reduction in the dark fibre revenue as a result of the NDR adjustment. This lower revenue could pose a risk to BT's opportunity to recover its efficiently incurred costs if not adjusted for.
- 2.92 Consistent with the approach we adopted in the BCMR Statement when previously implementing an uplift to the LLCC to provide BT with an opportunity to recover its efficiently incurred costs, we consider it appropriate to recover this from both active 1Gbit/s and dark fibre services.⁵⁸ As such we have allocated a proportion of the costs to the Ethernet basket costs based upon the relative volumes of EAD 1Gbit/s and dark fibre rentals calculated in the BCMR Statement.
- 2.93 BT has argued that this poses a risk to its cost recovery as no adjustment is made to the dark fibre price to allow for the additional contribution to cost recovery it is assumed to be able to make.⁵⁹ However, given the link between the dark fibre price and the EAD/EAD LA 1Gbit/s prices, we disagree since it means dark fibre is priced to recover the same common costs as 1Gbit/s. As such, an increase in the contribution from 1Gbit/s will also (all else equal) increase the contribution from dark fibre. Therefore in line with our rationale in the BCMR Statement we consider it appropriate to split the costs proportionately between dark fibre and 1Gbit/s EAD/EAD LA circuit volumes. This results in 87% of the £5m being added to the Ethernet basket.⁶⁰
- 2.94 We have decided to reflect this in the LLCC through a relaxation of the X that applies to the Ethernet basket (and each sub-basket⁶¹) only in the last year of the control (2018/19). BT has argued that this is inconsistent with the approach taken in the BCMR Statement where cost recovery was spread across the whole charge control period. It argued that this poses a risk to cost recovery, since BT will suffer a shortfall in revenues from October 2017 as well as in 2018/19.⁶² However, we have adopted this approach because the 2017/18 year has already begun, and the dark fibre remedy will not be launched until October 2017 anyway (meaning its impact will be limited before 2018/19). Further, the uplift applied in 2018/19 reflects the dark fibre volume forecasts across the whole review period (i.e. including 2017/18), and we therefore consider that the value we have calculated for X for 2018/19 ensures that the full impact of our decision across the review period is compensated for.

⁵⁸ This is explained in the BCMR Statement §§A33.347-A33.351.

⁵⁹ BT response §5.19.

⁶⁰ BCMR Statement §A33.355.

⁶¹ i.e. the 1Gbit/s EAD and EAD LA sub-basket, the Main Link sub-basket and the Interconnection sub-basket. These are discussed further below.

⁶² BT response §5.11.

- 2.95 We have not altered any other assumptions in the LLCC model. As with the original LLCC approach, we have rounded the X to the nearest 0.25%. This uplift results in a change in X for 2018/19 from -13.50% to -12.75%.

Approach to sub-baskets

- 2.96 BT argued that the 1Gbit/s EAD/EAD LA sub-basket should also be adjusted in the third year of the charge control period to ensure consistency with the approach taken in the BCMR Statement, given that no other relevant changes to this element in the BCMR Statement have been raised or discussed. As such, the “X” for the 1Gbit/s EAD/EAD LA sub-basket would be altered to -6.25% from -6.75%.⁶³
- 2.97 We agree that in line with the rationale advanced in the BCMR Statement⁶⁴, it would be appropriate to relax not only the 1Gbit/s EAD/EAD LA sub-basket, but also the Main Link sub-basket (which was set on a similar basis⁶⁵) and the Interconnection sub-basket.
- 2.98 In relation to the 1Gbit/s EAD/EAD LA sub-basket and the Main Link sub-basket, we considered approximately half of the value of “X” to be a reasonable basis for the purposes of setting the sub-baskets’ constraints, as it provides an appropriate balance between protecting consumers from excessive prices while being mindful of the rationale for introducing an active minus pricing approach and the benefits of setting a broader basket in terms of pricing flexibility. Therefore, having adjusted the “X” in light of the NDR decision, we consider that it follows that a relaxation of the sub-baskets’ constraints should also be permitted. As such, we have decided to adjust the 1Gbit/s EAD/EAD LA sub-basket and Main Link sub-basket to 6.25% in 2018/19.
- 2.99 In relation to the Interconnection sub-basket covering Bulk Transport Link products and Cablelink, we decided in the BCMR Statement to set the same value of “X” as that for the Ethernet basket (i.e. CPI – 13.5%). We considered that this struck an appropriate balance between ensuring that CPs are able to consume Ethernet services and the importance of these products for competition and cost recovery.⁶⁶ In light of our decision to relax the “X” for the Ethernet basket, we consider that it is also appropriate to adjust the “X” from -13.5% to -12.75% for the Interconnection sub-basket in order to maintain the same relationship between the Interconnection sub-basket and the Ethernet basket.
- 2.100 We have reflected our decisions in relation to the sub-baskets in the amended SMP condition 10A.10 as set out in Schedule 2 of Annex 1.

Implications for the benefits and risks of the dark fibre remedy

Summary of consultation proposals

- 2.101 We considered whether our decision would have any implications for the assessment of the benefits and risks of the dark fibre remedy in the BCMR Statement, and provisionally concluded that the assessment would not be materially affected, and thus not require a re-appraisal of the dark fibre remedy overall.

⁶³ BT response §6.19.

⁶⁴ BCMR Statement Vol II, §§5.270-5.279.

⁶⁵ BCMR Statement Vol II, §§5.283-5.287.

⁶⁶ BCMR Statement Vol II, §§5.291-5.299.

- 2.102 We noted that, in our view, our proposal would simulate the choices that CPs would have faced if the Government changed the relevant rating rules to make BT responsible for paying NDRs on the sales of dark fibre, as was our preference stated in the BCMR Statement. Accordingly, we noted that we did not expect the incentives to use dark fibre to be materially affected by our proposal in the calculation of the Second Component, and it was therefore reasonable to assume that the take-up of dark fibre would be broadly consistent with that assumed in the BCMR Statement, as set out at Section 7 of the BCMR Statement. Further, we noted that the magnitude of the total impact of our proposal was very small, both in absolute terms and as a percentage of the relevant market.
- 2.103 We referred to our assessment of the benefits and risks of dark fibre in Section 7 of the BCMR Statement, noting that Ofcom's approach was to introduce dark fibre carefully, setting the dark fibre price to reflect the 1Gbit/s active service as the first step in a managed transition towards greater reliance on passive access remedies.
- 2.104 We noted that our proposal sought to offset the higher NDRs paid by some CPs with a lower dark fibre price to reflect the NDR difference, such that, in principle, CPs' incentives to use dark fibre or a 1Gbit/s active product should be largely unaffected by NDRs (and in line with our original expectations in the BCMR Statement). Whilst recognising that it would not be possible to target the NDR adjustment such that in all instances CPs' NDR costs are precisely offset, we noted that our proposals would target the adjustments appropriately, by applying the adjustments only to those CPs that pay NDRs using the DRC method, by the fact that the value of our proposed adjustments to access segment annual rental charges is small compared with those charges, and because the distribution of access segment lengths is relatively narrow.
- 2.105 Consequently, we also noted that we did not consider it necessary to change other aspects of our remedies as a result of our proposed amendments, such as our analysis of the need for geographical variations in the application of the remedy. Nor did we consider there to be any knock-on effect on the consideration of the case for duct access; the pricing risks associated with the introduction of dark fibre, discussed in Annex 21 of the BCMR Statement, would remain.

Stakeholders' responses and our conclusions

- 2.106 While the PAG said that there was no need for further analysis because our NDR proposal is directed at achieving the same outcome it originally intended, other responses disagreed. We now consider the arguments made to us, which include whether there is any impact on the benefits of dark fibre, and on BT's and other infrastructure providers' incentives to invest.

Impact of the NDR adjustment on the benefits of dark fibre identified

- 2.107 BT⁶⁷, CityFibre⁶⁸, and Virgin Media⁶⁹ argued that dark fibre volumes were likely to be lower than we forecast since our adjustment would be insufficient to fully offset the NDRs payable for some circuits (e.g. circuits with longer tails or contiguous to smaller networks) meaning the benefits would likely be lower. Conversely Zayo argued volumes could be higher.⁷⁰ These CPs argued that we needed to redo our

⁶⁷ BT response §3.1, §3.12-3.13, §4.7-4.9.

⁶⁸ CityFibre response §2.1.4(4), 4.2.8.

⁶⁹ Virgin Media response page 3.

⁷⁰ Zayo response page 3.

assessment of the benefits and risks of dark fibre based on updated volume projections.

2.108 We disagree that our NDR adjustment will have a significant impact on our dark fibre volume forecasts or our assessment of the benefits and risks of dark fibre.

2.109 Firstly, our assessment involved a qualitative consideration of the risks and benefits of a dark fibre remedy and was not sensitive to precise volume forecasts. We forecast the potential take-up of dark fibre in this review period for the purposes of identifying the impact on the LLCC.⁷¹ However, the benefits of dark fibre (which informed the overall assessment) were considered in the longer term beyond this review period, and so were not dependent on the precise volume forecast included in the BCMR Statement. Therefore it is not the case that any change to potential volumes in this review period would necessarily affect the benefits analysis. Rather, provided the NDR adjustment broadly offsets the distortion identified by the CMA such that the incentives for using dark fibre are not materially undermined or distorted, we would not expect there to be a significant impact on the potential benefits.

2.110 Secondly, while we recognise that the NDR adjustment will not precisely offset the NDRs payable for all circuits, we think that for most circuits it offsets the NDR differential appropriately such that volumes are unlikely to be significantly affected. In particular:

- a) The NDR adjustment only applies to DRC-rated CPs – we consider the current approach to the Second Component (as per the BCMR Statement) adequately reflects NDR costs for CPs who are assessed under the R&E method. We consider that their incentives to use dark fibre are therefore unaffected by the error identified by the CMA. Purchases by these CPs account for a large proportion of our forecast dark fibre volumes.
- b) Use of 1,000km network contiguity – we recognise that networks of a smaller size may face an NDR bill higher than the NDR adjustment for all circuits. However, we expect most circuits either will be contiguous to 1,000km networks or will be purchased by CPs hoping to build such networks over time. As such, we do not expect this to have a significant impact on take-up.
- c) Circuit length assumptions – as NDRs payable are distance dependent, it is feasible that circuit lengths could affect incentives to use dark fibre given that we have made a single adjustment for the access tails (EAD and EAD LA). For those circuits with access tails longer than 1.9km, the NDR adjustment will be lower than the NDR payable on that circuit (this is not an issue for Main Link since it is charged on a distance-dependent basis⁷²). However, we consider that the impact of this cost disadvantage on potential take-up will be limited in practice since:
 - There is a large proportion of circuits (at least half) where we do not expect a cost disadvantage to arise (i.e. those at 1.9km and below); and

⁷¹ See, for example, BCMR Statement A33.8. We discuss the impact of the NDR adjustment on the volumes in this review period further below.

⁷² As such, NDR differences in CP charges driven by circuit length will be perfectly offset.

- Even for those circuits which are longer than 1.9km, they are predominantly skewed towards the median⁷³ where the relative cost difference between the NDR adjustment and the NDR actually payable is comparatively lower. This is particularly true where they include Main Links (which is the majority of EAD circuits⁷⁴), since our adjustment varies to reflect distance for Main Links dampening any difference from local ends longer than the median relative to the overall cost of the circuit.

2.111 Finally, as discussed in the BCMR Statement, there are additional benefits of dark fibre, including productive efficiency savings (through the removal of duplicate equipment) and dynamic benefits from differentiation. Although we are not in a position to quantify all of these benefits, we expect them to be significant. Accordingly, we believe that in many instances it is likely that CPs will choose to purchase dark fibre circuits in preference to active circuits even if they are not fully compensated for their NDR costs. Indeed, in the Final Determination, the CMA noted that in the course of the proceedings we had presented evidence on potential savings of over £500 per circuit per annum, and stated that “*Where there is a relatively small difference in input cost between active and passive circuits, OCPs may also be willing to purchase dark fibre to reflect the potential for wider commercial benefits*”.⁷⁵ As a result, dark fibre may still be taken up even where it might not appear economic due to small NDR differentials alone.

2.112 In light of the above, we do not expect that the scope for dark fibre take-up will be significantly adversely affected as a result of the NDR adjustment. We do not therefore consider our assessment of benefits to be materially affected.

2.113 Some respondents also suggested that there might be a change in the type of circuit taken up. BT,⁷⁶ CityFibre,⁷⁷ and Virgin Media⁷⁸ suggested that where CPs did continue to take up dark fibre, the benefits would be lower than we expected since dark fibre take-up is likely to be driven by tax incentives rather than scope for cost efficiencies or service innovations, dampening the benefits.⁷⁹

2.114 We remain of the view that dark fibre provides opportunities for significant efficiencies and innovation. We purposefully picked the upper end for network contiguity to reflect an efficient (scale) operator, limiting the opportunities for arbitrage. Where circuits are shorter than the median distance, the extent of any distortion driven by tax incentives is likely to be limited.

2.115 For example, at the extreme, it is possible to calculate a discount as a result of the NDR adjustment on the basis of our NDR adjustment of £182 and a 2017/18 DFA LA

⁷³ For example, based on our database of 1Gbit/s EAD LA circuits, we estimate that less than [\geq] % of circuits have an end longer than [\leq] km, and only [\leq] % longer than [\geq] km. We would expect a similar distribution for EAD, given that we do not expect a systematic difference in lengths (as discussed above).

⁷⁴ BT noted that 62% of circuits in the sample were standard EAD circuits (BT§4.11). We expect the vast majority of these to have Main Links, since [\geq] % of circuits in our database are standard DFA circuits with Main Links.

⁷⁵ CMA’s Final Determination §4.100 & 4.104.

⁷⁶ BT response §4.21.

⁷⁷ CityFibre response §4.2.11.

⁷⁸ Virgin Media response page 3.

⁷⁹ BT also argued that such arbitrage opportunities would reduce allocative efficiency.

price of £1,969⁸⁰ assuming a Local Access circuit with an end of insignificant distance and therefore not subject to NDRs. The reason why these assumptions are very conservative is because: we do not envisage many circuits would fit this profile; even for those which do, connection costs will further erode the scale of any arbitrage relative to the total circuit cost⁸¹; and the additional saving available in this scenario as a result of the NDR adjustment will actually be lower than £182 as BT's NDR cost allocation would need to be netted off. However, even based on these extremely conservative assumptions, it would indicate a maximum discount of 9% of the DFA LA rental price as a result of the NDR adjustment. We consider that this illustrates that any incentives to use dark fibre driven purely by tax incentives as a result of the NDR adjustment are likely to be limited.

- 2.116 Given this, we do not consider that there would be a significant impact on our analysis of the benefits of a dark fibre remedy.

Impact of our NDR adjustment on BT's incentives to invest (and dynamic efficiency)

- 2.117 As discussed above, we are adjusting the LLCC to provide BT with a fair opportunity to recover its efficiently incurred costs from the regulated market, and consider our adjustment is appropriate. We do not therefore consider that the NDR adjustment should result in any adverse effect on BT's incentives to invest.
- 2.118 BT argued that there is a risk to its cost recovery as the margins on EAD and dark fibre services are not the same, so if volume forecasts were to be wrong then recovery of fixed and common costs would not be as Ofcom has assumed.⁸² BT argued that this could have implications for its investment incentives.
- 2.119 We discuss the impact of the NDR adjustment on our volume forecasts above. More generally however, volume forecasts are always a key input into setting a charge control, and there is always an element of uncertainty around them (whereby there could be over- or under-recovery depending on outturn). The key concern is typically whether there is a risk of systematic bias one way or another (this is typically consistent with the 'fair bet' principle). This is not unique to the LLCC (or indeed the NDR adjustment).⁸³
- 2.120 We based our dark fibre volume forecasts in the BCMR Statement on the best information available to us at that time, and did not receive evidence of any significant bias or a clearly superior alternative forecast. We set out above why we do not expect the NDR adjustment to significantly affect these forecasts.⁸⁴ While there may be a greater risk of under-recovery in the event that dark fibre volumes are higher than we forecast, this risk appears to be symmetric given that BT faces a risk of over-recovery in the event that volumes are lower. We also note that given the LLCC covers significant revenues across many services, minor variations in volumes

⁸⁰ Openreach DFA LA single fibre price rental price of £1,969.

⁸¹ This is because connection costs would increase the total dark fibre price against which the NDR saving is compared.

⁸² BT response §§5.16-18. BT also noted in relation to its cost recovery that [§<].

⁸³ This was also the case in the BCMR Statement, where the LLCC and common cost uplift were both affected by forecast dark fibre volumes.

⁸⁴ Although no respondents discussed aggregation, for completeness our view is that the assessment of the scope for aggregation as a result of dark fibre set out in the BCMR Statement (see §A33.179 onwards) is unlikely to be significantly affected by the NDR adjustment. This is because the NDR adjustment simulates the choices that CPs would have if they faced NDRs similar to BT's costs, which provided the basis for that analysis (BCMR Statement §A33.40).

are unlikely to have a significant impact on the LLCC. Therefore it is likely that any variance in volumes would need to be large for there to be a significant risk to BT's cost recovery in this review period.⁸⁵

- 2.121 As a result, we do not consider that the NDR adjustment alters our assessment of risks to BT's cost recovery. Consequently, we do not believe that uncertainty in the volume forecasts affects the assessment of the risk of dark fibre to BT's investment incentives.
- 2.122 BT also argued that it is essential for preserving infrastructure investment incentives that Ofcom sets out a clear and principled approach, making clear how the NDR adjustment might be calculated in the future.⁸⁶
- 2.123 We have set out our approach to the NDR adjustment and our regulatory objectives in reaching our decision as to how BT will need to price dark fibre during this review period. This will need to be reviewed in the future in light of prevailing circumstances (including whether an NDR adjustment is even needed, for example if our approach to pricing dark fibre changes, or BT's rates increased to a more comparable level to other CPs).
- 2.124 Further, BT argued that Ofcom's case for dark fibre was strongly based on a view that dark fibre was financially neutral for BT. BT claimed that this evidently cannot be the case after the NDR adjustment, since an uplift to the price control is needed.⁸⁷
- 2.125 We do not think the adjustment is financially neutral for BT, which is why we have decided to make an adjustment to the LLCC. However, we note that this is not different to the position with regard to financial neutrality in the BCMR Statement. The original decision to introduce a dark fibre remedy was also not financially neutral for BT and we therefore decided to make an uplift to the LLCC in the BCMR Statement to compensate BT for the impact on its cost recovery. Our approach to the NDR adjustment in this statement is consistent with that.

Impact of our NDR adjustment on the incentives of CP's to invest and dynamic efficiency

- 2.126 Given that CPs' incentives to use dark fibre under this decision will be broadly similar to our original expectations in the BCMR Statement, we consider that the impact on investment in competing infrastructure will also be broadly similar to that originally expected. Accordingly, we do not expect there to be a material change in the balance of benefits and risks from this source.
- 2.127 BT argued that NDRs affect decisions about self-provision of infrastructure by CPs versus buying either dark fibre or active services. *"Decisions at the margin between dark fibre versus own-infrastructure could also be affected by the NDRs that a CP expects to pay. The notion that all these decisions can be assumed to be tax-neutral and efficiently made is simply unsustainable"*.⁸⁸

⁸⁵ For example, in the BCMR Statement we assumed that 5% of new connections for 1Gbit/s and above will not be cannibalised by CPs who we expect to be interested in using dark fibre, but also noted that assuming 25% rather than 5% did not have a significant impact on the LLCC. BCMR Statement §A33.81.

⁸⁶ BT response §3.15, 4.24.

⁸⁷ BT response §3.4.

⁸⁸ BT response §3.11.

- 2.128 When considering investment in network infrastructure, the main consideration for CPs is a comparison of the cost of access to BT's network (which reflects BT's NDR costs) with the cost of own network build (which will reflect the CP's NDR costs if they light the fibre). Where BT's NDR costs are lower than for CPs, this could (all else equal) make access products more attractive than self-build. This would also have been the case for dark fibre under our preferred solution in the BCMR Statement whereby the rules on who pays the NDRs were changed. With our NDR adjustment, the effective cost of using dark fibre also reflects BT's NDR costs, as the price is reduced to reflect CPs' additional NDR costs. For this reason there should not be a significant change to the build/buy decision because of the NDR adjustment for dark fibre. This is because the choice remains between access based products (active or dark fibre) where prices reflect BT's NDR costs, or self-build where it reflects the individual CP's NDR costs.
- 2.129 BT also argued that our active minus approach could pose further risks to investment if we allow prices to fall below relevant cost floors (e.g. Main Links), either now and/or in future market reviews.⁸⁹ The IIG also argued that there is a risk that the NDR adjustment will take the dark fibre price below the level at which CPs are able to invest in new networks and offer dark fibre products in competition with BT.⁹⁰
- 2.130 Within the context of our overall approach to price regulation, we consider that setting charge controls which reflect efficiently incurred costs in aggregate provides incentives for efficient investment overall (both by BT and by rival CPs). This approach was adopted in designing the LLCC, which seeks to bring revenues for charge controlled services in line with BT's forecast costs in aggregate by the end of the review period.⁹¹ Prior to the NDR adjustment, we expected this to also be the case for dark fibre since its price is set with reference to BT's charge-controlled 1Gbit/s services, and so is consistent with the design of the LLCC.⁹²
- 2.131 In assessing whether the NDR adjustment is consistent with this general approach, it is useful to consider its impact on BT's cost recovery. While the NDR adjustment could result in a lower absolute dark fibre price than would have been the case previously, we have included an uplift in the LLCC to reflect the risk this poses to BT's cost recovery. This will have the effect of (all else equal) raising regulated prices so that in aggregate, cost recovery can be maintained. We therefore remain of the view that overall, the constraints on BT's pricing (from the LLCC and the dark fibre pricing approach) continue to provide BT with an opportunity to recover its efficiently incurred costs in aggregate, and so these constraints are set in a consistent way with our general approach. As such, we do not think that the NDR adjustment in and of itself poses a risk to efficient investment incentives.

⁸⁹ BT response §1.9. BT argued this will also lead to a binding constraint on its prices and mean Ethernet basket reductions will need to be focused on EAD 1Gbit/s even more, limiting BT's flexibility to set efficient pricing structures. BT§4.14-5. However, we consider that we have provided BT with sufficient flexibility in determining how it complies with the LLCC such that it is not clear that this concern should be significant in this review period. For example, the sub-baskets on 1Gbit/s EAD and EAD LA services, as well as Main Link, is half the value of the Ethernet basket X. We note that the EAD 1 Gbit/s sub-basket represents less than a third of the Ethernet basket revenues. [3<].

⁹⁰ IIG response §3.1.2.

⁹¹ §5.61 of Vol II of the BCMR Statement.

⁹² We also considered that the pricing rule gives BT the flexibility to price its dark fibre materially above its cost, which further reduced the risks to efficient investment incentives (BCMR §A20.53). As such, we expected that the dark fibre price should be at least as high as BT's costs in this review period, and this was one of the reasons why we did not expect the impact of regulated dark fibre on commercial dark fibre supply to be significant (BCMR Statement §A20.12-3).

- 2.132 We recognise that there may be some variations between price and cost relativities on an individual product basis, and the NDR adjustment may result in individual dark fibre prices tending closer to cost than might have been the case previously. BT and the IIG have argued that this is the case for Main Link and dark fibre respectively.
- 2.133 It is not clear that this raises concerns in relation to efficient investment incentives. We consider that the active minus pricing approach and the flexibility afforded in the LLCC should reduce the risk of prices for individual products being below “cost floors”, to the extent it causes concern for BT. Further, part of BT’s and the IIG’s concerns appear to be that the dark fibre price might fall below fully allocated costs (FAC). FAC includes an allocation of fixed and common costs. Reflecting the general approach to price regulation described above, Ofcom does not take the view that it is essential for BT to set the price for each and every individual service so that it is able to recover its allocated FAC, so long as BT has a fair opportunity to recover these costs overall. This is reflected in the pricing flexibility afforded to BT as part of the LLCC.⁹³ Indeed, our general approach affords BT some flexibility in setting its prices within the overall basket constraint in part to allow it to recover its fixed and common costs in an efficient way.⁹⁴
- 2.134 In addition to these overarching points, we have also considered whether BT’s and the IIG’s concerns about prices for specific dark fibre products falling below cost are well founded. In this regard, we note that neither provided any analysis to support their opinions. Nonetheless, we have conducted some analysis using illustrative cost and price projections to consider if the NDR adjustment risks reducing the price of dark fibre below its cost in this review period. Based on this indicative analysis, using some conservative assumptions, we found that this does not appear to be the case:
- 2.134.1 Projected dark fibre connection and rental prices were above an illustrative dark fibre FAC (and LRIC/DLRIC) throughout the charge control period (this is the case for DFA LA and standard DFA services).
- 2.134.2 While projected Main Link charges were below the illustrative FAC by the end of the charge control period, they were still above the illustrative DLRIC and LRIC.⁹⁵ However, Main Link is only bought in conjunction with other dark fibre rental services so it is not clear that it is appropriate to consider Main Link services in isolation.
- 2.134.3 For an illustrative “average” dark fibre circuit on a three year TCO basis, the projected price was above the illustrative FAC throughout the charge control period for both an average DFA LA circuit and an average DFA circuit (which includes Main Link).⁹⁶

⁹³ Beyond some sub-caps and sub-baskets, BT has the flexibility to reduce some prices by more than the controlling percentage and others by less, as long as the volume-weighted reduction is achieved overall. Therefore on average (and all else equal), we would expect that if BT reduced the margin of an individual product so it was below a measure of cost, there would be other product(s) with higher margins (while cost recovery overall is maintained).

⁹⁴ A level of flexibility has been adopted in previous LLCCs, as well as in other charge controls, due to the recognised benefits of wider baskets.

⁹⁵ For both single and dual fibres.

⁹⁶ By TCO basis we mean the total cost (and revenues) of a circuit over a three year period: reflecting one set of connection and three years of rentals. For an average standard DFA circuit, we included Main Link services with the same average length and to the same proportion of circuits we did when computing the adjustment to the LLCC.

2.135 There is clearly uncertainty around future pricing decisions by BT in this review period, so in making our assessment we projected dark fibre prices based on the current EAD reference prices, the updated LLCC (13.5% in 2017/18 and 12.75% in 2018/19), and the current active differential, adjusted for any changes in our NDR adjustment. We calculated illustrative FAC, LRIC, and DLRIC for dark fibre based on the corresponding costs for the reference EAD services by component (based on BT's Additional Financial Information, with the cost of capital employed element updated to reflect the BCMR WACC of 9.8%) adjusted by the active differential and utilising a breakdown of Components 1, 2 and 3 costs provided by BT for rental services.⁹⁷ We assumed unit costs for EAD reference services change as forecast within the LLCC.⁹⁸

Impact on commercial dark fibre suppliers

2.136 The NDR adjustment will have the effect of reducing the absolute dark fibre price compared to the level expected in the BCMR Statement (although the relaxation of the LLCC will at least offset this to some degree). CityFibre argued this, "*further reduction in the DFA price, as proposed in the NDR consultation, would increase the impact on infrastructure competition*".⁹⁹ However, we do not expect the NDR adjustment to have a significant effect on our analysis presented in the BCMR Statement on the impact on investment incentives of CPs. This is because the NDR adjustment simulates the choices that CPs would have faced if the Government changed the relevant rating rules to make BT responsible for paying NDRs on the sales of dark fibre, as was our preference stated in the BCMR Statement.

2.137 Prior to this additional deduction, we recognised that our dark fibre price could be below commercial dark fibre prices and so could have some impact on this type of supply. However, we did not consider this impact to be very significant in the overall context of the BCMR given the limited volumes affected, the specialist nature of supply, the price still being at least as high as BT's costs, and the fact that we did not expect these operators to be well placed to provide a competitive constraint on BT as bandwidths above 1Gbit/s become more widely used.¹⁰⁰ Our assessment remains as that set out in the BCMR Statement.

Our NDR adjustment does not materially affect any other costs of introducing the dark fibre remedy

2.138 BT argued that if a lower price is now set for dark fibre, Ofcom can no longer assume that the costs of dark fibre are negligible and that there is therefore no need to compare explicitly the costs and benefits of dark fibre.¹⁰¹

⁹⁷ BT response of 19 May 2017 to questions A1-3 of 1st s.135 Notice dated 8 May 2017 for the BCMR Review: Non-domestic rates and the price for regulated Dark Fibre. In estimating costs for DF services we included costs for all components except those for Ethernet Electronics.

⁹⁸ This analysis focussed on single fibre dark fibre services. We have also undertaken some indicative analysis for dual fibre services, but as there are no active reference products for dual fibre dark fibre, developing costs and prices for this requires further assumptions to be made. Nevertheless, our illustrative results suggested similar conclusions for dual fibre dark fibre services as for the single fibre versions. These were based on constructing i) proxy dual fibre active reference prices, by adding twice the single fibre active differential to the current dual fibre dark fibre price, and ii) illustrative costs, by doubling the single fibre dark fibre costs and adjusting for the dual fibre NDR adjustment (described above).

⁹⁹ CityFibre response §3.1.3.

¹⁰⁰ BCMR §§A20.12-3.

¹⁰¹ BT response §1.6.

- 2.139 We considered the costs and benefits of dark fibre previously, and found the costs to be low in this review period. We disagree with BT's suggestion that we "assumed" this. Similarly, we have explicitly considered how this previous assessment of costs and benefits could be affected by our NDR adjustment, as set out in the NDR Consultation and this statement.

Our conclusion on implications of the NDR adjustment for the benefits and risks of the dark fibre remedy

- 2.140 In our original assessment of the benefits and risks of dark fibre, we compared the benefits that dark fibre would promote in terms of productive efficiency, innovation and effective competition with the risks that a rebalancing of prices could reduce allocative efficiency or have an impact on the efficient investment incentives of BT and other infrastructure providers.
- 2.141 We have carefully considered all of the consultation responses and re-examined the potential for these benefits and risks in light of the stakeholders' submissions and the NDR adjustment. In light of the above, we consider that the scope for innovation and productive efficiency benefits of dark fibre, and also the impact on efficient investment incentives, will be broadly similar to that originally expected in the BCMR Statement.¹⁰² Therefore we do not consider that implementing the NDR adjustment would lead to a need for a re-appraisal of the dark fibre remedy overall.
- 2.142 Given that we do not think that there is any material impact of the NDR adjustment on the case for dark fibre, we do not consider it necessary to change other aspects of our remedies as a result of the NDR adjustment, such as our analysis of the need for geographical variations in the application of the remedy. We also do not consider that there is any knock-on effect on the consideration of the case for duct access.

Practical implementation

- 2.143 BT raised a number of concerns about the practicality of implementing the adjustments to the dark fibre pricing structure. BT cited the additional software functionality that would be required for process automation. This, it noted can be developed by July 2018 at modest additional cost, and that if the requirement to launch dark fibre on 1 October 2017 is to be maintained, then manual work arounds would be required in the interim.
- 2.144 We consider that the costs of implementation estimated by Openreach, including those of manual workarounds in the interim, to be a reasonable and proportionate requirement, and that the requirement to launch dark fibre on 1 October 2017, including the pricing changes, should be maintained.
- 2.145 BT also noted that either Openreach or Ofcom should be able to audit a sample of CPs to verify the basis on which they pay NDRs.¹⁰³

¹⁰² As explained at paragraph 2.92, we have decided to adjust the LLCC upwards slightly in order to ensure that BT can recover its costs. These price increases will be paid for by users of active leased lines. We note that the CMA considered that the net effect on the LLCC of using TalkTalk's approach to NDRs was not a reason in itself why that approach ought not to be adopted and that the scale of the effect was small (see paragraph 4.198 of the Determination).

¹⁰³ BT response §6.13.

- 2.146 We consider that it would be appropriate for Openreach to require CPs to provide proof of their eligibility to pay the reduced price, such as via self-certification.

Stakeholders' comments on SMP conditions

- 2.147 BT noted that it is not possible to comply at the same time with SMP condition 4.1 (the requirement to provide network access on an EOI basis subject to exclusions set out in SMP condition 4.2) as currently drafted and the amended SMP condition 10C1.A, as set out in the NDR Consultation.¹⁰⁴ It suggested amending SMP condition 4.2 to disapply the EOI obligation from dark fibre to the extent necessary for Openreach to comply with condition 10C1.A.
- 2.148 We consider that the EOI obligation contained in SMP condition 4.1 should not apply to the extent necessary to enable BT to comply with the pricing obligation in respect of NDRs in SMP conditions 10C.1(ii). We have therefore decided to modify SMP condition 4.2 to provide for that.
- 2.149 BT also considered that there was a drafting error in the proposed SMP condition 10C.2(ii)(b), concerning the adjustment to the price of dark fibre where more than one fibre is provided in a specific circuit.¹⁰⁵ In particular, BT noted that this step leads to the deduction for the NDR being the amount of a dual fibre less the single fibre NDR which is not what Ofcom intended.
- 2.150 We have considered the proposed requirement in SMP condition 10C.2(ii)(b) in light of BT's comments and agree with BT that the drafting of that condition does not reflect what we tried to achieve.
- 2.151 BT is correct that the adjustment for a multiple fibre dark fibre service should be the deduction of the NDRs for multiple fibre configuration under the VOA's rating table. However, it should be noted that the calculation for multiple fibre configurations in SMP condition 10C.2 is based on BT being required to:
- i) firstly multiply the charge for one optical fibre by the relevant number of fibres under SMP condition 10C.2(i); and
 - ii) secondly adjust that amount to reflect (among other things) the different NDRs payable for single and multiple fibre configurations.
- 2.152 The effect of SMP condition 10C.2(i) will therefore be the deduction of the single fibre NDRs multiplied by the relevant number of fibres.
- 2.153 To achieve the deduction of the NDRs for a multiple fibre configuration under the VOA's rating table, BT should add to the amount calculated under SMP condition 10C.2(i) the difference between:
- i) the single fibre NDR multiplied by the relevant number of fibres; and
 - ii) the NDRs for the multiple fibre configuration under the VOA's rating table in SMP condition 10C.2(ii)(b).
- 2.154 For example, for a dual fibre configuration the correct approach will be to add £71.85 (calculated as the difference between two times £95.80 being the NDR payable for a

¹⁰⁴ BT response §§2.8-2.9.

¹⁰⁵ BT response §6.20-6.23.

single fibre less £119.75 being the NDR payable under the VOA's rating table for dual fibre) to £191.60 which has been deducted under SMP condition 10C.2(i) for two times the single fibre NDRs. This will result in the overall deduction of £119.75 in respect of the dual fibre NDRs under SMP condition 10C.2. We have amended the proposed SMP condition 10C.2(ii)(b) to reflect that.

Revisions to SMP conditions and guidance

- 2.155 Taking into account the consultation responses and the issues discussed above, we consider that the modifications to the SMP conditions, as explained in this statement and set out below, comply with the requirements of sections 47 and 88 of the CA03.
- 2.156 With regard to the tests under section 88 of the CA03, and taking into account Ofcom's wider assessment of the costs and benefits of the dark fibre remedy, we consider that these modifications to SMP conditions 10C:
- 2.156.1 are appropriate for promoting sustainable competition because they will ensure that differences in NDR exposure will have a limited impact on CPs' decisions as to whether to take dark fibre or not;
 - 2.156.2 are appropriate for promoting efficiency – we consider that our decision to base the adjustment on the NDRs payable per km by a CP with a fibre network of 1,000km or more will promote efficiency as our assumption is designed to reflect the position of an efficient scale operator;
 - 2.156.3 confer the greatest possible benefits on the end-users of public communications services - our modification has been designed so that the dark fibre remedy can be implemented as planned on 1 October 2017 with the benefits of the dark fibre remedy being available for the end-users from that date.
- 2.157 We also consider that the consequential modification of SMP condition 10A meets the section 88 tests. Whilst we recognise that the modified condition will lead to a small increase in overall price levels in the last year of the charge control relative to the level which would have occurred without this adjustment, it will continue to ensure that BT cannot price excessively and aim to bring BT's charges for the active products in line with BT's cost of provision by the end of the charge control period.
- 2.158 In considering the modifications to SMP conditions 10C and 10A, we have also taken into account the need to ensure that BT has the incentives to invest and innovate where it is efficient to do so. In particular, we have sought to ensure that BT continues to have the opportunity to recover its efficiently incurred costs.
- 2.159 We are satisfied that the modifications to SMP conditions 10C, 10A and 4 meet the required tests under section 47 of the CA03:
- 2.159.1 objective justification – we consider that these modifications are objectively justifiable because they seek to address differences in exposure to NDRs whilst at the same time ensuring that BT continues to have the opportunity to recover its efficiently incurred costs. The modification of SMP condition 4 which requires BT to provide network access including dark fibre on an EOI basis is objectively justifiable because it seeks to ensure that BT is able to comply with the pricing rule contained in the modified SMP condition 10C which we consider is appropriate;

- 2.159.2 undue discrimination – we recognise that this modification will mean that the basis of calculating the Second Component will differ for CPs whose NDRs are assessed using the R&E method and those whose NDRs are assessed using the DRC method. However, as set out above, we consider that the current approach to pricing dark fibre adequately reflects the different NDR costs for CPs whose NDRs are assessed using the R&E method. The aim of this statement is to offset the higher NDRs paid by those CPs whose NDRs are assessed on the DRC method with a lower dark fibre price to reflect the NDR difference. This modification is not therefore unduly discriminatory as those CPs that face higher NDRs will obtain a reduction in the dark fibre price, but they will also have to pay those higher NDRs. Whilst SMP condition 4 as modified will continue to apply only to BT, this is not unduly discriminatory as no other operator was found to hold a position of SMP in the relevant markets;
- 2.159.3 proportionality – we consider that each modification does not impose requirements that go beyond what is required to achieve the aim of appropriately addressing distortions arising due to NDRs, ensuring that BT continues to have the opportunity to recover its efficiently incurred costs and that it is able to comply with the SMP conditions as modified in this statement; as explained above, we have taken a simple and practicable approach to designing the NDR adjustment;
- 2.159.4 transparency – we consider that each modification is transparent in relation to what it is intended to achieve; the aims and effect of each modification are set out in this statement. We are also publishing the text of the modifications and have assessed their likely impact.
- 2.160 In making the changes set out in this statement, we have also considered and acted in accordance with our general duties set out in section 3 of the CA03, Article 8 of the Framework Directive,¹⁰⁶ and the six Community requirements in section 4 of the CA03.
- 2.161 In particular, we consider that our decision serves to further the interests of citizens in relation to communications matters and to further the interests of consumers by promoting competition.
- 2.162 As the Tribunal has made an order directing Ofcom to modify the relevant SMP conditions to take into account the findings in the CMA's Final Determination, we have not included as part of this statement an assessment of whether there has been a material change in the relevant market pursuant to section 86 of the CA03. In any event, Ofcom is not aware of any material change to the assessment of the relevant markets on which the relevant SMP conditions are based.

Revisions to SMP conditions 4.2, 10A.10 and 10C

- 2.163 SMP conditions 4.2, 10A.10 and 10C, set out at Annex 35 of the BCMR Statement will be replaced with the SMP conditions set out at Annex 1 to this document. These changes will take effect immediately, from the date of this statement.

¹⁰⁶ Directive of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (2002/21/EC).

Revisions to accompanying guidance on the calculation of the active differential for SMP condition 10C

- 2.164 The guidance set out at Annex 24 of the BCMR Statement will be replaced with the guidance set out at Annex 2 to this document. These changes will take effect immediately, from the date of this statement.

Impact assessment

- 2.165 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the CA03, which means that generally we have to carry out impact assessments where our decisions would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website:
http://stakeholders.ofcom.org.uk/binaries/consultations/ia_guidelines/summary/condoc.pdf
- 2.166 We set out our impact assessment in the NDR Consultation which we published on 11 April 2017. In this statement we take into account relevant responses and set out our conclusions on the impact of the changes.

Equality impact assessment

- 2.167 Ofcom is separately required by statute to assess the potential impact of all our functions, policies, projects and practices on race, disability and gender equality. Equality Impact Assessments (EIAs) also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers regardless of their background or identity.
- 2.168 We do not consider that the decisions set out in this statement are likely to have any particular impact on race, disability and gender equality. Specifically, we do not envisage the impact of any outcome to be to the detriment of any group of society.
- 2.169 We have not carried out separate EIAs in relation to race or gender equality or equality schemes under the Northern Ireland and Disability Equality Schemes. This is because we anticipate that our regulatory intervention will not have a differential impact in relation to people of different gender or ethnicity, on consumers in Northern Ireland or on disabled consumers compared to consumers in general. Similarly, we do not consider that our decisions in this statement will have a particular impact on consumers in different parts of the UK or between consumers on low incomes. Again, we believe that our intervention will not have a particular effect on one group of consumers over another.

Annex 1

The modifications of SMP conditions

NOTIFICATION UNDER SECTION 48(1) OF THE COMMUNICATIONS ACT 2003

Background

1. On 28 April 2016, the Office of Communications (“**Ofcom**”) concluded, in a statement entitled ‘*Business Connectivity Market Review – Review of competition in the provision of leased lines*’ (“**2016 BCMR Statement**”), its review of the business connectivity markets.
2. At Annex 35 to the 2016 BCMR Statement, Ofcom published a notification (“**2016 BCMR Notification**”) identifying markets, making market power determinations and setting SMP conditions in relation to, among others, the following markets:
 - a. wholesale market for contemporary interface symmetric broadband origination in the Rest of the United Kingdom excluding the Hull Area; and
 - b. wholesale market for contemporary interface symmetric broadband origination in the London Periphery.
3. SMP conditions contained in the 2016 BCMR Notification included the following obligations on BT, as a provider with Significant Market Power in the markets referred to in paragraph 2 above:
 - a. the obligations to provide Dark Fibre Access contained in SMP condition 2.1(c) and to price Dark Fibre Access in accordance with the basis of charges obligation contained in SMP condition 10C;
 - b. the obligation to provide network access (including the Ethernet Services) contained in SMP condition 2.1(a) and a charge control on the Ethernet Services falling within the Ethernet Services Basket specified in SMP condition 10A;
 - c. the obligation to provide network access including Dark Fibre Access on an Equivalence of Inputs basis contained in SMP condition 4.
4. On 28 June 2016, TalkTalk Telecom Group Plc (“**TalkTalk**”) brought an appeal against the 2016 BCMR Statement to the Competition Appeal Tribunal (“**Tribunal**”) under section 193 of the Communications Act 2003 (“**Act**”). TalkTalk’s appeal concerned only one aspect of the design of Dark Fibre Access; in the event that Ofcom’s recommendation to the Government (described in paragraph A23.111 of the 2016 BCMR Statement) was not adopted, that the non-domestic rate (“**NDR**”) costs to be deducted in deriving the price for Dark Fibre Access should not be based on an attribution of BT’s NDR costs to the fibre (but rather some other appropriate measure should be used).
5. On 17 November 2016, the Tribunal referred the matter arising out of TalkTalk’s appeal to the Competition Markets Authority (“**CMA**”) for determination as a specified price

control matter under section 193(1) of the Act and Rule 16 of the Competition Appeal Tribunal Rules 2015.

6. On 6 April 2017, the CMA notified the Tribunal and the parties of its final determination of the specified price control matter in TalkTalk's appeal. The CMA determined that Ofcom had been wrong to decide that the NDR costs to be deducted in deriving the price for Dark Fibre Access should be based on an attribution of BT's NDR costs to the fibre (rather than some other appropriate measure). The Tribunal has made an order directing Ofcom to re-consider the specified price control matter in TalkTalk's appeal, taking into account the CMA's findings in the Final Determination.
7. Ofcom therefore published on 11 April 2017 a consultation document entitled "Non-domestic rates and the price for regulated Dark Fibre" ("**2017 Consultation**") which included in Annex 1 a notification under section 48(2) of the Act setting out Ofcom's proposals to modify the SMP conditions ("**2017 Notification**").
8. Copies of the 2017 Notification and Consultation were sent to the Secretary of State in accordance with section 49C(1)(a) of the Act. Ofcom invited representations on its proposals by 22 May 2017.
9. Ofcom received several responses to the 2017 Consultation and has considered every such representation duly made. The Secretary of State has not notified Ofcom of any international obligation on the United Kingdom for this purpose.

Decision to modify SMP conditions

10. In accordance with sections 48(1) and 48A(7) of the Act, and in relation to the markets referred to in paragraph 2 above in each of which Ofcom determined BT to be a person having a Significant Market Power, Ofcom has decided to modify SMP conditions as follows:
 - a. SMP condition 10C set out at Annex 35 to the 2016 BCMR Statement is modified as set out in Schedule 1 to this Notification;
 - b. SMP condition 10A.10 set out at Annex 35 to the 2016 BCMR Statement is modified as set out in Schedule 2 to this Notification;
 - c. SMP condition 4.2 set out at Annex 35 to the 2016 BCMR Statement is modified as set out in Schedule 3 to this Notification.
11. The effect of, and Ofcom's reasons for making, the modifications to the SMP conditions set out in Schedules to this Notification are contained in the explanatory statement accompanying this Notification.

Ofcom's duties and legal tests

12. In making the modifications set out in this Notification, Ofcom has considered and acted in accordance with its general duties set out in section 3, the six Community requirements set out in section 4 of the Act, and the tests under sections 45 to 47 of the Act. Moreover, Ofcom has considered the modifications of SMP conditions 10C and 10A in the light of the tests under sections 87 and 88 of the Act.
13. A copy of this Notification has been sent to the Secretary of State and the European Commission in accordance with sections 48C(1) and (2) of the Act.

Interpretation

14. Except as otherwise defined, words or expressions used shall have the same meaning as they have been ascribed in the 2016 BCMR Notification set out in Annex 35 to the 2016 BCMR Statement and otherwise any word or expression shall have the same meaning as it has in the Act.
15. For the purposes of interpreting this Notification:
 - a. Headings and titles shall be disregarded; and
 - b. The Interpretation Act 1978 (c. 30) shall apply as if this Notification were an Act of Parliament.
16. Schedules 1, 2 and 3 to this Notification shall form part of this Notification.

A handwritten signature in blue ink, appearing to read 'D. Clarkson'.

David Clarkson, Ofcom

A person duly authorised in accordance with paragraph 18 of the Schedule to the Office of Communications Act 2002

30 June 2017

Schedule 1

The modifications of SMP condition 10C

10C.1 The Dominant Provider must secure, and must be able to demonstrate to the satisfaction of Ofcom, that at all times during the Relevant Year each and every charge offered or payable for Dark Fibre Access is reasonably derived from the charge for the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service (or such other services as Ofcom may direct from time to time), adjusted to:

- (i) subtract the long run incremental costs that are avoided by the Dominant Provider when providing that Dark Fibre Access instead of the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, such costs to be averaged over the Prior Relevant Financial Year;
- (ii) if appropriate make a subtraction in respect of non-domestic (business) rates in accordance with the requirements set out in Condition **10C.1A**; and
- (iii) reflect the long run incremental costs of any objectively justifiable differences (except any differences in circuit length) between that Dark Fibre Access and the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service, such costs to be averaged over the Prior Relevant Financial Year.

10C.1A In relation to the subtraction for non-domestic (business) rates referred to in Condition **10C.1(ii)**, the Dominant Provider must comply with the following requirements:

- (i) where Dark Fibre Access is provided to a Third Party whose non-domestic (business) rates are assessed on the basis of the Direct Rental Comparison Method, the Dominant Provider must make one of the following subtractions as applicable:
 - a. where a service is provided corresponding to a 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, an amount calculated by multiplying the non-domestic (business) rates payable per kilometre per annum for one optical fibre as set out in the VOA Table by: (i) the Rate in the Pound, and (ii) a factor of 1.9;
 - b. where a service is provided corresponding to a Single Fibre Main Link Service, an amount per metre calculated by multiplying the amount of the non-domestic (business) rates payable per kilometre per annum for one optical fibre as set out in the VOA Table by the Rate in the Pound, and dividing the resultant amount by 1,000;
 - c. where a service is provided corresponding to a Resilience Main Link Service, an amount per metre calculated by multiplying the amount of the non-domestic (business) rates payable per kilometre per annum for one optical fibre as set out in the VOA Table by the Rate in the Pound, and dividing the resultant amount by 1,000;
- (ii) where Dark Fibre Access is provided to a Third Party whose non-domestic (business) rates are not assessed on the basis of the Direct Rental Comparison Method, the Dominant Provider must subtract the average of the Cumulo costs

attributed to the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service in each Prior Relevant Financial Year;

10C.2 Where Dark Fibre Access is a service providing network access to more than one optical fibre, in addition to complying with the requirements set out in Condition **10C.1 (i) to (iii)** and **10C.1A**, the Dominant Provider must secure, and must be able to demonstrate to the satisfaction of Ofcom, that the charge does not exceed an amount calculated by:

- (i) multiplying the charge for equivalent network access to one optical fibre (calculated in accordance with Condition **10C.1**) by the number of optical fibres; and
- (ii) adjusting that amount (calculated in accordance with Condition **10C.2(i)**) to:
 - a. reflect any incremental cost savings of providing network access to more than one optical fibres at the same time; and
 - b. where Dark Fibre Access is provided to a Third Party whose non-domestic (business) rates are assessed on the basis of the Direct Rental Comparison Method, add the difference between (i) an amount calculated by multiplying the amount calculated under Condition **10C.1A(i)(a)** by the number of optical fibres and (ii) an amount calculated by multiplying the non-domestic (business) rates payable per kilometre per annum for the relevant number of fibres as set out in the VOA Table by the Rate in the Pound and a factor of 1.9.

This Condition applies to determining the charge for all Dark Fibre Access when more than one optical fibre is provided with the exception of determining the charge for Dark Fibre Access reasonably derived from the charge for the corresponding Main Link Service, in which case Conditions **10C.1** and **10C.1A** apply irrespective of the number of optical fibres provided; except that where Dark Fibre Access is provided to a Third Party whose non-domestic (business) rates are assessed on the basis of the Direct Rental Comparison Method, the subtraction under **10C.1A(i)(b)** shall instead be calculated by multiplying the amount of the non-domestic (business) rates payable per kilometre per annum for the relevant number of fibres in the circuit being purchased, as set out in the VOA Table by the Rate in the Pound, and dividing the resultant amount by 1,000.

10C.3 The Dominant Provider must secure, and must be able to demonstrate to the satisfaction of Ofcom, that each and every charge offered or payable for associated facilities which are reasonably necessary for the use of Dark Fibre Access is not greater than the amount that the Dominant Provider charges for the corresponding associated facilities reasonably necessary for the use of the 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, adjusted to:

- (i) subtract any long run incremental costs that are avoided by the Dominant Provider when providing that associated facility instead of the corresponding associated facility for the use of 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, such costs to be averaged over the Prior Relevant Financial Year;
- (ii) reflect the long run incremental costs of any objectively justifiable differences (except any differences in circuit length) between that associated facility reasonably necessary for the use of Dark Fibre Access and the corresponding

associated facility reasonably necessary for the use of 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, such costs to be averaged over the Prior Relevant Financial Year.

Associated facilities include the Accommodation Services, the Interconnection Services, the ECC Services, the Time Related Charges and the Cablelink Services.

10C.4 For the purposes of complying with Conditions **10C.1 to 10C.3** including **10C.1A(ii)**, the long run incremental costs and the average of the Cumulo costs that are avoided by the Dominant Provider when providing that Dark Fibre Access instead of the appropriate corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service shall be calculated by reference to the Regulatory Financial Statements, the Accounting Methodology Documents and the latest available Additional Financial Information, such calculation to be performed by the Dominant Provider as soon as reasonably practicable after the date for the provision of that Additional Financial Information under Condition **11.8** and any subsequent revision of that Additional Financial Information.

10C.4A For the purposes of complying with Condition **10C.1A(i)** and **10C.2**, in the event that there is a revision in either the VOA Table and/or the Rate in the Pound, the Dominant Provider shall update each and every calculation required under these Conditions as soon as reasonably practicable after publication of the relevant revision.

10C.5 The obligations set out in this Condition **10C** are subject to any applicable notification requirements under Condition **6.4**.

General provisions and interpretation

10C.6 Where:

- (i) the Dominant Provider makes a material change (other than to a charge) to any Dark Fibre Access which is subject to this Condition **10C**;
- (ii) the Dominant Provider makes a material change (other than to a charge) to any 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service which is subject to this Condition **10C**; or
- (iii) the Dominant Provider makes a change to the date on which its Financial Year ends;

Condition **10C** shall have effect subject to such reasonable adjustment to take account of the change as Ofcom may direct to be appropriate in the circumstances.

For the purposes of this Condition **10C.6**, a material change to any Dark Fibre Access or to any 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service (each of which is subject to this Condition **10C**) includes (but is not limited to) the introduction of a new product or service (as applicable) wholly or substantially in substitution for that existing product or service (as applicable) which is subject to this Condition **10C** or a change to the billing practice for any product or service which is subject to this Condition **10C**.

10C.7 The Dominant Provider must record, maintain and supply to Ofcom in an electronic format (including in any such presentational form or arrangement (including as to the level of disaggregation) as Ofcom may direct from time to time), no later than three months after the end of each Relevant Year, the data necessary for Ofcom to monitor compliance of the Dominant Provider with Conditions **10C.1 to 10C.3** including **10C.1A**

in respect of Dark Fibre Access. This data must include for each and every Dark Fibre Access:

- (i) the published charge for that Dark Fibre Access and the published charge for the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service;
- (ii) unit average Cumulo costs attributed to the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service;
- (iii) unit long run incremental costs that have been avoided by the Dominant Provider when providing that Dark Fibre Access instead of the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service;
- (iv) unit long run incremental costs of any objectively justifiable differences between that Dark Fibre Access and the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service;
- (v) unit incremental cost savings of providing network access to more than one optical fibre at the same time;
- (vi) all relevant data and methodology used by the Dominant Provider for deriving the charge for that Dark Fibre Access; and
- (vii) such data as Ofcom may direct from time to time.

10C.8 Ofcom may direct that Conditions **10C.1 to 10C.7** shall not apply to the extent specified in any such direction.

10C.9 The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition **10C**.

10C.10 In this Condition **10C**:

“1Gbit/s EAD Service” means each and every service with bandwidth of 1Gbit/s described as “Ethernet Access Direct” falling within the Ethernet Services Basket;

“1Gbit/s EAD LA Service” means each and every service with bandwidth of 1Gbit/s described as “Ethernet Access Direct Local Access” falling within the Ethernet Services Basket;

“Accommodation Services” means each and every service which is subject to Condition 10E and which is reasonably necessary for the use of Dark Fibre Access;

“Accounting Methodology Documents” has the same meaning as in Condition 11;

“Cablelink Service” means each and every service which is reasonably necessary for the use of Dark Fibre Access and is described as “Cablelink” in the Ethernet Interconnection Sub-basket;

“Cumulo costs” means the non-domestic (business) rates that BT pays on its Cumulo Rateable Assets within the United Kingdom;

“Cumulo Rateable Assets” means the assets that make up BT’s Cumulo non domestic rating assessments in the United Kingdom as defined for England in The Central Rating List (England) Regulations 2005 (SI 2005/551), as amended by The Central Rating List

(Amendment) (England) Regulations 2006 (SI 2006/495) and The Central Rating List (Amendment) (England) Regulations 2008 (SI 2008/429), and the analogous legislation that define these assets in Wales, Scotland and Northern Ireland;

“Direct Rental Comparison Method” means a method of assessing rateable values for non-domestic (business) rates on individual sections of route within telecommunication fibre networks with reference to a scale that varies with the total route length of the network and the number of lit fibres on the route;¹⁰⁷

“ECC Services” means each and every service which is subject to Condition **10F** and which is reasonably necessary for the use of Dark Fibre Access;

“Financial Year” has the same meaning as in Condition **11**;

“First Relevant Year” means a period beginning on 1 May 2016 and ending on 31 March 2017;

“Main Link Service” means each and every service described as “Main Link” falling within the Ethernet Services Basket;

“Prior Relevant Financial Year” means the Financial Year to which the latest available Additional Financial Information relates; “Regulatory Financial Statement” has the same meaning as in Condition **11**;

“Rate in the Pound” means the non-domestic rating multiplier in pence for the Financial Year divided by 100 as notified by the Department for Communities and Local Government to Chief Finance Officers of English Billing Authorities.¹⁰⁸;

“Relevant Year” means each of the following three periods:

- (i) the First Relevant Year;
- (ii) the Second Relevant Year; and
- (iii) the Third Relevant Year;

“Resilience Main Link Service” means each and every service described as “Resilience Main Link” falling within the Ethernet Services Basket;

“Second Relevant Year” means a period beginning on 1 April 2017 and ending on 31 March 2018;

“Single Fibre Main Link Service” means each and every service described as “Main Link” consisting of one optical fibre and falling within the Ethernet Services Basket;

“Third Relevant Year” means a period beginning on 1 April 2018 and ending on 31 March 2019;

¹⁰⁷ The VOA currently publishes such a scale within Annex 1 of “Section 871: Practice note: 2017: Telecommunications fibre optic networks” which is available at:
<http://app.voa.gov.uk/corporate/publications/Manuals/RatingManual/RatingManualVolume5/sect871/PN%202017%20Appendix%201%20Fibre%20Rent%20Tone.xls>

¹⁰⁸ For 2017/18 this notification is available at
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/598276/BRIL__3-2017__Multiplier.pdf. For the avoidance of doubt the relevant multiplier is not the small business non-domestic rating multiplier

“Time Related Charges” means each and every service which is subject to Condition 10G and which is reasonably necessary for the use of Dark Fibre Access; and

“VOA Table” means the content of the row within the spreadsheet entitled “Fibre Rent Scale (Excluding London MAN)” which relates to “Total Network Route Km” over 1,000.¹⁰⁹

¹⁰⁹ The current version of the Fibre Rent Scale (Excluding London MAN) is available at <http://app.voa.gov.uk/corporate/publications/Manuals/RatingManual/RatingManualVolume5/sheet871/PN%202017%20Appendix%201%20Fibre%20Rent%20Tone.xls>

Schedule 2

The modifications of SMP condition 10A.10

10A.10 In respect of each Basket and subject to the provisions set out in Conditions **10A.11** to **10A.13**, the Controlling Percentage in relation to any Relevant Year shall be calculated by employing the following formula:

$$CP_t = CPI_t + X$$

Where:

CP_t is the Controlling Percentage for the Relevant Year, t ;

CPI_t is CPI for the Relevant Year, t ;

X is equal to: (i) minus 13.50 percentage points for the Ethernet Services Basket and the Ethernet Interconnection Sub-basket in the First Relevant Year and the Second Relevant Year;

(ii) minus 12.75 percentage points for the Ethernet Services Basket and the Ethernet Interconnection Sub-basket in the Third Relevant Year;

(iii) minus 6.75 percentage points for the Ethernet 1Gbit/s EAD and EAD LA Sub-basket, and for the Ethernet Main Link Sub-basket in the First Relevant Year and the Second Relevant Year;

(iv) minus 6.25 percentage points for the Ethernet 1Gbit/s EAD and EAD LA Sub-basket, and for the Ethernet Main Link Sub-basket in the Third Relevant Year.

Schedule 3

The modifications of SMP condition 4.2

- 4.2** The obligation in Condition **4.1** to provide network access on an Equivalence of Inputs basis shall not apply to:
- (a) Accommodation Services other than in relation to the allocation of space (to be allocated on a first-come-first-serve basis) and power in operational buildings belonging to the Dominant Provider;
 - (b) a Backhaul Segment connecting:
 - (i) the operational building of the Dominant Provider which is a Core Node and another Core Node;
 - (ii) the operational building of the Dominant Provider which is a Core Node and a Competitive Core Node; or
 - (iii) two operational buildings of the Dominant Provider within a Trunk Aggregation Node;
 - (c) WDM Services with a straight line distance of more than 70km;
 - (d) network access which the Dominant Provider was providing but was not required to provide on an Equivalence of Inputs basis as at 30 April 2016;
 - (e) such provision of network access as Ofcom may from time to time otherwise consent in writing; or
 - (f) Dark Fibre Access provided under Condition **2.1(c)** to the extent that the disapplication of the obligation in Condition **4.1** is required in order to enable the Dominant Provider to comply with the requirements in Conditions **10C.1(ii)** in relation to setting charges offered or payable for Dark Fibre Access.

Annex 2

SMP conditions 10C, 10A and 4 with changes shown

The modifications of SMP condition 10C

10C.1 The Dominant Provider must secure, and must be able to demonstrate to the satisfaction of Ofcom, that at all times during the Relevant Year each and every charge offered or payable for Dark Fibre Access is reasonably derived from the charge for the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service (or such other services as Ofcom may direct from time to time), adjusted to:

- (i) subtract the long run incremental costs that are avoided by the Dominant Provider when providing that Dark Fibre Access instead of the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, such costs to be averaged over the Prior Relevant Financial Year;
- (ii) if appropriate make a subtraction in respect of non-domestic (business) rates in accordance with the requirements set out in Condition 10C.1A ~~subtract the average of the Cumulo costs attributed to the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service in each Prior Relevant Financial Year;~~ and
- (iii) reflect the long run incremental costs of any objectively justifiable differences (except any differences in circuit length) between that Dark Fibre Access and the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service, such costs to be averaged over the Prior Relevant Financial Year.

10C.1A In relation to the subtraction for non-domestic (business) rates referred to in Condition 10C.1(ii), the Dominant Provider must comply with the following requirements:

- (i) where Dark Fibre Access is provided to a Third Party whose non-domestic (business) rates are assessed on the basis of the Direct Rental Comparison Method, the Dominant Provider must make one of the following subtractions as applicable:
 - a. where a service is provided corresponding to a 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, an amount calculated by multiplying the non-domestic (business) rates payable per kilometre per annum for one optical fibre as set out in the VOA Table by: (i) the Rate in the Pound, and (ii) a factor of 1.9;
 - b. where a service is provided corresponding to a Single Fibre Main Link Service, an amount per metre calculated by multiplying the amount of the non-domestic (business) rates payable per kilometre per annum for one optical fibre as set out in the VOA Table by the Rate in the Pound, and dividing the resultant amount by 1,000;

c. where a service is provided corresponding to a Resilience Main Link Service, an amount per metre calculated by multiplying the amount of the non-domestic (business) rates payable per kilometre per annum for one optical fibre as set out in the VOA Table by the Rate in the Pound, and dividing the resultant amount by 1,000;

(ii) where Dark Fibre Access is provided to a Third Party whose non-domestic (business) rates are not assessed on the basis of the Direct Rental Comparison Method, the Dominant Provider must subtract the average of the Cumulo costs attributed to the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service in each Prior Relevant Financial Year;

10C.2 Where Dark Fibre Access is a service providing network access to more than one optical fibre, in addition to complying with the requirements set out in Condition **10C.1 (i) to (iii) and 10C.1A**, the Dominant Provider must secure, and must be able to demonstrate to the satisfaction of Ofcom, that the charge does not exceed an amount calculated by:

(i) multiplying the charge for equivalent network access to one optical fibre (calculated in accordance with Condition **10C.1**) by the number of optical fibres; and

(ii) adjusting that amount (calculated in accordance with Condition **10C.2(i)**) to:

a. reflect any incremental cost savings of providing network access to more than one optical fibres at the same time; and

b. where Dark Fibre Access is provided to a Third Party whose non-domestic (business) rates are assessed on the basis of the Direct Rental Comparison Method, ~~subtract~~ add the difference between (i) an amount calculated by multiplying the amount calculated under Condition **10C.1A(i)(a)** by the number of optical fibres and (ii) an amount calculated by multiplying the non-domestic (business) rates payable per kilometre per annum for the relevant number of fibres as set out in the VOA Table by the Rate in the Pound and a factor of 1.9 and (ii) the amount calculated under Condition **10C.1A(i)(a)**.

This Condition applies to determining the charge for all Dark Fibre Access when more than one optical fibre is provided with the exception of determining the charge for Dark Fibre Access reasonably derived from the charge for the corresponding Main Link Service, in which case ~~only~~ Conditions **10C.1** and **10C.1A** apply ~~ies~~ irrespective of the number of optical fibres provided; except that where Dark Fibre Access is provided to a Third Party whose non-domestic (business) rates are assessed on the basis of the Direct Rental Comparison Method, the subtraction under **10C.1A(i)(b)** shall instead be calculated by multiplying the amount of the non-domestic (business) rates payable per kilometre per annum for the relevant number of fibres in the circuit being purchased, as set out in the VOA Table by the Rate in the Pound, and dividing the resultant amount by 1,000.

10C.3 The Dominant Provider must secure, and must be able to demonstrate to the satisfaction of Ofcom, that each and every charge offered or payable for associated facilities which are reasonably necessary for the use of Dark Fibre Access is not greater than the amount that the Dominant Provider charges for the corresponding

associated facilities reasonably necessary for the use of the 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, adjusted to:

- (i) subtract any long run incremental costs that are avoided by the Dominant Provider when providing that associated facility instead of the corresponding associated facility for the use of 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, such costs to be averaged over the Prior Relevant Financial Year;
- (ii) reflect the long run incremental costs of any objectively justifiable differences (except any differences in circuit length) between that associated facility reasonably necessary for the use of Dark Fibre Access and the corresponding associated facility reasonably necessary for the use of 1Gbit/s EAD Service or 1Gbit/s EAD LA Service, such costs to be averaged over the Prior Relevant Financial Year.

Associated facilities include the Accommodation Services, the Interconnection Services, the ECC Services, the Time Related Charges and the Cablelink Services.

10C.4 For the purposes of complying with Conditions **10C.1 to 10C.3** including 10C.1A(ii), the long run incremental costs and the average of the Cumulo costs that are avoided by the Dominant Provider when providing that Dark Fibre Access instead of the appropriate corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service shall be calculated by reference to the Regulatory Financial Statements, the Accounting Methodology Documents and the latest available Additional Financial Information, such calculation to be performed by the Dominant Provider as soon as reasonably practicable after the date for the provision of that Additional Financial Information under Condition **11.8** and any subsequent revision of that Additional Financial Information.

10C.4A For the purposes of complying with Condition **10C.1A(i)** and **10C.2**, in the event that there is a revision in either the VOA Table and/or the Rate in the Pound, the Dominant Provider shall update each and every calculation required under these Conditions as soon as reasonably practicable after publication of the relevant revision.

10C.5 The obligations set out in this Condition **10C** are subject to any applicable notification requirements under Condition **6.4**.

General provisions and interpretation

10C.6 Where:

- (i) the Dominant Provider makes a material change (other than to a charge) to any Dark Fibre Access which is subject to this Condition **10C**;
- (ii) the Dominant Provider makes a material change (other than to a charge) to any 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service which is subject to this Condition **10C**; or
- (iii) the Dominant Provider makes a change to the date on which its Financial Year ends;

Condition **10C** shall have effect subject to such reasonable adjustment to take account of the change as Ofcom may direct to be appropriate in the circumstances.

For the purposes of this Condition **10C.6**, a material change to any Dark Fibre Access or to any 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service (each

of which is subject to this Condition **10C**) includes (but is not limited to) the introduction of a new product or service (as applicable) wholly or substantially in substitution for that existing product or service (as applicable) which is subject to this Condition **10C** or a change to the billing practice for any product or service which is subject to this Condition **10C**.

10C.7 The Dominant Provider must record, maintain and supply to Ofcom in an electronic format (including in any such presentational form or arrangement (including as to the level of disaggregation) as Ofcom may direct from time to time), no later than three months after the end of each Relevant Year, the data necessary for Ofcom to monitor compliance of the Dominant Provider with Conditions **10C.1 to 10C.3 including 10C.1A** in respect of Dark Fibre Access. This data must include for each and every Dark Fibre Access:

- (i) the published charge for that Dark Fibre Access and the published charge for the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service;
- (ii) unit average Cumulo costs attributed to the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service;
- (iii) unit long run incremental costs that have been avoided by the Dominant Provider when providing that Dark Fibre Access instead of the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service;
- (iv) unit long run incremental costs of any objectively justifiable differences between that Dark Fibre Access and the corresponding 1Gbit/s EAD Service or 1Gbit/s EAD LA Service or Main Link Service;
- (v) unit incremental cost savings of providing network access to more than one optical fibre at the same time;
- (vi) all relevant data and methodology used by the Dominant Provider for deriving the charge for that Dark Fibre Access; and
- (vii) such data as Ofcom may direct from time to time.

10C.8 Ofcom may direct that Conditions **10C.1 to 10C.7** shall not apply to the extent specified in any such direction.

10C.9 The Dominant Provider shall comply with any direction Ofcom may make from time to time under this Condition **10C**.

10C.10 In this Condition **10C**:

“1Gbit/s EAD Service” means each and every service with bandwidth of 1Gbit/s described as “Ethernet Access Direct” falling within the Ethernet Services Basket;

“1Gbit/s EAD LA Service” means each and every service with bandwidth of 1Gbit/s described as “Ethernet Access Direct Local Access” falling within the Ethernet Services Basket;

“Accommodation Services” means each and every service which is subject to Condition 10E and which is reasonably necessary for the use of Dark Fibre Access;

“Accounting Methodology Documents” has the same meaning as in Condition 11;

“Cablelink Service” means each and every service which is reasonably necessary for the use of Dark Fibre Access and is described as “Cablelink” in the Ethernet Interconnection Sub-basket;

“Cumulo costs” means the non-domestic (business) rates that BT pays on its Cumulo Rateable Assets within the United Kingdom;

“Cumulo Rateable Assets” means the assets that make up BT’s Cumulo non domestic rating assessments in the United Kingdom as defined for England in The Central Rating List (England) Regulations 2005 (SI 2005/551), as amended by The Central Rating List (Amendment) (England) Regulations 2006 (SI 2006/495) and The Central Rating List (Amendment) (England) Regulations 2008 (SI 2008/429), and the analogous legislation that define these assets in Wales, Scotland and Northern Ireland;

“Direct Rental Comparison Method” means a method of assessing rateable values for non-domestic (business) rates on individual sections of route within telecommunication fibre networks with reference to a scale that varies with the total route length of the network and the number of lit fibres on the route;¹¹⁰

“ECC Services” means each and every service which is subject to Condition **10F** and which is reasonably necessary for the use of Dark Fibre Access;

“Financial Year” has the same meaning as in Condition **11**;

“First Relevant Year” means a period beginning on 1 May 2016 and ending on 31 March 2017;

“Main Link Service” means each and every service described as “Main Link” falling within the Ethernet Services Basket;

“Prior Relevant Financial Year” means the Financial Year to which the latest available Additional Financial Information relates; “Regulatory Financial Statement” has the same meaning as in Condition **11**;

“Rate in the Pound” means the non-domestic rating multiplier in pence for the Financial Year divided by 100 as notified by the Department for Communities and Local Government to Chief Finance Officers of English Billing Authorities.¹¹¹

“Relevant Year” means each of the following three periods:

- (i) the First Relevant Year;
- (ii) the Second Relevant Year; and
- (iii) the Third Relevant Year;

“Resilience Main Link Service” means each and every service described as “Resilience Main Link” falling within the Ethernet Services Basket;

¹¹⁰ The VOA currently publishes such a scale within Annex 1 of “Section 871: Practice note: 2017: Telecommunications fibre optic networks” which is available at: <http://app.voa.gov.uk/corporate/publications/Manuals/RatingManual/RatingManualVolume5/sect871/PN%202017%20Appendix%201%20Fibre%20Rent%20Tone.xls>

¹¹¹ For 2017/18 this notification is available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/598276/BRIL_3-2017_Multiplier.pdf. For the avoidance of doubt the relevant multiplier is not the small business non-domestic rating multiplier

“Second Relevant Year” means a period beginning on 1 April 2017 and ending on 31 March 2018;

“Single Fibre Main Link Service” means each and every service described as “Main Link” consisting of one optical fibre and falling within the Ethernet Services Basket;

“Third Relevant Year” means a period beginning on 1 April 2018 and ending on 31 March 2019; ~~and~~

“Time Related Charges” means each and every service which is subject to Condition 10G and which is reasonably necessary for the use of Dark Fibre Access; ~~and~~

“VOA Table” means the content of the row within the spreadsheet entitled “Fibre Rent Scale (Excluding London MAN)” which relates to “Total Network Route Km” over 1,000.¹¹²

¹¹² The current version of the Fibre Rent Scale (Excluding London MAN) is available at <http://app.voa.gov.uk/corporate/publications/Manuals/RatingManual/RatingManualVolume5/select871/PN%202017%20Appendix%201%20Fibre%20Rent%20Tone.xls>

The modifications of SMP condition 10A.10

10A.10 In respect of each Basket and subject to the provisions set out in Conditions **10A.11** to **10A.13**, the Controlling Percentage in relation to any Relevant Year shall be calculated by employing the following formula:

$$CP_t = CPI_t + X$$

Where:

CP_t is the Controlling Percentage for the Relevant Year, t ,

CPI_t is CPI for the Relevant Year, t ,

X is equal to: (i) minus 13.50 percentage points for the Ethernet Services Basket and the Ethernet Interconnection Sub-basket in the First Relevant Year and the Second Relevant Year ~~and the Ethernet Interconnection Sub-basket in each Relevant Year;~~

(ii) minus 12.75 percentage points for the Ethernet Services Basket and the Ethernet Interconnection Sub-basket in the Third Relevant Year

~~(ii)~~(iii) minus 6.75 percentage points for the Ethernet 1Gbit/s EAD and EAD LA Sub-basket, and for the Ethernet Main Link Sub-basket in the First Relevant Year and the Second Relevant Year;

(iv) minus 6.25 percentage points for the Ethernet 1Gbit/s EAD and EAD LA Sub-basket, and for the Ethernet Main Link Sub-basket in the Third Relevant Year.

The modifications of SMP condition 4.2

- 4.2** The obligation in Condition 4.1 to provide network access on an Equivalence of Inputs basis shall not apply to:
- (a) Accommodation Services other than in relation to the allocation of space (to be allocated on a first-come-first-serve basis) and power in operational buildings belonging to the Dominant Provider;
 - (b) a Backhaul Segment connecting:
 - (i) the operational building of the Dominant Provider which is a Core Node and another Core Node;
 - (ii) the operational building of the Dominant Provider which is a Core Node and a Competitive Core Node; or
 - (iii) two operational buildings of the Dominant Provider within a Trunk Aggregation Node;
 - (c) WDM Services with a straight line distance of more than 70km;
 - (d) network access which the Dominant Provider was providing but was not required to provide on an Equivalence of Inputs basis as at 30 April 2016; ~~or~~
 - (e) such provision of network access as Ofcom may from time to time otherwise consent in writing; ~~or~~
 - (f) Dark Fibre Access provided under Condition 2.1(c) to the extent that the disapplication of the obligation in Condition 4.1 is required in order to enable the Dominant Provider to comply with the requirements in Conditions 10C.1(ii) in relation to setting charges offered or payable for Dark Fibre Access.

Annex 3

Revised guidance on the calculation of the active differential for SMP condition 10C.1

The following text replaces the current text of paragraph A24.21 of Annex 24 to the BCMR Statement, under the heading “Second adjustment - Non-domestic business rates”.

“We consider that if access-seeking CPs, whose Rateable Value for the purposes of determining NDRs is assessed using the Direct Rental Comparison method, are liable for business rates when using dark fibre, then the active differential should reflect the NDRs calculated with the Direct Rental Comparison methodology. This means:

- For the EAD 1Gbit/s and EAD LA 1Gbit/s services, the Rateable Value should be calculated by multiplying the rate as set out in the VOA’s 2017 Fibre Rent Scale (excluding London MAN) for a 1,000km contiguous network size (with the number of fibres depending on whether it is a single fibre or fibre pair) by a length of 1.9 km.¹¹³ The NDRs should be calculated by multiplying this Rateable Value by the non-domestic rating multiplier in pence for England, for the relevant Financial Year, divided by 100.¹¹⁴
- For the Ethernet Main Link Service services the Rateable Value should be calculated by multiplying the rate as set out in the VOA’s 2017 Fibre Rent Scale (Excluding London MAN) for a 1,000km contiguous network size (with the number of fibres depending on whether it is a single fibre or fibre pair) by the length of the Main Link.¹¹⁵ The length of the Main Link used for calculating the Direct Rental Comparison should be the radial distance. The NDRs should be calculated by multiplying this Rateable Value by the non-domestic rating multiplier in pence for England, for the relevant Financial Year, divided by 100.

We consider that if access-seeking CPs, whose Rateable Value for the purposes of determining NDRs is assessed using a method other than the Direct Rental Comparison method, are liable for business rates when using dark fibre, an appropriate attribution of BT’s non-domestic rates bill should be reflected in the active differential of the corresponding EAD 1Gbit/s, EAD LA 1Gbit/s or Ethernet Main Link Service. This should be based on the average attribution of BT’s cumulo rating costs to the corresponding active Service (SMP condition 10C.1(ii) and 10C.1A), based on an average across internal and external services.”

¹¹³ The VOA currently publishes such a scale within Annex 1 of “Section 871: Practice note: 2017: Telecommunications fibre optic networks” which is available at: <http://app.voa.gov.uk/corporate/publications/Manuals/RatingManual/RatingManualVolume5/sect871/PN%202017%20Appendix%201%20Fibre%20Rent%20Tone.xls>

¹¹⁴ The non-domestic rating multiplier is notified by the Department for Communities and Local Government to Chief Finance Officers of English Billing Authorities. For 2017/18 this notification is available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/598276/BRIL_3-2017_Multiplier.pdf. For the avoidance of doubt the relevant multiplier is not the small business non-domestic rating multiplier.

¹¹⁵ As a resilient Main Link fibre follows a different route it should be treated as a separate circuit for the purposes of this calculation (rather than an additional fibre in a multiple-fibre circuit).

Annex 4

Stakeholder responses

A4.1 We received 12 responses to our consultation from the following stakeholders:

- BT
- Capita
- CityFibre
- Gamma
- IIG
- Passive Access Group
- TalkTalk
- Verizon
- Virgin Media
- Vodafone
- Vtesse Harlow
- Zayo

A4.2 The non-confidential versions of these responses have been published on our website. Available at: <https://www.ofcom.org.uk/consultations-and-statements/category-2/ndr-regulated-dark-fibre>