Openreach's response to Ofcom's Consultation: "Promoting competition and investment in fibre networks: Telecoms Access Review"

Document 2

12 June 2025

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Introduction

This document forms part of Openreach's response to the TAR Consultation, and covers responses to TAR Volume 2.

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for the purpose of Openreach Telecoms Access Review 2026-31 and for no other purpose, unless otherwise agreed in writing by Openreach.

Openreach's response to Ofcom's Consultation: Promoting competition and investment in fibre networks: Telecoms Access Review: Document 2 – Market Definition and SMP

1. Summary

In this section, we respond to Ofcom's proposals and questions as set out in Volume 2 of the Consultation.

This section starts with an overview of the Physical Infrastructure Access (PIA) market definition and Significant Market Power (SMP) analysis , before responding to the questions set out in Volume 2 in order.

We also refer the reader to our overview of the end-to-end assessment of Wholesale Local Access (WLA) and Leased Line Access (LLA) market definition and remedies in Openreach's TAR response document 1, which brings together our response to the proposals on these markets; which are intrinsically linked on the supply side.

PIA market assessment and SMP analysis

While we have concerns about some aspects of the TAR regulatory framework, we recognise that PIA is an essential element that underpins it. In that light, we are able to support the majority of Ofcom's PIA proposals. We also understand that Ofcom is strongly committed to its market analysis and its resulting definition of the PIA market and its SMP findings.

Ofcom's conclusions on the PIA market in this review rely heavily on its original Physical Infrastructure Market Review (PIMR)[1] analysis and subsequent analysis in the 2021 Wholesale Fixed Telecoms Review (WFTMR).[2] Some time has passed since those reviews but our concerns about the methodology that Ofcom used to arrive at its conclusions remains.[3]

[1] Statement: Promoting competition and investment in fibre networks – review of the physical infrastructure and business connectivity markets - Ofcom

[2] https://www.ofcom.org.uk/phones-and-broadband/telecoms-infrastructure/2021-26-wholesale-fixed-telecoms-market-review

[3] Therefore, for a full account of our concerns we refer Ofcom to Section 2 (Market Assessment) of our PIMR response where we drew upon a report commissioned from Analysys Mason to assess Ofcom's market analysis. The report was supplied as Annex A to our PIMR

In line with those previous reviews, Ofcom reaches a provisional conclusion in the Consultation that there is a *"single product market for the supply of wholesale access to telecoms physical infrastructure for deploying a telecoms network"* and that this is a market in which Openreach (and therefore BT) has SMP.

Ofcom reaches this conclusion by considering four elements of market analysis: (i) the product market; (ii) the geographic market; (iii) the application of the three criteria test; and (iv) an assessment of SMP. For ease of reference, we have provided a short summary of our key concerns under the relevant questions below.

Broadly, our critique is that Ofcom's assessment is focused on applying the SMP framework when it does not fit well for the physical infrastructure market definition; and therefore it failed to justify its findings in several respects. There is a strong sense that it was an easier option to regulate a single incumbent firm than address the complexities of a more diverse marketplace with a strong and growing Virgin Media O2 (VMO2) and Altnet presence.

Despite this, Openreach has proactively leaned into the provision of PIA for the past six years and has, with its customers, made it an overwhelming success. We did this as we recognised the importance of PIA to the regulatory framework to enable the removal of downstream regulation and it is essential that, in the TAR, Ofcom follows through on this position.

response: https://www.ofcom.org.uk/__data/assets/pdf_file/0027/139761/Openreach-Analysys-Mason-report.pdf. We also refer Ofcom to Section 6 (Duct & Pole Access) of our response to the WFTMR.

2. Responses to questions

PIA product market definition

Question 2.1: Do you agree with our provisional conclusion on physical infrastructure product market definition? Please set out your reasons and supporting evidence for your response.

1. Openreach does not agree with Ofcom's provisional conclusion that there is a single product market for the supply of wholesale access to telecoms physical infrastructure.

2. Ofcom's market definition is overly narrow and fails to reflect the diversity of infrastructure options and deployment strategies available to access seekers. By focusing solely on Openreach's physical assets, Ofcom's approach leads to a pre-determined finding of SMP and overlooks the following critical factors:

   i. Geographic and infrastructure diversity: Competitive conditions vary significantly across the UK, particularly between urban and rural areas, and between overhead and underground infrastructure.

   ii. Alternative infrastructure: Ofcom has not adequately considered the use of non-telecoms infrastructure (e.g. electricity networks and sewers), which are increasingly being used for telecoms deployment.[4]

   iii. Lack of retail market analysis: Ofcom has not started from a robust analysis of relevant retail markets, which is essential for proper upstream market definition and assessing SMP.

   iv. ATI Regulations: Ofcom has missed an opportunity to strengthen the Access to Infrastructure Regulations 2016 (the **ATI Regulations**), which could provide meaningful alternatives to Openreach's infrastructure if properly enforced and clarified.

3. Our view is that Ofcom could have adopted a more nuanced and evidence-based approach that reflected the full range of infrastructure options and market dynamics in setting out its proposed product market definition.

[4] As evidenced in the Analysys Mason report and DCMS's Future Telecoms Infrastructure Review referenced in our previous responses.

Question 2.2: Do you agree with our provisional conclusion on physical infrastructure geographic market definition? Please set out your reasons and supporting evidence.

4. Openreach does not support Ofcom's provisional conclusion that there is a single national geographic market for physical infrastructure.

5. We acknowledge that Ofcom has previously identified four distinct geographic categories (A–D) based on the presence of alternative infrastructure. However, the decision to collapse these into a single national market fails to account for the substantial differences in competitive conditions across these areas.

   i. Heterogeneous market conditions: The availability and use of physical infrastructure vary significantly between areas such as the Central London Area (CLA), High Network Reach (HNR) areas, and rural regions.

   ii. Demand and supply characteristics: The types of services demanded (e.g. leased lines vs. fibre broadband) and the infrastructure available to meet those demands differ by region.

   iii. Regulatory inconsistency: Ofcom's approach contrasts with its own geographic segmentation in other market reviews (e.g. WLA and LLA), leading to inconsistent regulatory treatment.

6. Our view is that Ofcom could have retained a sub-national market approach to better reflect the actual competitive landscape and ensure proportionate and consistent regulation in those sub-national markets.

Question 2.3: Do you agree with our provisional conclusion on the application of the three criteria test to the physical infrastructure market? Please set out your reasons and supporting evidence for your response.

7. Openreach disagrees with Ofcom's conclusions arising from the application of the three criteria test to the physical infrastructure market. Taking each of the criteria in turn:

High and non-transitory barriers to entry:

- Barriers are not uniformly high across all geographies or use cases.
- In new build sites, Altnets face the same or fewer barriers than Openreach.
- Network adjustments are increasingly self-provided by Altnets, indicating operational parity.
- Alternative deployment methods (e.g. micro-trenching, direct burying) reduce dependency on Openreach infrastructure.

Market structure not tending toward effective competition:

- Ofcom has not demonstrated that all areas lack the potential for effective competition.
- In areas like CLA and new builds, competition is already emerging or could emerge with targeted regulatory support.
- The lack of focus on improving the ATI Regulations further undermines the potential for infrastructure competition.

Insufficiency of competition law:

- While Ofcom argues that competition law has limitations, it does not justify the imposition of broad, unrestricted access obligations.
- Less intrusive remedies could address any identified competition concerns and achieve regulatory objectives without distorting the market or discouraging investment.

8. In our view, Ofcom's conclusions are based on generalised assumptions and do not reflect the nuanced realities of the market.

Question 2.4: Do you agree with our provisional finding on SMP in the physical infrastructure market? Please set out your reasons and supporting evidence for your response.

9. Openreach does not agree with Ofcom's finding that it holds SMP in the physical infrastructure market.

10. Ofcom's SMP assessment lacks analytical depth and fails to consider key regulatory and market factors:

i. Absence of retail market analysis: Ofcom has not assessed whether downstream markets are competitive or already regulated, which is essential under the Modified Greenfield Approach.

ii. Overemphasis on ubiquity: Ofcom assumes that ubiquitous infrastructure is necessary for competition, despite evidence that successful operators (e.g. VMO2) operate without full coverage.

iii. Exclusion of alternative infrastructure: Ofcom disregards the competitive constraint posed by non-telecoms infrastructure and VMO2's network, which undermines the SMP finding.

iv. Geographic variation in market power: Ofcom's national SMP finding ignores the significant differences in competitive conditions across geographic areas.

11. Our view is that Ofcom could have adopted a more granular and evidence-based SMP assessment that reflects actual market dynamics and avoided unnecessary and disproportionate regulation.

Conclusion - PIA

12. We have significant concerns with the methodology adopted and the analysis carried out by Ofcom to support its conclusions regarding market definition and SMP assessment. In particular, we find that:

i. Ofcom's approach to defining a market for 'telecoms physical infrastructure' based solely on Openreach physical assets is unsatisfactory, leading to a less than surprising finding of SMP for Openreach on a national basis.

ii. In our view, such a finding does not fully reflect the broader options available to access seekers using alternative deployment methods and alternative telecoms/non-telecoms infrastructure (as evidenced by the success of VMO2 and many other international operators).

iii. The consolidation of sub-national markets with clearly heterogeneous competitive conditions into a single national market means that the material differences in market power between areas has not been given sufficient weight in Ofcom's analysis and conclusions.

iv. The exclusion of 'mobile' physical infrastructure from the market and SMP analysis is fundamentally flawed if Ofcom still consider that PIA may yet be a remedy used by mobile/wireless operators.

v. Outside of the SMP framework, Ofcom also could and should have focused more attention on opening up such options for the industry by reviewing and setting expectations for the ATI Regulations (for example, in relation to levels of charges and other terms and conditions, and response deadlines) to ensure they are fit for purpose. This would help Openreach (and other network providers) in scenarios where we have no pre-existing physical infrastructure and hence no market power, such as new build sites and Multiple Dwelling Units (MDUs) – and, in extremis, where we are 'locked out' of a site at the build stage by an exclusivity agreement between the serving Altnet and developer.

13. Although we have set out a number of significant concerns above regarding the physical infrastructure market analysis and SMP designation, we are supportive of a proportionate and practical PIA remedy, and our proactive engagement with stakeholders to launch the product and continually support its development is strong evidence of our commitment going forward.

WLA market definition

Question 2.5: Do you agree with our provisional conclusions on product market definition for the wholesale local access market? Please set out your reasons and supporting evidence for your response.

14. Ofcom provisionally concludes there is a single product market for the provision of WLA at a fixed location that includes:

    i. all fixed networks

    ii. all speeds; and

    iii. residential and business customers[5]

    iv. But excludes leased line access services and wireless services.

15. We agree with Ofcom's provisional conclusion, although we note that wireless and satellite solutions will be effective and more economic substitutes for fixed services in certain higher cost geographies.

Question 2.6: Do you agree with our provisional conclusions on geographic market definition for the wholesale local access market? Please set out your reasons and supporting evidence.

16. We agree with Ofcom's proposed definition of the boundary of Area 3 based on actual and planned build by network operators. We note, however, that additional public funding and incremental build by VMO2 and Altnets will mean that the proposed Area 3 will not be 'Openreach only.'

17. But we disagree with Ofcom's proposal to define Area 2. Ofcom is wrong to conclude that competition is sufficiently homogeneous across 83% of postcode sectors in the UK such that this area constitutes a single geographic market. We

[5] Openreach discuss the treatment of business and residential customers further in our section on No Undue Discrimination in Openreach TAR response document 3, question 3.4

propose that Ofcom define sub-markets covering: (i) postcode sectors where at least two rivals are present (Area 1s); and (ii) all postcode sectors where VMO2 is present.

18. Ofcom should adopt a dynamic approach to defining geographic markets in the TAR that takes account of ongoing network build over the period.[6]

19. Our position, and supported evidence and reasoning, for challenging Ofcom's provisional conclusion on Area 2 is set out in Openreach TAR response document 1 at paragraph 59 onwards and in Sections 1 and 2 of the NERA Report.

20. In summary, there is clear evidence of appreciably different competitive conditions within the proposed WLA Area 2. Specifically, the proposed WLA Area 2 will consist of postcode sectors where:

    i. VMO2 is present: VMO2 is a strong competitor with network passing almost 60% of UK premises and stated ambitions to reach up to 75%. VMO2 has a strong retail base, with reported take-up of 5.8m broadband connections. VMO2 also has stated ambitions to wholesale to ISPs.

    ii. CityFibre is present: CityFibre has a footprint of 4.1m homes and a stated ambition to reach 8m. All major ISPs – Sky, TalkTalk, Vodafone and Zen – have supply deals in place with CityFibre and are [✂] customer broadband orders through CityFibre in their expanding footprint meaning these customer volumes are not full contestable.

    iii. Vertically integrated operators, such as Netomnia, Community Fibre and Hyperoptic are present: these Altnets have extensive network covering over 12m homes in aggregate. Take-up on many networks is strong (e.g. Community Fibre report 25%) and highest on older cohorts of build, signalling that these Altnets will see growing take-up over time.

    iv. There is overlap between the above networks with Ofcom identifying 22% of postcode sectors where Openreach faces at least two rivals.

    v. There is no current competitive build but Ofcom has identified plans.

21. Concluding that competition within the diverse set of postcode sectors is 'sufficiently homogeneous' is illogical and reflects the flawed and broad-brush

[6] We note in particular, para 39 of the Commission Recommendation of 18 December 2020 on relevant product and service markets within the electronic communications, which clearly states that "*Significant variations of competitive conditions should be taken into account on a forward-looking basis at the stage of market definition. Segmentation of remedies may be used to address less significant or less stable variations in competitive conditions, including by adjusting remedies periodically or punctually, without thereby undermining regulatory predictability*".

approach Ofcom has taken to considering differences in competitive conditions. It is also inconsistent with the European Commission's 2020 Recommendation on relevant product and service markets, which clearly states that "*national regulatory authorities should identify geographic areas where the conditions of competition are sufficiently homogenous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different…*".[7]

22. Ofcom's assessment is based on consideration of an inappropriately narrow set of issues and evidence that is flawed and inadequate in reaching its provisional conclusions. Specifically:

    i. Ofcom provisionally concludes that competition from VMO2 is insufficient to undermine Openreach's market position but does not evidence that finding and instead it largely relies on analysis conducted in the previous WFTMR to support its position. In contrast, the NERA Report demonstrates the strength of competition from VMO2 at Section 2.4. This reveals significant differences with the rest of the proposed Area 2.

    ii. Ofcom's assessment of competitiveness within the postcode sectors where it identifies that two rival networks are present is largely focussed on the latest available market share information across and within a subset of those postcode sectors. But it is not appropriate to rely on aggregated market share data for CityFibre in total, or for other Altnets as a group, to provisionally conclude that second entrants have limited competitive impact. Ofcom's reported market share figures for CityFibre and "other Altnets" will all be diluted by the fact that:[8] (i) CityFibre and "other Altnets" will not be present in all postcode sectors being assessed, (ii) CityFibre and "other Altnets" will have less than 100% coverage in each postcode sector, and (iii) the relative immaturity of much of the network build.

    iii. Ofcom does not carry out a comparison of: (i) the competitive conditions in any potential Area 1 Ofcom is assessing against; (ii) the competitive conditions in a potential Area 2 that does not include the postcode sectors allocated to the potential Area 1.

    iv. Ofcom misapplies the Modified Greenfield approach, as it considers the position of rivals if SMP protections were not in place at all (as opposed to

[7] Commission Recommendation of 18 December 2020 on relevant product and service markets within the electronic communications, para. 35.

[8] Volume 2, paragraphs 4.100 to 4.102 and relevant footnotes.

the position where only the relevant SMP protections under consideration were absent). This fundamentally misapplies the Modified Greenfield approach, which is relevant in ensuring that findings of downstream retail market competition do not lead to inappropriate deregulation of upstream markets. Properly applied, a modified greenfield approach would require Ofcom to assess the market without the regulation proposed in the Consultation, not without any regulation at all.

23. We set out how Ofcom should correct for these flaws by considering a much broader set of forward-looking evidence in the Openreach TAR response document 1 at paragraphs 161 to 167 reflecting the analysis and conclusions set out in Section 4 of the NERA report.

Question 2.7: Do you agree with our provisional conclusion on the application of the three criteria test to the wholesale local access market? Please set out your reasons and supporting evidence for your response.

24. We do not agree with Ofcom's provisional conclusion on the application of the three criteria test to the WLA market.

25. We accept that there are barriers to entry in the WLA market, given the capex-intensive nature of network build. We note, however, that a large number of network builders have managed to overcome these barriers in order to enter and thrive in the WLA market, as shown in Table 1.2 in Openreach TAR response document 1. While these barriers are therefore obstacles for any new entrant wishing to enter the WLA market, we consider that Ofcom must take into account the clear evidence that they are not insurmountable, as well as their operation in respect of Altnets that are already present in the market, and for which the barriers are therefore greatly reduced. Altnets appear to have been readily able to secure funding from investors, both for their initial build rollout and in subsequent funding rounds. There are no (or very low) legal or regulatory barriers to entry. On the contrary, the level of entry we have seen since 2021 shows that there has been considerable regulatory support for new entry.

26. We do not consider that Ofcom has carried out a sufficiently forward-looking assessment of infrastructure-based competition to assess whether the market structure tends towards effective competition during the period for which the TAR

will be in force. The reasons for our view are set out more fully above, but in summary:

i. Ofcom has not recognised the trend towards convergence between WLA and LLA services. On the contrary, its approach suggests a trend to divergence between the two, which is clearly not supported by market developments since 2021. We do not consider that Ofcom has justified this divergence with evidence; in contrast, the Network Technology Report provides clear evidence of the technological capabilities of Altnets to compete. This is not just theoretical but is supported by evidence of actual build and commercial behaviour by Openreach's competitors.

ii. Ofcom has not properly assessed competitive conditions in the WLA geographic markets. It has focussed largely on market shares (which, as explained, are diluted due to the incorrect methodology Ofcom has adopted) but has not taken due account of other considerations. The European Commission's SMP Guidelines set out a long list of non-exhaustive criteria which should be followed in assessing SMP.[9] Ofcom has not for example considered duplication of infrastructure, access to capital markets, or countervailing buyer power in its assessment. The European Commission notes that, if taken separately, individual criteria "*may not be determinative of a finding of SMP*". The inadequacy of Ofcom's assessment can be seen by taking a step back from the required detailed analysis and looking at the very wide range of market conditions in areas which Ofcom has included in Area 2.

iii. In contrast, we have explained in this response that there are areas which are already competitive today or will become so during the TAR period. This is notably the case in areas where VMO2 and/or CityFibre and/or vertically-integrated Altnets are present.

27. We consider that competition law should be sufficient to address any remaining competition concerns, when starting from correctly defined markets. The WFTMR was successful in opening up the infrastructure market, as is evidenced by the large number of Altnets and their total build. Ofcom should define an Area 1, where

[9] European Commission Guidelines on market analysis and the assessment of significant market power (2018 / C 159/01), para. 58.

Ofcom has achieved its objectives of promoting competition and reducing market power, in which case competition law would be sufficient.

Question 2.8: Do you agree with our provisional findings on SMP in the wholesale local access market? Please set out your reasons and supporting evidence for your response.

28. We do not agree with Ofcom's provisional findings on SMP across the proposed Area 2. Our challenge to the provisional SMP finding reflects the flaws in Ofcom's proposal to define a wide Area 2 as a single geographic area on the basis it has sufficiently homogeneous competition conditions. Put simply, Ofcom is viewing all indicators of competition – such as market shares, network availability and countervailing buyer power – across an area in which those indicators will vary considerably. Viewed in aggregate the indicators will all be diluted: Openreach market share and network availability is inevitably higher across an area made up of postcode sectors with actual network build and others with planned network build. And countervailing buyer power will be considered weaker if looking across an area that includes postcode sectors where ISPs can and are using Altnets and areas where they do not have that option.

29. We therefore refer Ofcom to our overall assessment of market conditions for WLA services and what this means for disaggregating geographic markets in then considering SMP. This is set out in Openreach response Document 1 at paragraph 59 onwards. We also refer Ofcom to Section 2 of the NERA Report which sets out that Ofcom should assess competitive conditions in Area 1s and in the VMO2 footprint in considering SMP.

30. Considering the same range of indicators/factors (alongside all other evidence on forward-looking competitive conditions) within more appropriately defined geographic markets within the proposed Area 2 will produce a radically different set of indicators.

31. Notwithstanding the above, in addition to the fact that Ofcom's approach to market definition results in an incorrect frame of reference for the SMP assessment, we note that the approach then taken to the SMP assessment across the proposed wide Area 2 is itself flawed. Ofcom is right to observe that its SMP assessment should evaluate the extent to which Openreach behaves "*to an appreciable extent*

independently of competitors, customers and ultimately consumers".[10] This is key to ensuring that the SMP analysis focusses on the competitive constraint on Openreach and not individual competitors. But Ofcom's assessment fails to do this.

32. Ofcom's SMP assessment gives weight to the following factors:

i. Market shares: this is not sufficient in itself to establish SMP.[11] As set out above, the market share figures used by Ofcom dilute Altnets' market shares by applying an incorrect methodology.

ii. Competition from existing network infrastructure. Ofcom recognises that there is significant competition from VMO2 and Altnets[12] though, again, the coverage figures are diluted because Ofcom is assessing network presence across the widely defined Area 2.

iii. Barriers to entry and expansion. Within this, Ofcom considers the "*challenges of achieving sufficient take-up*". Here it lists customer switching costs as challenges for retail Altnets and difficulties securing wholesale deals for wholesale Altnets. We note this ignores successes in the market from, for instance, Community Fibre and Hyperoptic with high overall take-up on their networks, and from CityFibre in securing wholesale deals. Ofcom also repeats the concern that, absent SMP remedies, Openreach could deter expansion by Altnets. This is the same rationale used by Ofcom in reaching its provisional conclusion that it should not define sub-markets within the wider Area 2 with a flawed focus on the Modified Greenfield Approach and on the sustainability of individual Altnets. We think this is flawed for the same reasons.[13]

iv. Countervailing buyer power: this is an important factor in assessing market power but Ofcom give insufficient weight to the impact of CityFibre in securing wholesale deals with all major external ISPs. Ofcom also downplays the significance of VMO2's willingness to wholesale, which ISPs would leverage in seeking lower prices across WLA services. Both these issues, and the scope for increased wholesale competition as others seek and secure wholesale deals and/or through consolidation, will have clearer and more

[10] TAR Vol 2, para 5.172.

[12] TAR Vol 2, Table 4.7

[13] See Document 1, paras 148 to 160

direct impacts in geographic markets focused on the relevant areas of overbuild.

v. **Pricing**: Ofcom places significant weight on Openreach pricing the WLA anchor products up to the permitted cap, but then understates the relevance of competition as an important driver of Openreach's FTTP discounts. This is not based on the evidence, which clearly shows that competition was a key factor, even if not the sole factor.

33. Overall, in assessing SMP Ofcom should be asking itself whether Openreach's competitors would exert a sufficient competitive constraint in practice (and whether they will do so taking a forward-looking view of competition during the TAR period). Instead, Ofcom's assessment seems to place significant and undue weight on the sustainability of competitors. This is inconsistent as elsewhere in the TAR, Ofcom itself says: "*Ofcom's goal is not to ensure that individual stakeholders (whether Altnets or Openreach) achieve their business targets. Nor is it Ofcom's goal to shield stakeholders from the wider economic environment – that is a risk for them and their investors to bear.*"[14] Ofcom should ensure it applies this principle consistently (which would mean, by definition, not focusing on the sustainability of individual competitors).

LLA market definition

Introduction

34. We do not agree with Ofcom's product or geographic market definitions for leased lines. Ofcom should recognise the scope for ongoing convergence between WLA and LLA products and consequently their respective geographic markets for the reasons below. Failing to do so will restrict the presence of flexible network competition across large parts of the UK, at odds with Ofcom's duty to promote competition where appropriate. This view is also set out in the NERA Report at Annex 1.

35. Ofcom does not sufficiently acknowledge the real convergence that exists between WLA and LLA markets, nor how this convergence will continue over the five years of the TAR thanks to the technology choices made by Altnets.

36. Technological developments mean that new networks are able to provide products to serve both WLA and LLA customers with the same network. We present evidence of substitution on both the demand and supply sides.

    i. This is particularly important given the requirement that Ofcom take a 'forward-look' in its market assessment. As such Ofcom understates the competitive constraint from MSNs on LLA services which then contributes to the error of excluding these networks in the subsequent geographic market definition.

    ii. Even if Ofcom finds some services to be outside the defined product market, it should still take account of the current and potential future constraint of these services and networks in its geographic and SMP assessments.

37. Ofcom's proposed LLA geographic markets are inconsistent with the evidence of growing competition:

    i. Ofcom concludes there is a larger Area 3 in 2026 than in 2021 while also acknowledging the significant increase in competition that has taken place. The increase in LLA Area 3 size is in stark contrast to the reduction in Area 3 size in WLA.

    ii. We also illustrate specific examples of illogical postcode sector definitions from Ofcom's modelling.

38. We explain a number of issues with Ofcom's Network Reach Model (**NRM**) which undermine the reliability of its results.

    i. The results are highly sensitive to the key chosen parameters of dig distance, percentage threshold, and networks included.

    ii. Notwithstanding their sensitivity, the parameters chosen by Ofcom are incorrect. Without prejudice to our primary submission (that NRM is not fit for purpose), we propose evidenced alternative options which would address the accuracy of the NRM's outputs, and as a result may avoid the illogical results produced by the model, by bringing the boundaries (and sizes) of Area 3 in LLA and WLA closer together.

39. Together, Ofcom's incorrect product and geographic market definitions will, if unadjusted, lead to disproportionate remedies which will permanently stifle investment, innovation, and future network competition. This would be contrary to Ofcom's general duties as set out in the Communications Act 2003, in particular to act in a way which is "*proportionate, consistent and targeted only at cases in which action is needed*"; and to promote competition, investments and innovation in the relevant markets.[15] By defining market boundaries erroneously, Ofcom will not be able to meet the 'Section 47 tests', that is, to impose SMP conditions which are objectively justified and proportionate.

40. That said, we consider that Ofcom can make changes to address these concerns and accurately reflect the level of competition in the leased lines market today and looking forward for the next five years.

41. Openreach's primary position is that Ofcom should maintain the WFTMR approach and retain the alignment between LLA and WLA for Areas 2 and 3.

    i. Ofcom has not sufficiently justified the move to expand the role of the NRM beyond the HNR. This is a major change from the WFTMR approach and is inconsistent with regulatory stability.

    ii. The NRM's approach is inherently inappropriate for identifying business demand site competition due to its lack of consideration of PIA and incorrect assumptions about competitor network build behaviour.

[15] Communications Act 2003, Sections 3.3(a) and 3.4 (b) and (d)

iii. This solution would avoid the inherent weaknesses and fix the illogical outcomes of the NRM, and continue the regulatory approach which has successfully enabled significant investment and increased competition to the benefit of end customers.

42. If Ofcom concludes that it must continue to use the NRM, it ought to improve the parameters in the ways suggested below. This will achieve a similar result to aligning the WLA and LLA market boundaries directly.

43. We further lay out these concerns and our solutions in response to the following two consultation questions.

> Question 2.9: Do you agree with our provisional conclusions on product market definition for leased lines? Please set out your reasons and supporting evidence.

44. We do not agree with Ofcom's provisional conclusion. While the LLA and WLA markets are not currently converged, they are increasingly moving in this direction. Ofcom's product market definition does not take this into account and instead distinguishes between the markets in a way which is not forward-looking. If Ofcom retains an approach where they are separate, it must still recognise that networks can provide both LLA and WLA services and accordingly in the geographic analysis it must take into account all networks, given the scope for supply-side substitutability between LLA and WLA.

45. We nevertheless welcome Ofcom's recognition that services which are 'leased-line equivalent' are sufficiently close substitutes to leased lines that they should be included within the product market.[16] We consider this an important acknowledgement of the growth in range of technical ways of delivering service to business customers and that accordingly the traditional distinction between WLA and LLA services in product market definition is blurring.

46. Fundamentally, network providers are building single fibre networks that can be, and are, used to provide a range of services. While these different services may require different electronics or service wraps, suppliers can quickly move from providing one service to another. In the Network Technology Report (Annex 2),

[16] TAR, Vol 2, para 5.30.

Openreach's Network Technology Director explains why today's fibre networks are technically as capable of providing leased lines or leased line equivalent services as they are WLA services. This report explains that:

i. The networks being built are based on single mode fibre which can be used to support all types of high-capacity services.

ii. These new fibre networks are architected differently to traditional broadband and ethernet networks. Traditional ethernet services use dedicated fibre and equipment. The clear trend for all future services is for use of shared fibre and more shared equipment.

iii. Capacity management and service quality management make it technically feasible to offer "dedicated bandwidth" over shared networks.

iv. These new networks contain numerous connection points and nodes allowing services to join spine cables at various points.

v. Therefore, presence of fibre in an area gives a network a great amount of flexibility to serve end customers of all types, including those that may require high bandwidth services.

47. Given the capability of these fibre networks, we consider Ofcom's definition of leased line equivalent services is unduly narrow and does not adequately reflect all the propositions that are currently available in the market nor logically reflect its own observations. Further, Ofcom's definition of leased lines as services that involve dedicated fibre capacity does not translate well into the modern single fibre networks that both Openreach and Altnets are building. These networks can use technology that makes it possible to carry multiple circuits over a single fibre whilst ensuring traffic is dedicated.

48. We now review in more detail Ofcom's consideration of non-dedicated fibre as potential substitutes for leased lines.

Ethernet over symmetric PONs

49. We agree with Ofcom's inclusion of Ethernet over symmetric PONs (such as XGS-PON) in the product market. We agree with Ofcom that these services can replicate the characteristics of ethernet services and that accordingly are a substitute for a sufficient number of end customers to warrant inclusion in the relevant product market. This conclusion is borne out by the service offerings that Altnets already

offer in the market, as highlighted by Ofcom. It is further supported by Openreach evidence that areas where Altnets have built such services are areas where [✂]. This is shown in Figure 2.1 below, which shows a time series of Openreach ethernet net additions split by geography. It shows that where Altnets have presence (which may well be XGS-PON based), [✂].

Figure 2.1: Openreach net adds in different geographic areas[17]

[✂]

Note: Net additions refers to connections less ceases. The chart captures access circuits at bandwidths of 1Gbit/s and below. The net adds are absolute net adds per postcode scaled by a factor of 10,000 for ease of presentation.

50. However, we believe Ofcom is incorrect in limiting its assessment to XGS-PON, and should include GPON too as we explain below.

Broadband services

51. Ofcom reviews whether broadband services could be an alternative to leased line services and concludes that WLA services should not be part of the LLA market.[18] We recognise that this is a complicated assessment, given that it needs to be forward-looking during a time of change in both end customer preferences and the technologies used to provide services. However, we disagree with a number of aspects of Ofcom's assessment, and consider that broadband services may be a closer substitute than Ofcom suggests for some customers.

Demand side substitution

52. Ofcom recognises that broadband services could be an alternative to leased line services for some users.[19] We agree. Indeed, the evidence that we have seen from our own end customer research suggests that FTTP services are, or will be, a substitute for a sizeable proportion of users. Our research found that [✂]% of

[17] Source: Openreach data
[18] TAR, Vol 2, para 5.38.
[19] TAR, Vol 2, para 5.31.

ethernet users have already replaced ethernet with FTTP and [✂]% have plans to do so.[20] These are sizeable majorities of users which indicate that there is a proportion of end customers for whom FTTP broadband services are an appropriate substitute.

53. We now raise three specific examples:

    i. [✂].

    ii. Fibrus won the Full Fibre Northern Ireland contract to connect approximately 1,000 public-sector sites such as council offices, GPs, and police stations.[21] These business services are provided exclusively over FTTP networks. We return to this example in our discussion of geographic market definition as a clear example of a provider which has been unjustifiably excluded from Ofcom's analysis.

    iii. The Glide Group ISP recently announced an expansion of their FTTP network primarily to service SMEs in addition to their current focus of high-density residential premises.[22]

54. However, Ofcom then proceeds to state that even if there was evidence of switching for some end customers this would not be evidence of substitutability for end customers that value the distinct features of leased lines and accordingly is not sufficient evidence of a single product market comprising WLA and LLA.[23] This is an incorrect approach to market definition. It is not necessary for all users of a service to be willing to switch in order to expand a product market from the focal product. Rather only enough users need to switch in response to a particular price increase above the competitive level in order to constrain a hypothetical monopolist (i.e. that a Small but Significant Non-transitory Increase in Price (SSNIP) by a hypothetical monopolist would be unprofitable in light of a sufficient degree of users switching in response). Ofcom does not appear to have conducted such an assessment, not even qualitatively, despite initially commenting that some end customers would consider switching.

[20] Openreach, UK Businesses Connectivity Market 2024, Debrief, September 2024, slide 50.
[21] ISP Fibrus Secures Full Fibre Contract for 10 N.Ireland Councils - ISPreview UK
[22] NatWest Funding to Help Glide Expand UK High-Speed Wi-Fi Network - ISPreview UK
[23] TAR, Vol 2, para 5.33.

55. Accordingly, while we accept that not all broadband services are substitutes for business end customers from an end customer perspective, we do not consider this is the appropriate test.

Supply-side substitution

56. Ofcom has assessed whether WLA providers would be able to quickly substitute into the LLA market at the speed required to constrain a hypothetical monopolist.

57. It first states that its assessment is of broadband providers, including those using broadband services over XGS-PON. Since Ofcom has already determined that leased line equivalent services can be delivered over symmetrical PONs, such as XGS-PON, it would seem certain that such networks must be able to enter the LLA market i.e. if a broadband provider using XGS-PON does not currently offer a leased line equivalent service over that XGS-PON, it is technically able to do so quickly.

58. In relation to broadband provision over other PONs, Ofcom identifies two reasons why it considers that broadband providers would not be able to substitute into the LLA space.

59. Firstly, it says these providers would need to invest in their network and operational capacity.[24]

60. We agree some investment may be required but this is more likely to be focused on operational features such as ordering systems, appropriate desk staff and upskilling of engineers rather than on the networks themselves. From a network perspective, it is easy to provide both types of services and to quickly substitute between them. Openreach's Technology Director explains in the Network Technology Report (Annex 2), that essentially the architecture of modern networks allows a range of services to be provided over them.

61. Ofcom considers that GPON technology is less able to provide leased line equivalent services. We disagree. We consider GPON does have the ability to offer business grade services. While GPON is not symmetric it can be used to provide a symmetric service in line with what the market typically consumes today. This is both theoretically possible and appears to occur in practice.

[24] TAR, Vol 2, para 5.36.

62. For example, Ofcom cites CityFibre's services as an example of a leased line equivalent service.[25] Based on information that is publicly available, CityFibre only has one product which delivers Ethernet over FTTP listed on their website 'Ethernet 1000 Flex'. This matches Ofcom's description of providing 1Gb symmetrical speeds and an element of uncontented capacity at 200Mb, however as per their product sheet it appears to be delivered over GPON technology not XGS-PON. The product sheet states that it is handed over on 'Calix GigaPoint 801G V2 ONT' which is a GPON based Network Terminating Equipment (NTE).[26] While Openreach agrees with Ofcom's assessment of this CityFibre product as a leased line equivalent, we consider it is arbitrary for Ofcom to exclude other GPON based products.

63. Indeed, Ofcom's exclusion of GPON appears to be on the basis that GPON services are less capable of providing symmetric 1Gb services. Ofcom's focus on bandwidths of this level is inconsistent with its definition that all bandwidths are within the same market, and the fact that a large proportion of the markets (and Openreach's) services are at below 1Gb, for example 100Mb services.[27]

64. As well as being technically capable of substitution from WLA to LLA services, we also consider that there would be incentives for networks to do so. Ofcom itself has identified that network providers will benefit from providing both WLA and LLA services. Indeed, it has described how networks can offer both types of services.[28] Ofcom states this in multiple places in the Consultation:

> *"We also note that, for providers of both WLA and LLA services, promoting investment in the WLA market could support their overall business case of network deployment, including for leased lines, as well as providing incentives to innovate and continue to compete in the provision of WLA."*[29]
>
> *"We also note that for providers of both WLA and LLA services, promoting competition and investment in the LLA market could support*

[25] TAR, Vol 2, para 5.21.
[26] CityFibre, 'Ethernet 1000 Flex'.
[27] TAR, Vol 2, figure 2.9.
[28] TAR, Vol 2, para 5.29b.
[29] TAR Vol 3, para 1.37.

their overall business case of network deployment as well as providing incentives to innovate and continue to compete in the provision of LLA."[30]

"[…] in the WFTMR21 we identified economies of scope between the provision of LLA and WLA services. While many Altnets that have entered the WLA market have chosen not to provide leased lines to date, others have built networks that can offer services in both the WLA and LLA markets, notably CityFibre and nexfibre.189 We are concerned that requiring Openreach to offer DFA could make it more difficult for these operators to become stronger competitors in the WLA market as well. Take-up of leased lines (active and dark fibre) is a potential source of revenue for these operators, which contributes to their business cases for fibre network deployment, including further network infill and expansion."[31]

65. Secondly, Ofcom highlights the reputation and credibility of a provider as a reason for limited supply side substitutability. We disagree, both with the substance of this and also that it would actually be better assessed as part of an assessment of competitive constraints in the SMP assessment.

66. Ofcom itself quotes examples of reputation and credibility being quickly gained in the LLA market, for example, citing the entry of ITS.[32]

67. Additionally, Ofcom focuses on the identities of providers rather than the technology and the network that is in place. Even where a provider doesn't currently provide leased lines today, it doesn't mean that it wouldn't do so during the course of the review period or beyond. In the event of industry consolidation, any consolidator would be able to use fibre already deployed to expand into leased lines services. We consider that the most likely consolidators in the industry are those that already offer leased line or leased line equivalent services to end customers. Therefore, following consolidation, the built networks of Altnets will be used to serve business end customers. This is particularly important when the product market definition is enacted through the geographic market definition (see our response to Question 2.10 below).

[30] TAR, Vol 2, para 1.49.
[31] TAR, Vol 3, para 7.39.
[32] TAR, Vol 2, para 5.61.

68. Further to our points above, NERA also list a number of Altnets competing in leased lines, while also noting future entry is likely.[33]

Conclusion

69. Ofcom should fully acknowledge the ongoing convergence of WLA and LLA due to the evolution of the technologies and practical examples of substitution illustrated above.

70. We recognise that defining a converged product market between WLA and LLA would be a significant change for Ofcom, at a period where the market is still evolving. However, if Ofcom retains an approach where they are separate, it must still recognise that networks can provide both of these services and that therefore in the geographic analysis it must take into account all networks, given the scope for supply-side substitutability.

71. Further, even where Ofcom finds services to be outside the defined product market, it should still take account of their current and potential future constraint in its geographic assessment and SMP analysis. Ofcom has not done so and instead lost the nuance of this assessment in imposing its remedies.

Question 2.10: Do you agree with our provisional conclusions on geographic market definition for the leased line access market? Please set out your reasons and supporting evidence.

72. We do not agree with the proposed geographic market definition for the LLA market. It is based on inaccurate methodology, and so will disincentivise future investment and competition in large parts of the UK.

73. Ofcom proposes an approach to LLA geographic market definition that is a fundamental change to the approach it took in the WFTMR. In the WFTMR, Ofcom considered that the potential for material and sustainable competition in LLA would arise in areas covered by CityFibre and VM02, accordingly it aligned its Area 2/Area

[33] Annex 1, The NERA report, section 3.2.1.2.

3 LLA geographic market definition with that of WLA.[34] In its TAR proposals, Ofcom no longer considers that the same presence of these (or any) networks in a postcode sector reflects actual or potential, material and sustainable competition and instead reverts to a network proximity approach based on its NRM.

74. Ofcom should retain an approach of alignment of the LLA and WLA Area 2/Area 3 boundaries. This is consistent with the capabilities of the networks that have been built or are planned to be built, retains the stability of the framework set-up in 2021, is pragmatic, and resolves the issues highlighted in paragraph 75 below.

75. Instead, Ofcom has proposed using its NRM. We have serious concerns about Ofcom's proposed approach, which does not reflect the impact of existing and future fibre investment, nor its own view on scope for Altnets to provide LLA services, leading to unrobust results out of line with the evidence. The problems with this approach and its results include:

    i. A counterintuitive finding of an increased size of Area 3 for LLA while there has been greater network build and Area 3 has decreased for WLA.

    ii. Specific examples where the proposed geographic classification of postcode sectors is obviously wrong with no justification.

    iii. The highly sensitive nature of Ofcom's modelling results, undermining confidence in the modelling.

    iv. Fundamental flaws, such as lack of appropriate accounting for use of PIA, which undermine the use of proximity modelling in determining LLA geographic boundaries.

76. The problems with the NRM lead to an expanded Area 3, which will disincentivise future investment. Disincentivising future investment and competition in large parts of the UK would run contrary to Ofcom's statutory duties which include the desirability of promoting competition in relevant markets and the desirability of encouraging investment and innovation in relevant markets, as well as the Government's growth agenda. It would also mean that the SMP remedies are not objectively justified and proportionate contrary to Ofcom's 'Section 47 tests'.

[34] WFTMR, Vol 2, para 7.207.

77. We explain our concerns and proposed alternative through the following sections:

    i. Ofcom's proposed LLA geographic markets do not reflect the evidence of growing competition.

    ii. The illogical results arise because the NRM lacks robustness and is highly sensitive to parameters incorrectly chosen by Ofcom.

    iii. Retaining alignment between LLA and WLA for Area 2 and Area 3 will address these illogical results.

Ofcom's proposed LLA geographic markets do not reflect the evidence of growing competition

78. In this section we highlight the illogical results produced by Ofcom's proximity analysis, which are not consistent with Ofcom's own view on how the market had developed and the investments that have taken place. We begin by reviewing the aggregate results of Ofcom's market definitions – focused on its Area 3 definition – and then provide some examples of areas that have flawed and illogical proposed classifications.

79. This analysis should be considered in the wider context, i.e. unless the degree of competition has actually declined since Ofcom made its forward-looking assessment in the WFTMR, there is no case for categorising postcode sectors as less competitive now. To do so would be counter-intuitive. We also note NERA's summary of the unstable history of results produced by the NRM which further undermines confidence in the results.[35]

Aggregate results

80. Ofcom's proposed LLA geographic market definition generates results that do not reflect the huge investment in fibre networks and growth of competition that Ofcom itself acknowledges has occurred since 2021. Table 2.1 below summarises the size of Area 3 that Ofcom proposes in the LLA and WLA markets.

[35] Annex 1, NERA report, section 3.3.4.

Table 2.1: Size of Area 3 (postcode sectors)

	WFTMR	TAR	Change
WLA	40%	18%	- 22 ppt
LLA	38% [a]	46%	+ 8 ppt

[a] In the WFTMR, WLA and LLA Area 3 were broadly aligned. The reason for the discrepancy between the size of LLA and WLA Area 3 in the WFTMR was due to the overlay of the NRM such that some WLA Area 3 postcode sectors were classified as LLA HNR or CLA due to the presence of additional Leased Line only networks.

81. Table 2.1 shows that the size of the LLA Area 3 market is proposed to have increased, the diametric opposite of the proposal for WLA Area 3, which is proposed to have decreased in size by more than half. Such an outcome would imply that the potential competition that Ofcom expected in 2021 had not occurred, when Ofcom itself acknowledges that there has been substantial investment and competition. Hence, the proposed LLA definition cannot fit with the market trends.

82. In order to explore this further, we have conducted our own analysis of business demand and the competition at business sites. The analysis has been conducted by the BT Group economics team as a supplier to Openreach. The approach is further described in Box 1. We have looked at BT Group's business demand site location data mapped to Ofcom's postcode sector definitions as of February 2025.

83. This data shows three quarters of the demand sites located in LLA Area 3 in the TAR are also located in WLA Area 2, and almost half were previously in LLA Area 2 in the WFTMR. This is a significant number of demand sites which Ofcom are claiming: (i) will face no leased line network competition in future despite the significant overlap with WLA Area 2 (where it does expect Altnets to build network in the postcode sector); and (ii) have become less competitive since the WFTMR.

84. Following on from the above, we overlay our understanding of competitor rollout[36] on top of those postcode sectors and demand sites which have moved from LLA Area 2 (WFTMR) to LLA Area 3 (TAR). We find the proportion of demand sites covered by at least one rival network (VMO2, CityFibre, leased line-only providers) has increased by 10 percentage points on average from 2020 (34%) to 2024 (44%).

[36] The understanding of competitor presence is based on Thinkpoint data on where each operator and ISP is present (at postcode level), which technology they use and when they deployed and Streetworks data on street works activity at a postcode level.

We struggle to follow the logic of Ofcom's view that these areas have become less prospectively competitive despite the significant increase in coverage.

Example postcode sectors

85. The aggregate results shown above reflect the output of the NRM which undertakes modelling on a postcode sector basis. The irrationality of the aggregate results therefore reflects the combination of many individual postcode sectors, which are illogically classified. To illustrate this, we present five examples below, each demonstrates a different type of unsound result produced by the model.

86. The first four examples show where it would be short-sighted and unreasonable to restrict competition by defining areas as less competitive than in the WFTMR.

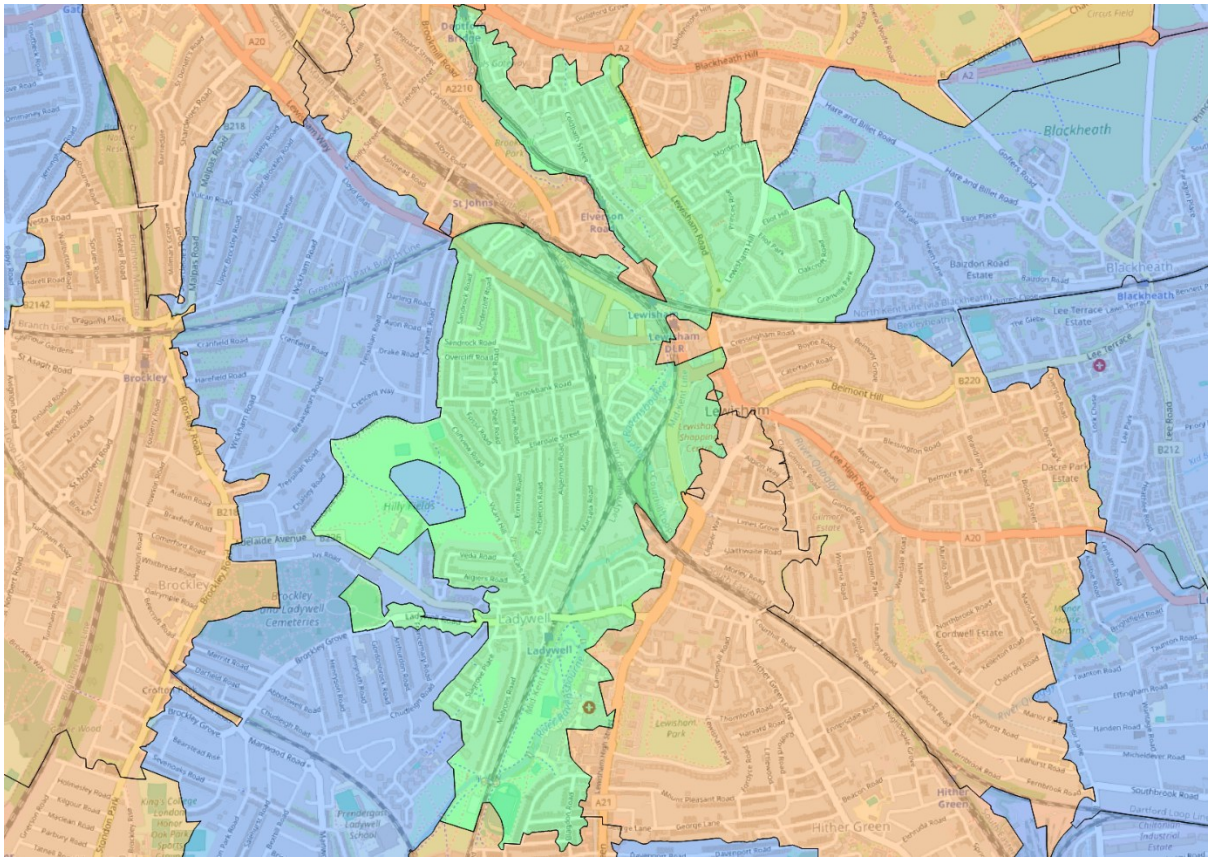
87. The fifth is a further example of the model's inaccuracy, this in the opposite direction where a postcode sector is defined as Area 2 despite the low likelihood of network competition given its very rural location.

Example 1: Lewisham - An area downgraded from HNR to Area 3

88. Figure 2.2 below shows postcode sectors around Lewisham in London. The postcode sector[37] highlighted green is an Area 3 postcode. It contains the Riverdale shopping centre, Lewisham station, residential premises and some data centres.

Figure 2.2: Classification of postcode sectors in Lewisham

[37] SE13 7



	LLA: HNR
	LLA: Area 2
	LLA: HNR (WFTMR) -> Area 3 (TAR)

89. Ofcom proposes to reclassify the highlighted postcode from HNR (WFTMR) to Area 3 (TAR). This is a significant change. In the WFTMR, Ofcom found that it was an area where it expected there to be at least two material and sustainable competitors. Now in the TAR proposals, Ofcom considers that the area is unlikely to have current or potential material and sustainable competition. Not only does the reclassification of the postcode sector itself seem counterintuitive, it is also incongruent with the surrounding areas displayed on the map which are classified as HNR (orange) or Area 2 (blue) in the TAR, implying there is, or will be, Altnet network nearby.

90. In order to further test the plausibility of this classification we have examined data on CPs' use of PIA in this postcode sector and found significant presence of PIA serving business premises.

91. While we do not collect data on whether a CP is using PIA for residential/business customers, we can look at individual examples and assess the likely nature of the sites served given the location of PIA usage and if its UPRN is identified as a business site.

    i. We present the following statistics indicating business sites are already being served by CPs [✂] in the Area 3 postcode sector in Lewisham:[38]

        a. There are [✂]Altnets using PIA in the Lewisham PCS.

        b. There are [✂] lead-ins to addresses in the Lewisham PCS identified as business sites.

    ii. Extending the point above, we specifically focus on a single postcode[39] in the Area 3 Lewisham PCS in the map below. This shows PIA usage by a single CP. This identifies PIA usage in the vicinity of a number of locations which appear to be business sites. We emphasise this map is an understatement of PIA usage given it only shows use by a single CP and, as mentioned in the first bullet, there are [✂] PIA users across the wider PCS.

Figure 2.3: Lewisham business sites

[✂]

92. We note that the classification of this PCS in Lewisham as Area 3 has been generated by the NRM, which would also have been used to classify this sector as HNR in the WFTMR. Such a change of classification is possible mechanistically within the NRM only if:

    i. Altnets with previous plans for this area have ceased them – but this seems unlikely given the nature of the postcode sector and the presence of network in neighbour postcode sectors; or

[38] SE13 7.

[39] SE13 7DJ.

ii. Altnets with existing network in this area have removed it – this does not appear plausible given there is no incentive to remove network; or

iii. There has been a growth in demand sites in this area, which are not in proximity to Altnet network and Altnets will not intend to serve them – this is possible but would then not reflect the strong incentives Altnets in the postcode sector would have to serve these new sites.

93. None of these explanations seem plausible. Accordingly, we consider that this demonstrates the inappropriateness and unreliability of the NRM.

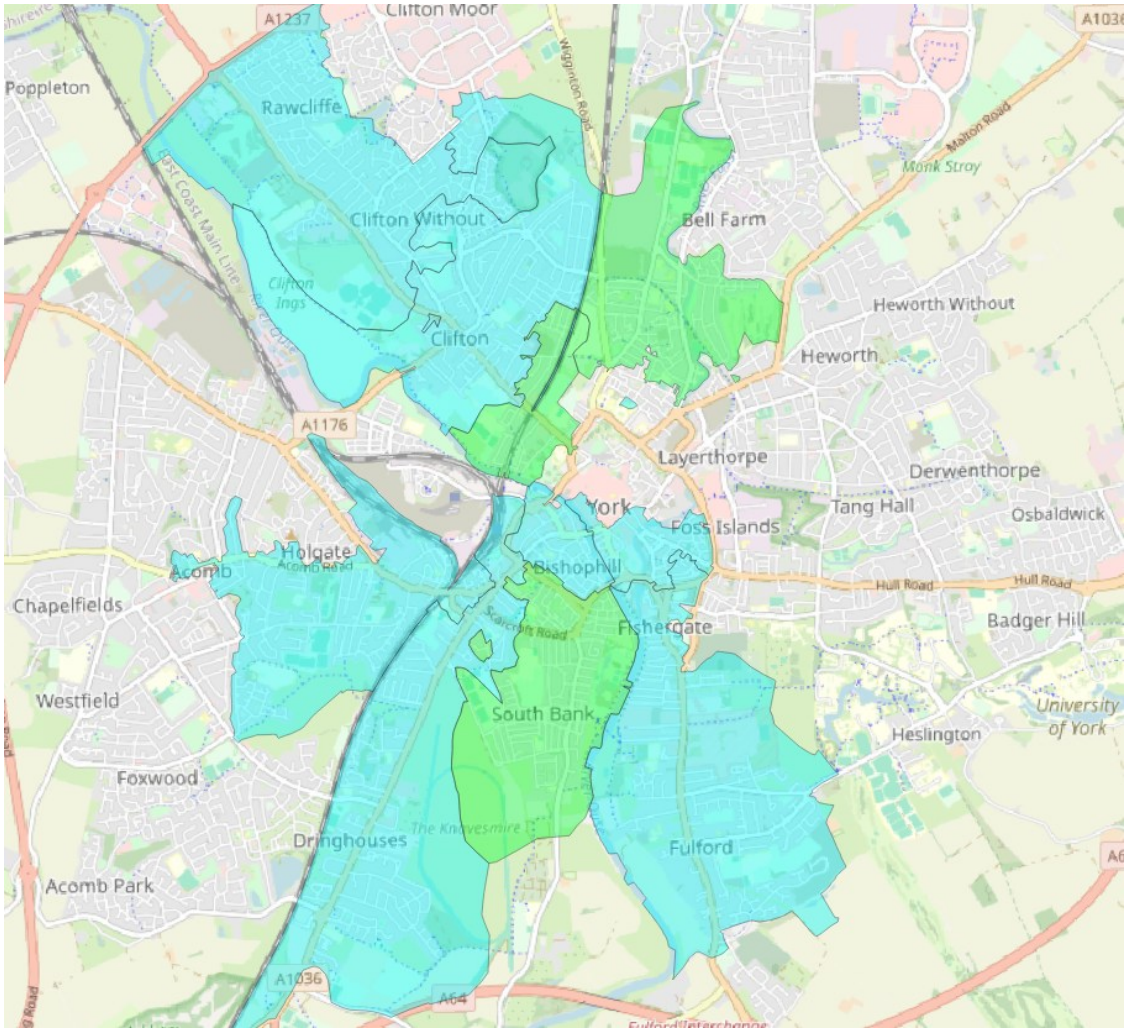
Example 2: York - An area downgraded from Area 2 to Area 3

94. Figure 2.4 below shows postcode sectors across large parts of York, including part of the centre, which have been moved from HNR (WFTMR) to either Area 3[40] (green) or Area 2[41] (blue).

Figure 2.4: Classification of postcode sectors in York

[40] YO31 8, YO30 7, YO23 1.

[41] YO30 5, YO30 6, YO24 4, YO24 1, YO1 6, YO1 9, YO10 4.



	LLA: HNR (WFTMR) -> Area 3 (TAR)
	LLA: HNR (WFTMR) -> Area 2 (TAR)

95. As with Lewisham, it is not clear why it would be appropriate to view all these highlighted areas as less prospectively competitive than in 2021. The proposal that the green areas be classified as Area 3 (and so unlikely to ever see competitive build) is incongruent with those areas' proximity to the centre of the city.

96. In particular, moving these postcode sectors to a less competitive classification is at odds with publicly stated Altnet plans, including from those that Ofcom consider are current or potential material and sustainable competitors to Openreach, such as CityFibre and VMO2/nexfibre.

97. In 2023, CityFibre said they expected to complete their network rollout across all of York.[42] In March 2024, nexfibre had already rolled out to 13,000 homes and businesses in York.[43] According to Thinkbroadband's data[44], this rollout has taken place in many of the areas highlighted on the map below which have been moved out of HNR.

98. It is therefore impossible to justify these proposed area definitions as Area 3 given the comprehensive build by CityFibre and further build by nexfibre since the WFTMR.

Example 3: Cambridge/Addenbrooke's hospital – a potential demand area in Area 3

99. Figure 2.5 below shows almost all of Cambridge is Area 2 (blue) in the TAR. The one exception is the postcode sector[45] highlighted orange which is Area 3, having been Area 2 in the WFTMR.

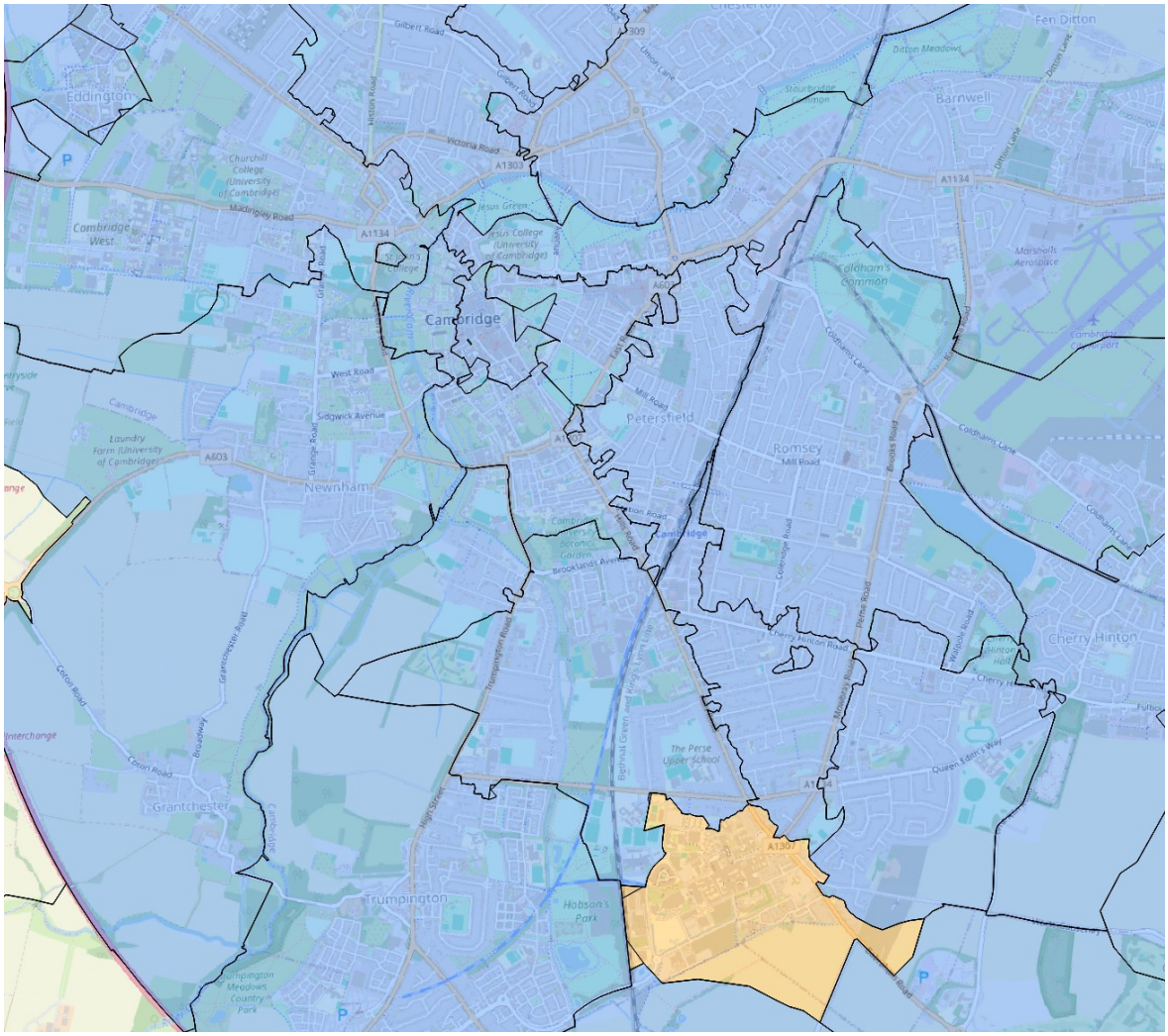
[42] CityFibre continues full fibre rollout in York connecting... | CityFibre

[43] VMO2 gigabit broadband now available to 13,000 homes in York for first time - VMO2 O2

[44] Browse Maps and Check Broadband Performance and Coverage Across the UK

[45] CB2 0.

Figure 2.5: Classification of postcode sectors in Cambridge



	LLA: Area 2
	LLA: Area 2 (WFTMR) -> Area 3 (TAR)

100. This postcode sector is almost entirely covered by the Cambridge Biomedical Campus, already the largest centre of medical research and health science in

Europe[46] and planning to significantly expand.[47] The site contains the large Cambridge University Hospitals NHS Foundation Trust campus and other research sites such as the headquarters of AstraZeneca.

101. It is illogical to believe that one specific postcode sector is less competitive than the rest of Cambridge. This is especially the case give the nature of the site and the likely demand for leased lines to such medical/research sites.

Example 4: An LLA Area 3, WLA Area 2 (Brent Cross):

102. Figure 2.6 below shows postcode sectors which between the WFTMR and TAR have been moved from HNR to Area 2[48] (blue) or Area 2 to Area 3[49] (orange).

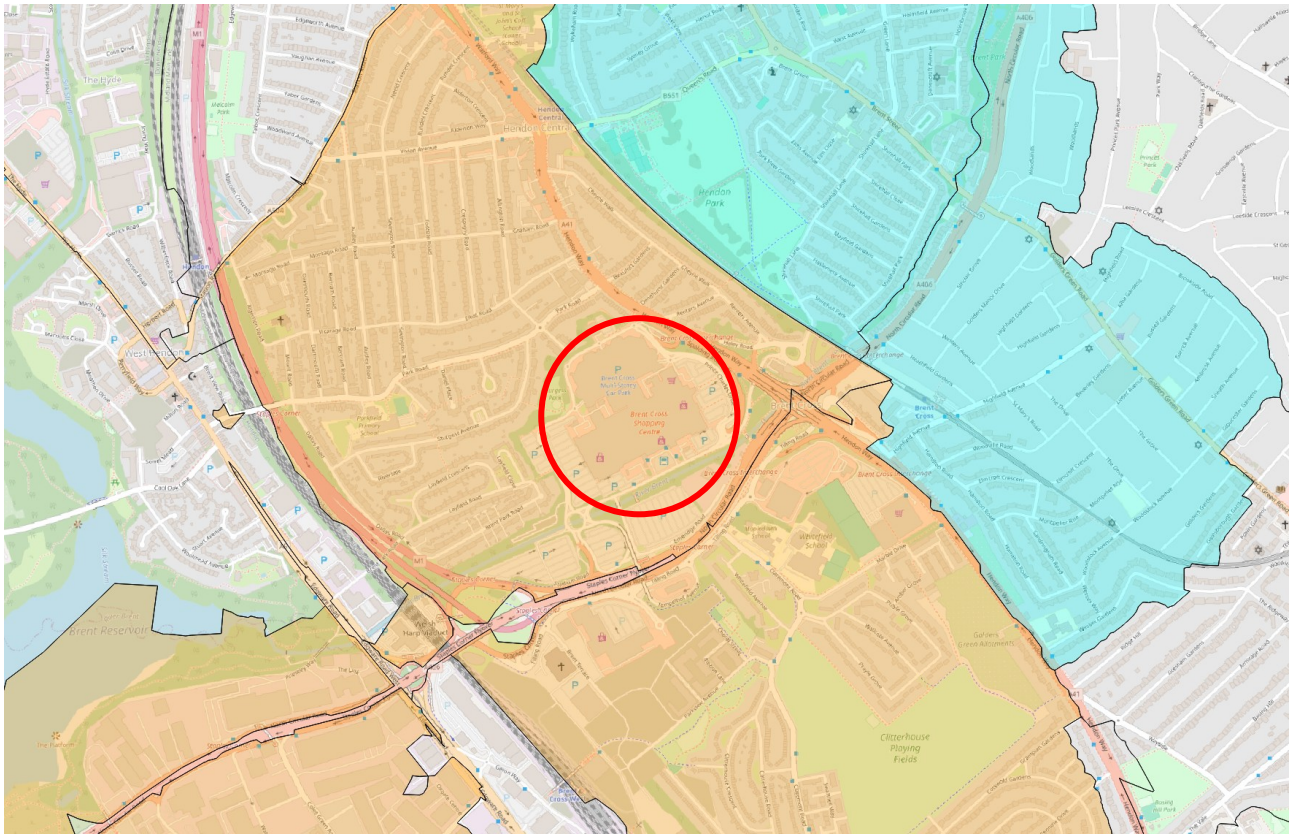
[46] Addenbrooke's 3 | CUH

[47] https://www.bbc.co.uk/news/articles/crgyl95ygvpo

[48] NW4 2, NW11 9.

[49] NW4 3, NW2 1, NW2 7.

Figure 2.6: Classification of postcode sectors in Brent Cross



	LLA: HNR (WFTMR) -> Area 2 (TAR)
	LLA: Area 2 (WFTMR) -> Area 3 (TAR)

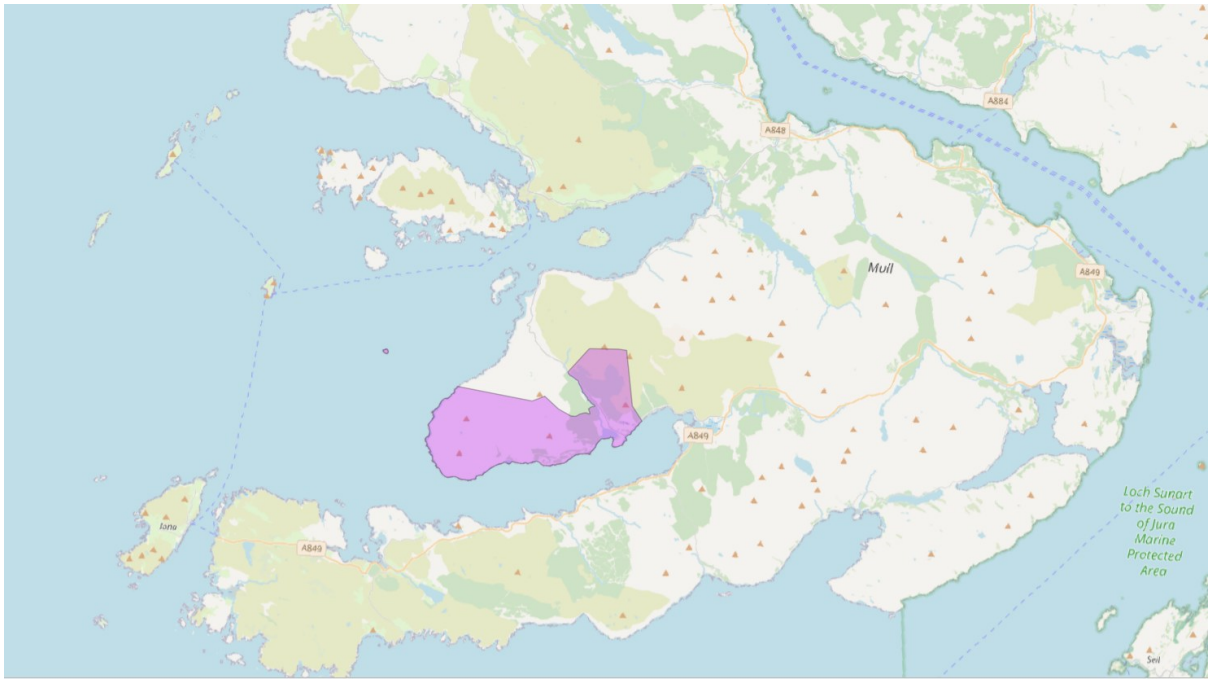
103. It cannot be correct to claim that both these postcode sectors have moved backwards in their classification when most surrounding areas have maintained their HNR/Area 2 classifications. Both these areas are also WLA Area 2, indicating that there is rival Altnet network in the postcode sector.

104. The orange postcode sector should not be in Area 3 given it contains the large Brent Cross shopping centre (circled red). Competitor networks would see this as an opportunity for network deployment. Given the surrounding areas are HNR or Area 2, it is counterintuitive not to expect networks existing in comparatively less business-heavy areas nearby to offer service to the shopping centre.

Example 5: West Central Mull – an isolated Area 2 area

105. In Figure 2.7 below, the postcode sector[50] highlighted purple has moved from Area 3 to Area 2 in the LL market, while remaining Area 3 in WLA. This demonstrates an example of a surprising modelling result in the opposite direction to the previous examples as this area has instead been deemed more competitive than in WFTMR.

Figure 2.7: Classification of postcode sectors on Mull



	LLA: Area 3 (WFTMR) -> Area 2 (TAR)

106. The postcode sector very likely has a population of <100 people based on Scottish census data. The numbers are so small that data for the individual postcode sector (made up of four postcodes) is unavailable. The only data available is aggregated with 14 other postcodes with c. 130 people.

[50] PA69 6.

107. It is irrational to conclude that this postcode sector has the potential for competition, but no other postcode sectors on the island do, nor in fact any postcode sectors within approximately 90 km.

Conclusion on examples

108. The inaccurate results of Ofcom's model mean that in some locations which are objectively more competitive than others, Ofcom's combined market definition and remedies proposals would hinder the prospects for competition. This would be contrary to Ofcom's general statutory duties and to the 'Section 47 tests' to impose regulation in a way which is objectively justified and proportionate.

109. Having both graphically and statistically highlighted key results which indicate that Ofcom's NRM is empirically producing inaccurate and unreliable results, we now discuss the features and assumptions within the model which are causing these results.

The illogical and erroneous results arise because the NRM lacks robustness and is highly sensitive to parameters incorrectly chosen by Ofcom

110. The NRM functions by looking at each postcode sector separately. For each postcode sector, Ofcom determines the number of LLA competitors located within 50m of each demand site. Each postcode sector is then classified based on whether at least 65% of its demand sites are located within 50m of zero, one, or two or more LLA competitors.[51]

111. Three critical parameters in the NRM are the dig distance of 50m, the coverage threshold of 65% and the identity of Altnets that are counted as current or potential material and sustainable competitors. Given the importance and subjectivity of these parameters, it is crucial these values are tested for their sensitivity. Sensitivity testing has not been undertaken in Consultation, as is evident from the anomalous results identified above. Below, we show these results are very sensitive to choice of parameter value and propose more robust values than those used by Ofcom.

[51] TAR, Vol 2, para 5.112.

Assessment of parameter sensitivities

112. Ofcom has conducted sensitivity analysis in the past - the NERA report provides a comprehensive overview of these analyses[52], as well as graphically illustrating the impacts of choosing different parameter values.[53] Where there is no firm evidence that a particular parameter value is the correct value, it is regulatory best practice to check the impacts of changing that value. This ensures regulatory decisions with significant consequences are not made without robust evidence.

113. When Ofcom used the NRM in the 2019 BCMR, it presented a matrix of sensitivities.[54] Upper and lower sensitivities were considered for both dig distance and the demand site percentage threshold. In combination, this matrix gave nine sets of results which could be assessed to identify any notable impacts from flexing each parameter.

114. In the 2021 WFTMR Ofcom did not consider sensitivities.

115. In the Consultation Ofcom again does not present any sensitivities. This is unusual and does not allow the robustness of the results to be tested. Such testing is especially important given the expansion of the role of the NRM. Elsewhere in the Consultation, Ofcom acknowledge the relevance of sensitivity testing by explaining the 50,000 coverage threshold used for including Altnets in the WLA analysis is insensitive.[55]

116. We suggest a range of sensitivities should be presented in the same manner as in the 2019 BCMR. To this end, we have conducted our own analysis of rivals' network presence and proximity to business demand sites as of February 2025. To do so we have used a model which aims to replicate as closely as possible Ofcom's model (the BT Group model). An explanation of the model is given in Box 1 below.

[52] Annex 1, NERA Report, appendix A3.4.

[53] Annex 1, NERA Report, section 3.3.2.1.

[54] PIMR and BCMR statement (2019), Annex 13.

[55] TAR, Vol 2, footnote 249: *"...we note that the results of our modelling and as such the boundaries of the area where there is or there is likely to be potential for material and sustainable competition would not change materially if we were to use, for example, a 100,000 threshold."*

Box 1: Methodology for BT Group's analysis of competitor network presence

[✂][56] [57] [58]

Baseline assessment: comparison of Ofcom and BT Group models

117. In our analysis of sensitivities of the Ofcom model we start by comparing Ofcom's results to those from BT Group's model when the Ofcom methodology is replicated as closely as possible. This involves using a 50m dig distance, 65% percentage threshold, and Ofcom's included networks.[59]

118. Table 2.2 below shows the results of this comparison in terms of percentage of postcode sectors defined as HNR, Area 2, and Area 3.

Table 2.2: Comparison of base scenario results from Ofcom and BT Group shadow model (% of PCS defined in each Area)

	Parameters	*HNR*	*Area 2*	*Area 3*
Ofcom	65%, 50m	9%	42%	46%
BT Group	65%, 50m	[✂]	[✂]	[✂]

119. The results from BT Group's model do not exactly match Ofcom's (most notably in HNR), but the results are close enough to use a sensible base for testing the impact of altering the key model parameters.

120. We investigate the impact of changing these parameters in the following two sections.

[56] See, The Commitments Guidance Notes - Background and Introduction, Slide 5.

[57] UK Broadband Mapping | Point Topic (point-topic.com)

[58] AddressBase Premium | Data Products | OS (ordnancesurvey.co.uk)

[59] HNR assessment: Inclusion of VMO2 and leased line-only providers. Area 2/3 assessment: Inclusion of VMO2, leased-line only providers, and CityFibre.

Ofcom-included networks: parameter sensitivities (dig distance and coverage threshold)

121. We first investigate the impact on the NRM's results of relaxing the dig distance and percentage threshold parameters. For this set of results, we maintain Ofcom's choice of included networks. The results of changing each of these parameters individually, and then together, are shown in the table below.

Table 2.3: Comparison of results from BT Group shadow model under different parameter scenarios (% of PCS defined in each Area)

		Parameters	HNR	Area 2	Area 3
BT Group	Base	65%, 50m	[✂]	[✂]	[✂]
	Sensitivities	50%, 50m	[✂]	[✂]	[✂]
		65%, 250m	[✂]	[✂]	[✂]
		50%, 250m	[✂]	[✂]	[✂]

122. Table 2.3 shows each of these scenarios significantly reduce the size of Area 3:

i. Threshold 65% -> 50%: Decrease from [✂]% to [✂]% ([✂] p.p.).

ii. Dig distance 50m -> 250m: Significant decrease from [✂]% to [✂]% ([✂] p.p.). [✂]% to [✂]% ([✂]p.p.).

iii. Threshold + dig distance combined: Significant decrease from [✂]% to [✂]% ([✂] p.p.).

123. The results are therefore highly sensitive to these two parameters. The robustness of the model will therefore be driven by an appropriate selection of values.

Inclusion of MSNs: parameter sensitivities (dig distance and coverage threshold)

124. Secondly, we assess the impact of including all networks in the analysis, not just the networks of LL-only providers, VM02 and CityFibre. We have also tested including all other MSNs. In Table 2.4 below, we compare the BT Group model base scenario (50m dig distance, 65% threshold, Ofcom-included networks) to the results

produced by BT Group's model where all networks are included. We then also test the same dig distance and percentage threshold sensitivities as above. This allows us to measure the overall impact of changing these three parameters together.

Table 2.4: Comparison or results from BT Group shadow model under different parameter scenarios with all networks included (% of PCS defined in each Area)

		Parameters	HNR	Area 2	Area 3
BT Group (Ofcom included networks)	Base	65%, 50m	[✂]	[✂]	[✂]
BT Group (all networks)	Base	65%, 50m	[✂]	[✂]	[✂]
	Sensitivities	50%, 50m	[✂]	[✂]	[✂]
		65%, 250m	[✂]	[✂]	[✂]
		50%, 250m	[✂]	[✂]	[✂]

125. Table 2.4 above shows the significantly reduced size of Area 3 in each of these scenarios:

i. Threshold 65% -> 50%: Moderate decrease from [✂]% to [✂]% ([✂]p.p.)

ii. Dig distance 50m -> 250m: Significant decrease from [✂]% to [✂]% ([✂]p.p.)

iii. Threshold + dig distance combined: Decrease from [✂]% to [✂]% ([✂]p.p.)

126. As above these results are sensitive, both to the networks included and dig distance/percentage thresholds chosen. It is therefore likely that Ofcom's results are also subject to significant sensitivity. This underlines the significance of Ofcom's decision to exclude most MSNs, with which we disagree due to the evidence of market convergence (as explained in the product market section).

Sensitivity analysis: conclusion

127. Sensitivity testing allows policy makers to understand the level of certainty and confidence that can be placed in modelling results. Where models are highly sensitive to their configuration and parameters, this is indicative that they may not be suitable for their given purpose, or at the very least their sensitivity should be accounted for when interpreting the results. This has not occurred here: Ofcom has not tested its results but instead relies on an unstable model. It has then compounded this by not accounting for this highly sensitive nature when setting very different pricing remedies between LLA Area 2 and Area 3 (see Vol 3 of our response).

128. We are therefore surprised by Ofcom's lack of sensitivity testing. We consider that it should have undertaken such tests and included the results in its Consultation.

129. Our own sensitivity analysis demonstrates the importance of choosing the correct parameter values in avoiding illogical outcomes, both overall and in specific examples (including the postcode sectors we highlighted). We have shown above that alteration of individual parameters has significant impacts on the overall outcome. In BT Group's model reasonable alterations to the parameters reduce LLA Area 3 from [✂]% to [✂]% of the country. We would expect similar results in Ofcom's own NRM.

130. The highly sensitivity nature of the NRM underlines the lack of robustness in its results and supports our view that it is not the appropriate approach to defining the LLA markets. Accordingly, Ofcom should revert to an aligned LLA and WLA approach.

Ofcom should maintain the WFTMR approach and retain the alignment between LLA and WLA for Area 2 and Area 3

131. Ofcom has used two separate methodologies to define the WLA and LLA geographic markets. This is a major change from the WFTMR approach which is inconsistent with Ofcom's stability guidance.[60] Ofcom should be consistent and use the NRM model only to identify additional competition from leased line-only providers in the HNR and align the WLA and LLA Area 2 and Area 3 boundaries. In

[60] TAR, Vol 1, para 2.21.

addition, Ofcom has not sufficiently justified the move to expand the role of the model beyond HNR in light of the inherent weaknesses of the NRM.

132. In the WFTMR, Ofcom explained that it proposed to align the WLA and LLA boundaries for Area 2 and Area 3 because coverage in a postcode sector of networks it accounted for in WLA (VMO2 and CityFibre) would be sufficient to, and would provide coverage for, many businesses in most areas.[61] Further, it "*considered and rejected the potential for adapting our network reach model to set the boundary between Area 2 and Area 3. That model is designed to evaluate leased line coverage of existing networks*".[62] Essentially, Ofcom did not view the NRM model as being appropriate for a forward-looking assessment, an assessment that it is required to take in a market review.

133. Ofcom's view set out in the WFTMR is still applicable. In the Consultation, it did not explain why the NRM model was appropriate to define the boundaries of Areas 2 and 3, whilst in the WFTMR Statement, it clearly explained why the NRM was not appropriate to this effect. Changing approach without any justification is not in line with Ofcom's general statutory duties as set out in Section 3.3(a) of the Communications Act 2003, in particular the principle under which regulatory activities should be consistent.

Fibre is the relevant consideration, regardless of definition as WLA or LLA

134. As discussed in response to Question 2.9 and the Network Technology Report (Annex 2), WLA network build can be, and is, used to deliver leased line services and leased line equivalent services. Fundamentally, the fibre that supports WLA services is the same fibre that supports LLA services. Therefore, the methodology used must appropriately measure the presence of fibre used by Altnets within postcodes sectors but must also take account of all the Altnets that are present and the fact that they have the ability to serve business premises once present within the postcode sector, including by using their WLA infrastructure. It is therefore inappropriate to take a completely different approach for LLA, especially when this is also a deviation from the long-term approach signalled by Ofcom in the WFTMR.

[61] WFTMR statement (2021), Vol 2, para 7.154.
[62] WFTMR statement (2021), Vol 2, para 7.151.

LL-only networks are additional constraints to WLA competition

135. Even if Ofcom were to continue the TAR approach of defining the LLA market separately, the NRM is not fit for purpose. In the WFTMR, the NRM was used as a second stage to the WLA geographic market modelling to identify additional competition related to leased lines in areas of high competition that might therefore be identified as HNR and CLA.[63] In business connectivity market reviews[64] prior to the WFTMR and TAR, the model was again used to identify areas of high competition (i.e. HNR/CLA equivalents). It was not used to differentiate other areas (i.e. between Area 2 and Area 3).

136. The NRM is now being used to comprehensively identify LLA markets across the UK, including differentiating areas outside of HNR between Area 2 and Area 3. This is a different purpose to that originally intended.

137. This is relevant because the limitations and assumptions of the NRM become more problematic when used as the sole mechanism for defining LLA markets, especially in relation to Areas 2 and 3, which tends to be outside of large cities and towns. In the WFTMR statement, Ofcom acknowledged *"the approximations used for our network reach metrics become more significant in less densely populated areas with relatively fewer demand site locations"*[65]. Ofcom now proposes to expand the use of NRM to all areas of the country, without describing any changes to the NRM that might mitigate the approximation inaccuracies in less densely populated areas.

PIA's expansion to leased lines means Ofcom's proximity analysis and dig distance is irrelevant

138. We do not believe that a proximity analysis – a fundamental feature of the NRM – is the appropriate approach for assessing geographic market definition. In particular, growth in the use of PIA and greater ability to serve multiple end customers and end customer types, render the precise proximity irrelevant.

139. Ofcom assumes a competitor will dig directly from the newly connected premise to the closest point of their own network. This takes no account of access to

[63] WFTMR (2021), Vol 2, paras 7.130 – 7.132; 7.137

[64] For example, PIMR and BCMR Statement (2019).

[65] WFTMR (2021), Vol, para 7.151.

Openreach's physical infrastructure. Following the introduction of unrestricted PIA in the 2019 PIMR, the cost of an Altnet expanding their network is significantly lowered due to the hugely reduced dig distances required.

140. Openreach only lays cables within duct. This duct is available to all other network builders and to service demand to existing sites served by Openreach. As a result, network builders only need to extend their networks where they cannot service the customer using Openreach duct. In situations where Openreach duct is not available, and network builders need to extend their network, Openreach would be in exactly the same position, and would also need to extend its network if it wished to compete in those new areas. It therefore does not make sense to consider the dig distance when assessing Openreach's competitive advantages.

141. The only relevant dig distance is that required to connect to the Openreach physical infrastructure network. This can be done anywhere in the network. It is not limited to the final section directly connected to the premise. Altnets can connect into Openreach's duct at any node. They would therefore choose locations where the connection is as short and convenient as possible in order to open up connections to a substantial number of premises for service by either leased lines or WLA. Given the widespread availability and success of PIA, it is likely the Altnet is already connected to Openreach's duct network at some location.

142. We understand that there are examples where Altnets have chosen to 'dig' to end customer sites despite the availability of PIA. We consider these are historic choices and not generally reflective of how Altnets will connect sites in future. Until recently acquiring customers wasn't the key organisational focus during Altnets build phases. Now that peak build is coming to an end, there will be more and more organisational focus on acquiring customers / generating revenue and this will incorporate connecting customers in the most efficient way – including through the use of PIA.

The exclusion of PIA from proximity analysis is unjustifiable

143. Ofcom uses duct maps and flexibility points to represent the location of networks in their network reach analysis.[66.] While this is a sensible starting point, it is unclear

[66] TAR, Annex 9, para A9.12.

why Ofcom omit Openreach's physical infrastructure. NERA also view the exclusion of PIA as problematic.[67]

144. In the 2019 PIMR, Ofcom introduced unrestricted PIA to enable non-broadband uses of Openreach physical infrastructure. Ofcom stated: "*This approach should provide greater flexibility, better reflecting the needs of operators investing in fibre networks to build up its investment through the provision of a range of services. For example, operators may initially offer leased lines to businesses, and later broadband to homes, and equally to establish networks unrelated to existing regulated markets.*"[68]

145. PIA enables networks to reduce their cost of build. We know from BT Group's analysis of Ofcom's 2019 BCMR dig model (this model has not been updated since) that at least 50%[69] of total costs of self-providing leased lines is related to using their own physical infrastructure. If these were reduced through use of PIA then the calculated breakeven dig distances would significantly increase.

146. Ofcom's graphs below from the TAR Consultation show the huge increase in duct and pole used through the PIA remedy. Our own PIA statistics show that PIA CPs are using the equivalent of [✂]% of Openreach's duct, covering [✂]% of our unique network objects.

147. Ofcom does not reference the existence of PIA when considering the 50m dig distance used in TAR.

[67] Annex 1, NERA report, section 3.3.2.2.

[68] PIMR (2019), Vol 1, para 5.7.

[69] BT response to BCMR, para 14

Figure 2.8: Network Deployment using Openreach duct over the WFMTR market review[70]

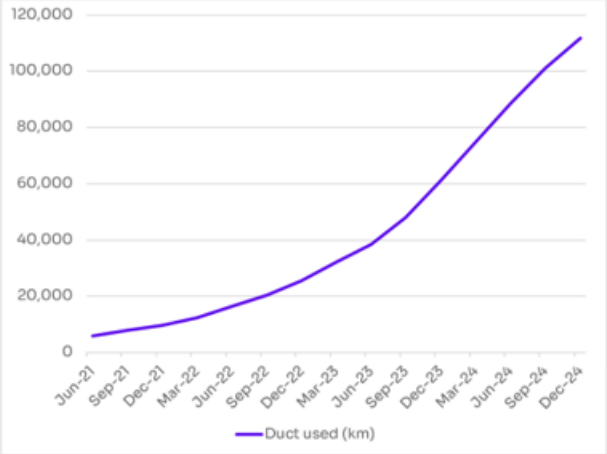
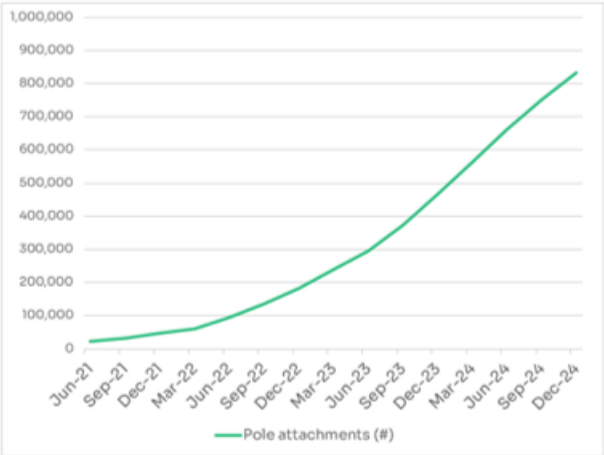


Figure 2.9: Network Deployment using Openreach poles over the WFMTR market review[71]



148. While we do not collect data on whether a CP is using PIA for residential or business customers, we can assess the likely nature of the sites based on if its UPRN is

[70] TAR, Vol 3, figure 5.1.
[71] TAR, Vol 3, figure 5.2

identified as a business site. We find [✂] different CPs have taken a lead-in to a UPRN identified as a business. These include MSNs such as [✂], [✂], and [✂] which are incorrectly excluded from Ofcom's analysis of the business market.

149. Given this, Ofcom's view in the WFTMR that "*the timing and extent of take up of PIA is uncertain, and we have therefore decided to use a buffer distance of 50m in this review*"[72] cannot be maintained on this fresh review.

150. Unfortunately, Ofcom does not have updated actual dig distance data from non-Openreach providers. They therefore rely on data from 2017-2019, which does not reflect availability and take-up of unrestricted PIA and is inconsistent with Ofcom's duty to undertake a forward-looking analysis of the market.

151. Openreach duct should therefore be included in the analysis, or the dig distance significantly extended to account for this material difference in infrastructure available to competitors and consequent reductions in cost.

152. The same logic applies to the exclusion of Openreach poles which serve the same purpose of enabling cheaper network extensions for competitors.

Ofcom assume network is extended to serve only a single end customer

153. Ofcom's dig distance parameter is still partially based on the model used in the 2019 BCMR where breakeven distances are calculated. This analysis is entirely based on the assumption that a network builder will serve only a single end customer with an extension of their network. This is unlikely to be the case as the builder would be expected to also take the commercial opportunity to build to adjacent properties, both to access other business sites, and to allow it to provide broadband services over FTTP to residential premises.

154. Openreach analysis indicates 50m of dig distance would conservatively cost the same as 500m of cabling. Even if we accept the cost threshold associated with Ofcom's 50m dig distance, it is equally relevant if an Altnet with access to Openreach's duct network is within 500m of a premise.

[72] WFMTR, Vol 2, para 7.186.

Conclusion

155. For the reasons set out above, Ofcom should align the WLA and LLA Area 3 boundaries. We have set out why in principle it is inappropriate to take a proximity-based approach using the NRM. However, if Ofcom concludes that it must continue to use the NRM, it should do so in a way which seeks to proxy an alignment approach.

As a second-best alternative, Ofcom can proxy alignment with WLA through revised NRM parameters

156. If, despite the points set out above, Ofcom considers that it must continue to use the NRM, it should make adjustments to it to better reflect recent developments. Revisions to the NRM parameters would allow an (imperfect) proxy to appropriately accounting for

157. We discuss below our proposed parameter values which would address the illogical outcomes illustrated above, albeit we consider this to be a second-best approach.

Openreach-proposed parameter values

Dig distance

158. We consider a dig distance of 50m is extremely conservative, unduly restrictive, and outdated. It has not been updated since Ofcom's 2019 BCMR analysis, and so does not reflect the most recent wave of network build including that based on PIA. Not reflecting these changes or future trends is inconsistent with Ofcom's duty to carry out a forward-looking market analysis.[73]

159. Ofcom's dig distance systematically understates the presence of rival infrastructure and its impact on competition. If Ofcom retain their use of the NRM, it should update its network reach analysis based on the evidence of PIA usage since the WFTMR and adjust the buffer distance accordingly:

[73] Section 79 of the Communications Act 2003, also referred to by Ofcom in TAR, Annex 5, para. 5.15.

i. Ofcom's own analysis of physical infrastructure costs in the 2019 BCMR found that PIA significantly reduces the costs of network extensions where Openreach ducts already exists – approximately by a factor of 10.[74]

ii. Analysis submitted by BT Group also found that PIA enables CPs to provide their own fibre connections to end customers at a cost that is below the cheapest Openreach wholesale Ethernet service (100Mb EAD Local Access) for distances up to just under 300m even based on just a three-year payback period.[75]

160. Ofcom should also take account of changes in technologies and efficiencies that may have reduced dig costs since 2019, thus making longer dig distances more economical.

161. We therefore think it appropriate to consider rival networks' presence in each LLA geographic market based on a longer distance, in particular a 250m buffer distance as a conservative indicative assessment of the impact of PIA.

Coverage threshold

162. Ofcom's 65% threshold of demand sites covered for determining the classification of an area is too high. It is higher than the 50% coverage threshold used for classifying areas in the WLA market. It is unclear why such a threshold should be higher for LLA than WLA, since in both cases the threshold is setting a level at which Ofcom will determine presence in a postcode sector for the relevant market.

163. The 65% threshold is ultimately rooted in the 2008 WBA review.[76] In that review, Ofcom provided no analytical reason for this particular number to be chosen but presented alternative figures which showed that the results were relatively insensitive.

164. In the 2019 BCMR, Ofcom also presented sensitivities around this number. However, this time the results were sensitive to changes in the threshold value, leading to swings of 15-20 percentage points.

[74] PIMR and BCMR statement (2019), Annex 6, paragraph A6.21 and figure A6.1.

[75] Alix Partners on behalf of BT Group, 25 January 2019. The competitive impact of duct and pole access on the BCMR 2019. Annex 1.

[76] Review of the wholesale broadband access markets, Final explanatory statement and notification, May 2008, A2.14.

165. No sensitivities are presented in the TAR. As shown above, and as foreshadowed by the increased sensitivities identified in the 2019 BCMR, BT Group's shadow model demonstrates that the results are sensitive to this percentage threshold.

166. Ofcom should align the threshold with that used for the WLA market. We agree with Ofcom's logic that the 50% threshold used in the WLA market is equally likely to over- or under-estimate network competition. There is no reason not to apply the same logic in the NRM methodology.

Networks considered

167. Ofcom includes VMO2 and leased line-only providers as "*current material and sustainable competitors*" in its assessment of HNR. CityFibre are added to this group as a "*potentially material and sustainable competitor*" in the assessment of Area 2 and Area 3.[77]

168. It is wrong to exclude all other networks from this analysis and the resulting material impact on results and policy conclusions for a number of reasons.

169. As discussed in response to question 2.9, there is no technological reason why WLA networks cannot provide LLA services.

170. Where operators do not currently provide LLA or leased line equivalent services, we expect that they will have the ability and incentive to do so in future. Further, we agree with Ofcom that the industry is expected to undergo some consolidation. In this case networks will likely be consolidated and the surviving networks will either already offer leased lines or be strongly incentivised to do so. The most likely consolidators (VMO2 and CityFibre) operate leased lines, so it is likely they will offer leased line services on any networks they take over in future. Even if the WLA network has been built with insufficient fibre, it is cost effective to retrofit additional fibre to allow LLA services to be provided.

[77] We note that Ofcom treats CityFibre as a potential competitor for the purposes of geographic market definition, and excludes them from its analysis of determining the HNR area. However, in Ofcom's SMP assessment it does consider both potential and current competitors within HNR. Market definition and SMP analysis are intrinsically linked and this is an inconsistent treatment. Accordingly, Ofcom should also include CityFibre in its geographic assessment of the boundaries of the HNR.

171. The relevant constraint in different geographic areas is therefore the presence of fibre in the ground, not the identity of the company currently controlling the network.

172. Examples of MSNs excluded by Ofcom from its LLA geographic analysis include Netomnia, Hyperoptic, and Community Fibre which together have passed over five million premises. These providers do in fact offer leased line or leased line equivalents services to businesses. For example, Netomnia says: *"At Netomnia, we're building a fibre network for whatever comes next — and with the UK's first commercial 50G PON deployment, we're proving it. This isn't just about speed; it's about power. From AI-driven smart homes to lag-free metaverse experiences and **tomorrow's enterprise demands**, we're making sure the most powerful internet lives on our network."*[78] [emphasis added]

173. Ofcom also excludes providers which (on its own account) have begun to offer leased lines, such as Zzoomm, Netomnia, brsk, and AllPoints Fibre Network.[79]

174. The exclusion of primarily WLA networks such as these is based on the assumption that:

    i. Those which currently offer leased line services will never increase their volumes above what Ofcom describe as limited.

    ii. Those that do not currently offer leased line services will never do so.

175. This is an illogical conclusion given the lack of technological barriers to offering leased lines over a WLA network, and the business benefits of a wider product portfolio.

176. Two further examples of unfairly excluded providers are Fibrus and Ogi which both focus on regional deployment:

    i. Fibrus provide business services over their FTTP network, including the Fibre First Northern Ireland contract. Fibrus has extensive build in Northern Ireland and intends to complete further build.[80] There is no justification for excluding its presence from the proximity analysis. We expect that the inclusion of

[78] Netomnia Goes Live with First 50Gbps UK Full Fibre Broadband Network - ISPreview UK

[79] TAR, Vol 2, para 5.65.

[80] Fibrus Full Fibre Rollout Update for Northern Ireland and the North of England - Fibrus

Fibrus within Ofcom's LLA geographic modelling would fundamentally change its findings in Northern Ireland, in circumstances where Ofcom currently proposes to allocate much of Northern Ireland to LLA Area 3.

ii. Ogi are continuing to expand their FTTP network covering population centres in south Wales, providing both residential and business services.[81]

177. Not only do we disagree with Ofcom's conclusion, but we are seriously concerned that it has not collected the relevant evidence to build a model which would allow it to make an informed decision. Ofcom only asked for LLA expansion plans from those it defines as LLA providers. This process is backwards. To conduct a forward-looking analysis, as required by the regulatory framework, Ofcom should have asked all networks for any LLA expansion plans before taking a view on how the range of companies offering leased line products may increase in future.

Conclusion on Openreach-proposed parameters

178. Acceptance of Openreach's proposed parameters would address the accuracy of the NRM's outputs. This would also likely avoid the illogical results produced by the model highlighted earlier in this section and would bring the size of Area 3 in LLA and WLA closer together.

179. However, the model's outputs will remain sensitive. This would be addressed if Ofcom were to limit the NRM to the HNR only (as under the WFTMR) and instead align the market boundaries of Area 2 and Area 3 in the LLA and WLA markets.

Conclusion

180. Ofcom should align the WLA and LLA Area 3 market definitions. These markets have been converging over the past five years and alignment will help this continue. This in turn will increase competition and drive benefits to end customers, through greater choice and more innovation.

181. Ofcom's current methodology has resulted in illogical outcomes which will inhibit investment and the development of competition in large areas of the UK, contrary

[81] Multimillion-pound package to support next stages of growth - Ogi and Fibre Broadband Wholesale | Unlocking Capacity | Ogi

to its general duty to promote competition, as well as the Government's growth agenda. This result comes from weaknesses in Ofcom's methodology, including:

i. inherent defects in the design of the NRM;
ii. key parameters being erroneously chosen; and
iii. outputs being highly sensitive.

182. Adopting the NRM to define the boundaries of Area 2 and Area 3 is not consistent with Ofcom's approach in the WFTMR. Ofcom has not provided a justification to depart from its previous guidance of regulatory stability.

183. Aligning the market boundaries would enable Ofcom to:

i. Avoid the inherent weaknesses of the NRM.

ii. Fix the illogical (and harmful to competition) outcomes of the current model.

iii. Ensure a consistent regulatory approach which so far has successfully encouraged significant investment and increased competition to the benefit of end customers.

iv. Implement a sound and pragmatic approach.

184. Aligning the market boundaries would also be consistent with Ofcom's statutory duties and regulatory objectives as set out in Section 3 and Section 47 of the Communications Act 2003.

185. If Ofcom concludes that it must continue to use the NRM, it can more closely achieve a similar result to aligning the LLA and WLA market boundaries by: (i) including all alternative networks; (ii) extending the dig distance; and (iii) decreasing the percentage threshold used. This approach is consistent with that used for WLA, by estimating Altnet presence in an area with a longer dig distance to use as a coverage measure.

Additional geographic market definition issue: Treatment of cross-boundary circuits

186. Ofcom's TAR proposals require that circuits that cross the boundaries between two LLA geographic markets should be classified as belonging to the least competitive of those markets.[82]

187. Openreach fundamentally disagrees with this approach.[83] The competitiveness of circuits that serve an end customer premise is determined by the presence of networks that can service that premise and not by the location of the A-end (exchange end). Where a circuit terminates has no bearing on the competitiveness of an end customer location – the choice of where we terminate a circuit is based on where it is efficient for us to aggregate traffic and not related to the availability of competing networks. It is the availability of rival networks that can serve that premises that determines the choice available to the premises and the competitiveness of that location.

188. This is a material issue. We estimate that under the approach in the TAR proposals approximately [✂]% of Openreach's new connections would be classified as Area 3. Under a revised approach focused on the B-end (the end customer site), [✂]% of new connections would be classified as Area 3 circuits, a difference of [✂] percentage points.

189. Ofcom implemented this approach to circuit classification in the WFTMR,[84] but not in prior BCMRs where it treated circuits to network nodes differently.[85] Indeed in the BCMR 2019 it said: "*For CI Access services, for circuits between an end-user site and a network node, we have concluded that the classification currently in use would be more consistent with our market definition and our view of competitive conditions. We have therefore decided that circuits between and end-user site and a network node should be classified as being in the geographic market corresponding to the end-user site.*"[86]

190. Comparing the TAR proposal with the WFTMR, the impact is significantly exacerbated because of Ofcom's proposals for fundamentally different remedies

[82] TAR, Vol 3, table 7.1.
[83] See, Openreach Submission, page 51.
[84] WFTMR, Vol 3, para 5.120.
[85] PIMR and BCMR statement (2019), Vol 2, para 13.67.
[86] PIMR and BCMR statement (2019), Vol 2, para 13.67.

in LLA Area 2 and LLA Area 3. Under these remedies proposals, the applicable regulated price for a circuit to an end customer could vary significantly and arbitrarily depending on where Openreach chooses to aggregate traffic and whether that location is in LLA Area 2 or LLA Area 3.

191. This approach would lead to some perverse outcomes. Consider, for example, an end customer site in LLA Area 2. If this site wishes to connect to an exchange in LLA Area 2 it may face a charge higher than if it sought to connect to another end customer site in LLA Area 3, even though delivering that circuit would be at a significantly greater cost.

192. This would cause downstream detriment to CPs' end customers. For example, an end customer is unable to tell from the Openreach price list which price might apply to a given premises, until it knows where the circuit will be supplied from, which may be affected by planning. It also affects the application of Openreach special offers and creates some scenarios where exchange exit will change the classification of an individual end customer premises.[87]

193. Note that this issue does not arise in the Dark Fibre Access (DFA) remedies since the remedy requires both access ends to be in Area 3 to prevent gaming. Accordingly, all DFA circuits should be classified as being in Area 3.

194. Accordingly, Ofcom should revise this definition such that for access circuits that terminate at an exchange, the definition is based solely on the location of the end customer premises. This would be consistent with the approach Ofcom took in the BCMR 2019.

Question 2.11: Do you agree with our provisional conclusion on the application of the three criteria test to the leased line access market? Please set out your reasons and supporting evidence for your response.

195. We disagree with Ofcom's assessment of the three criteria test for LLA markets.

[87] As discussed with Ofcom, at the Openreach/Ofcom monthly meeting, March 2025.

Barriers to entry are not high and non-transitory

196. Ofcom states that high and non-transitory barriers to entry are likely to persist in LLA markets.[88] We disagree. Ofcom's own evidence contradicts its view.

197. Ofcom has found evidence of leased line-only providers expanding their networks and selling increasing volumes of leased lines.[89] Ofcom highlights the example of ITS having recently and successfully entered the market.[90] It also notes a number of other WLA providers who have begun to offer leased lines, such as Zzoomm, Netomnia, brsk and AllPoints.[91]

198. Ofcom acknowledges that the PIA remedy helps to reduce barriers to entry. It quotes a handful of examples of network providers that have been reluctant to use PIA for business customers. Such examples are not reflective of the overall significant use of PIA. Our PIA statistics show that PIA ISPs are using the equivalent of [✂]% of Openreach's duct, covering [✂]% of our unique network objects. [✂]Altnets have taken a PIA lead-in to a business premise. This more comprehensive assessment of the use of PIA shows that the remedy significantly reduces barriers to entry in practice as well as in theory.

The market is tending towards effective competition

199. Ofcom states that the LLA market is not tending towards effective competition. However, it acknowledges that there has been substantial investment in the networks that provide leased lines. It says that the impact of this investment is uncertain.[92] We believe that it is clear that this investment will have a material impact on the competitiveness of the market. The presence of new fibre networks will ensure that there is always a competitive pressure in the areas where they have been rolled-out.[93]

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[88] TAR, Vol 2, para 5.156.

[89] TAR, Vol 2, para 5.60.

[90] TAR, Vol 2, para 5.61.

[91] TAR, Vol 2, para 5.65.

[92] TAR, Vol 2, para 5.157.

[93] As noted in response to Question 2.9 above, the LLA and WLA markets are tending towards convergence which is supportive of increasing competition in these markets.

Question 2.12: Do you agree with our provisional findings on SMP in the leased line access market? Please set out your reasons and supporting evidence for your response.

200. As set out above, we do not agree with Ofcom's geographic market definition for leased lines and nor do we agree with Ofcom's provisional SMP findings.

201. The leased line market is becoming increasingly competitive. As with the WLA market, there are a large number of Altnets present across the UK, all with the incentive and ability to target business customers. Accordingly, Openreach considers that the competitiveness and contestability of the LLA market will only increase over the course of the TAR period and beyond, such that there can be no assumption that Openreach will continue to hold SMP.

Barriers to entry

202. In its SMP assessment, Ofcom states that there are a number of barriers to entry and expansion in the LLA market.[94] Ofcom has overweighted the role of these barriers. As noted elsewhere, Ofcom has identified a number of providers that have recently entered the market such as ITS, Zzoomm, Netomnia, brsk and AllPoints.[95] There are also other providers that have recently entered the LLA market that Ofcom has not cited, e.g. Ogi.[96] We consider all of the barriers it identifies are surmountable:

    i. Network scale – Ofcom states that insufficient network scale can be a barrier to entry. We do not consider this is relevant for individual sites, nor a barrier for multi-site contracts, where the availability of PIA can ensure that providers are able to supply broadly. Ofcom itself acknowledges end customers can multi-source for multi-site circuits.

[94] TAR, Vol 2, paras 5.181-5.213.

[95] TAR, Vol 2, para 5.65.

[96] Fibre Broadband Wholesale | Unlocking Capacity | Ogi

ii. End customer installation times – Ofcom says that LLA end customers are sensitive to business continuity and installation times for new services. Even if this was true, it is likely a more important consideration for end customers with no existing circuit. Such customers constitute only a minority of circuits. The PIA remedy also helps to reduce any differences in provisioning times between Openreach and other providers. Further, we note that Openreach's provisioning times are also subject to the regulatory Quality of Service obligations, which should not be considered a barrier to entry.

iii. Switching costs and time – our term length is 12 months, meaning that many end customers are out of term. Even where end customer switching takes time, for Altnets operating an MSN model the ability to gain one-type of end customer (e.g. LLA end customer) quickly is offset by the ability to serve others (e.g. WLA end customer) in the interim.

iv. Reputation – we agree that LLA end customers require a reputable and credible supplier. However, this is not a barrier to entry and has been demonstrated as surmountable, e.g. ITS as a successful new entrant.[97] Further, the prospects for consolidation, in the industry, and specifically that that consolidation will most likely occur by suppliers with existing LLA reputations, renders this an immaterial barrier to entry.

BT does not have SMP in the HNR

203. Ofcom proposes that BT is found to have SMP in the HNR area. However, it has found the HNR area to exhibit a stronger scope for competition than Area 2 and Area 3 and states that it believes that competition in the HNR will eliminate BT's SMP at some point in the future.[98] We consider that the HNR is competitive and that there should not be an SMP finding for BT in this area during this review period. Ofcom has previously recognised the scope for LLA markets to become competitive through its deregulation of the CLA, which is retained in the TAR proposals, and it should do the same for the HNR.

204. Ofcom finds that in the HNR, there are two or more material and sustainable competitors to BT and on average this is nearly three competitors. This is a

[97] TAR, Vol 2, para 5.61.

[98] TAR, Vol 2, para 5.255.

significant level of competition that presents competitive pressure on Openreach. [✂].[99]

205. Despite the finding of presence of these alternative networks at a postcode sector level, Ofcom's SMP assessment places weight on competitors having a lower proportion of duct connections than Openreach and the third competing network being on average more than 100m away. We do not consider either of these factors to be relevant.

206. We do not think the lower proportion of duct connections is relevant, rather that it reflects the historic provision of services by Openreach and is not indicative of the ability for competitors to connect sites in future, particularly with the availability of the PIA remedy.

207. We do not consider the presence of the third closest competitor is relevant, since two material and sustainable competitors are sufficient to be a significant competitive constraint. Additionally, the availability of the PIA remedy renders the distance parameter irrelevant.

208. Accordingly, we see no reason why the current competition Ofcom has identified is not considered a constraint on Openreach. As a result, no SMP finding should be made in respect of the HNR.

[99] Source: Openreach data.

IEC market definition

Question 2.13: Do you agree with our provisional conclusions on product market definition for the inter-exchange connectivity market? Please set out your reasons and supporting evidence.

209. Openreach agrees with Ofcom's product market definition for Inter-Exchange Connectivity (IEC), given that it uses the same leased line products to provide IEC as it does for LLA. We note that our view on the substitutability of leased line equivalent services and broadband services in the LLA market, does not carry through to the IEC market, because of the bandwidth needs for carrying aggregated traffic between exchanges. However, networks are able to easily engage in supply side substitutability of any network type into an IEC service.

Question 2.14: Do you agree with our provisional conclusions on geographic market definition for the inter-exchange connectivity market? Please set out your reasons and supporting evidence.

210. Openreach does not agree with Ofcom's proposed geographic definition.

211. Ofcom proposes to define IEC services as services between BT exchanges, noting that they are a type of trunk service (services carrying aggregated capacity between any points of aggregation).[100]

212. We fundamentally disagree that connectivity between BT exchanges is materially different to connectivity between any points of aggregation. CPs typically have a range of options for their broader connectivity needs and will consider these before deciding on a particular network configuration which might involve use/need for IEC services.

213. Ofcom states that IEC services are a type of trunk service and accordingly, we consider that IEC connectivity is part of the trunk market and is effectively competitive. By focusing on IEC between BT exchanges, Ofcom is effectively

[100] TAR, Vol 2, para 6.4.

defining a backhaul market, but only for BT. Ofcom does not look at or assess backhaul routes of other providers such as VM02 or CityFibre.

214. Were Ofcom to examine the locations of BT exchanges and the potential routes between them it would find that the network has extensive reach across the UK and overlaps materially with the trunk connections of other providers.

215. Further, an IEC geographic market definition based on individual exchanges is a flawed definition because of the circularity between the presence of Principal Core Operators (PCOs) and the remedies (i.e. once a CP invests to take DFX at an exchange it becomes present at that exchange, and the exchange may no longer be susceptible to remedies at a future market review).

216. Practically, Ofcom should have considered a wider set of PCOs in their analysis of competitive constraint as requiring each provider to have 'substantial' coverage is short-sighted. Linked to the point above, Ofcom exclude competitors from their analysis if they do not have extensive geographic reach. Given Ofcom define each exchange as its own geographic market, we question why competitors at a more focused set of exchanges do not act as a competitive constraint to Openreach.

Question 2.15: Do you agree with our provisional conclusion on the application of the three criteria test to the wholesale inter-exchange connectivity market? Please set out your reasons and supporting evidence for your response.

217. We do not agree with the conclusion on the application of the three criteria test.

218. We consider that there are no material barriers to entry in the provision of IEC services, as demonstrated by the range of suppliers that offer aggregated services, and the ability to use PIA (as set out further in response to Q2.16 below).

219. We do not consider that Ofcom has carried out a sufficiently forward-looking assessment of infrastructure-based competition to assess whether the market structure tends towards effective competition during the period for which the TAR will be in force.

220. We consider that competition law should be sufficient to address any remaining competition concerns, when starting from correctly defined markets, that recognise a wider scope than solely routes between BT exchanges.

Question 2.16: Do you agree with our provisional conclusions that BT has SMP at BT Only exchanges and BT+1 exchanges, but not at BT+2 exchanges for the wholesale IEC market? Please set out your reasons and supporting evidence.

221. We do not agree with Ofcom's proposed SMP findings – we do not believe there is a case for finding that Openreach has SMP in IEC services. The level of competition for services that carry aggregated traffic is growing substantially, and the nature of connectivity between BT exchanges is changing significantly.

Trunk services

222. As noted above, Ofcom proposes to define IEC services as services between BT exchanges, noting that this was a subset of trunk services (services carrying aggregated capacity between any points of aggregation). CPs typically have a range of options for their broader connectivity needs and will consider these before deciding on a particular network configuration which might involve use/need for IEC services. As a consequence, trunk services which are not IEC services may be alternative options for ISP needs. We consider this to be a form of competition, especially potential competition. Competition from these services is relevant regardless of whether Ofcom formally views such services as within or outside the relevant economic market.

223. Were Ofcom to examine the locations of BT exchanges and the potential routes between them it would find that the network has extensive reach across the UK and overlaps materially with the trunk connections of other providers. By proposing to find SMP at virtually all BT exchanges, and then in turn to impose a DFX there is significant potential for the remedy to undermine currently competitive backhaul network routes of other network operators.

224. Further, if Ofcom performed a market assessment of these alternative suppliers' nodes to see if they were dominant in these locations, they would likely find each supplier dominant on the majority of their own network nodes, which apart from

being unsurprising highlights the flawed approach in looking at a specific supplier network nodes rather than assessing the broader trunk market.

Physical Infrastructure Access (PIA) based competition

225. We consider that any end customer of our PIA product could potentially provide IEC services or trunk services and are therefore at least a potential competitor, if not already a current competitor, to our own IEC services.

226. PIA is only available to ISPs who have applied for and been accepted as an 'established user'. Becoming an established user requires an ISP's agreement to our standard terms and prices. Once established, an ISP can install its own apparatus and cables in our existing duct and joint boxes or on our poles.

227. There are currently [✂] established ISPs, which we therefore consider are potential competitors.

Dark fibre and resale competition

228. In addition to suppliers that may compete directly with Openreach in the provision of fibre between exchanges, with regard to the competitive constraint on our active pricing, we note that we also face constraints from suppliers that use Openreach fibre, specifically those end customers that use our DFX product and ISP customers that are resellers of backhaul using Openreach fibre (i.e. they resell optical wavelengths over an Openreach fibre). This includes [✂].