

**NON-CONFIDENTIAL VERSION**

**Report for BT**

**Assessment of Ofcom's  
treatment of self-supplied  
dark fibre in the 2016  
BCMR consultation**

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## Introduction

1. BT commissioned Analysys Mason to review the information in the 2016 BCMR consultation document<sup>1</sup> relating to the impact that dark fibre sales have on the market for very high speed circuits in the UK (referred to as 'very high CISBO' by Ofcom).
2. This short report highlights some potential issues with Ofcom's treatment of self-supplied dark fibre in the >1Gbit/s (very high speed) market, and suggests that there are grounds to believe that BT's service share of the very high CISBO market is overstated.

## Treatment of dark fibre in the 2013 BCMR

3. In previous reports on the 2013 BCMR, Analysys Mason argued that dark fibre would have a material impact on service shares for the very high speed circuits portion of the market (i.e. for circuits over 1Gbit/s). We supported this argument with estimates of dark fibre volumes and an understanding of how this dark fibre was being used, based on primary research.
4. For example, in research performed for the 2013 BCMR,<sup>2</sup> we interviewed 11 organisations that used very high speed circuits. Of these, three used dark fibre as part of their network. As can be seen in Figure 1, of the total bandwidth used by these interviewees, more than half related to self-supplied networks built using dark fibre.

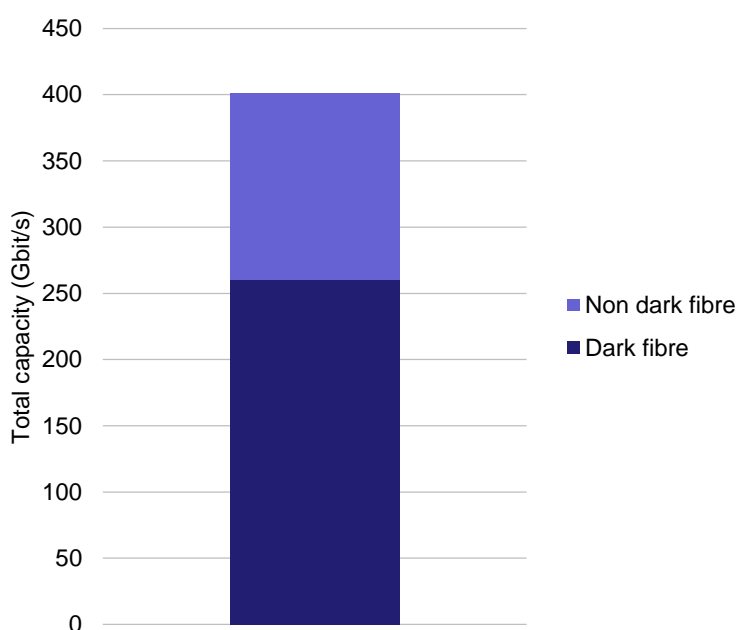


Figure 1: Total very high speed capacity (>1Gbit/s) of interviewed organisations<sup>3</sup> [Source: Analysys Mason, 2015]

<sup>1</sup> See [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/ssummary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/ssummary/BCMR_Sections.pdf)

<sup>2</sup> See [http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity/responses/BT\\_part\\_2.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity/responses/BT_part_2.pdf)

<sup>3</sup> Calculated by summing the total capacity of all >1Gbit/s circuits to all sites of the 11 organisations interviewed that had >1Gbits capacity. All circuits of 1Gbit/s and below were excluded.

5. We also argued that the treatment of self-supplied dark fibre would have a significant impact on service share calculations in the very high speed circuit market, a view that we believe is still valid.
6. In its 2013 BCMR, Ofcom provided no volumes for dark fibre circuits, although it did acknowledge the use of self-supplied dark fibre.<sup>4</sup> At the time, Ofcom argued that the use of self-supplied dark fibre was largely constrained to the WECLA region.<sup>5</sup>

### **Treatment of dark fibre in the 2016 BCMR**

7. In its consultation for the 2016 BCMR, Ofcom does provide dark fibre volumes.<sup>6</sup> However, while the volumes of dark fibre circuits would be large enough to affect service shares in the 'very high CISBO' market, Ofcom argues that they should not be included in this market for two reasons. First, it argues that these circuits are used for a range of bandwidths,<sup>7</sup> and not just very high speeds. Second, it opines that only a niche of specialist firms use dark fibre.<sup>8</sup>
8. We believe that both of these arguments for excluding dark fibre from the market assessment are flawed:
  - First, the assertion that dark fibre is used for a range of bandwidths, and not just very high speed circuits, contradicts other statements that Ofcom has made about why organisations use dark fibre. This is explored in more detail below.

<sup>4</sup> See Footnote 97, Section 7 of the consultation document states "We believe that a number of large customers do self-provide MISBO services given that they buy dark fibre from CPs such as GEO." Available at <http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity/summary/section7.pdf>

<sup>5</sup> Paragraph 7.261 of the 2013 consultation document states "In discussions with BT it has been observed that our data gathering may not have taken into account a proportion of supply of MISBO services from smaller CPs who either build or lease dark fibre, and from large corporations and public bodies which self-provide MISBO services. We have interrogated this observation by taking steps to gain an even more granular picture of the market.<sup>93</sup> (For full details of this additional research, see Annex 8.) In summary, we have researched over 100 smaller CPs who have code powers, and therefore can build fixed network infrastructure, and are satisfied that the majority of their network infrastructure sits within the WECLA." Available at <http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity/summary/section7.pdf>

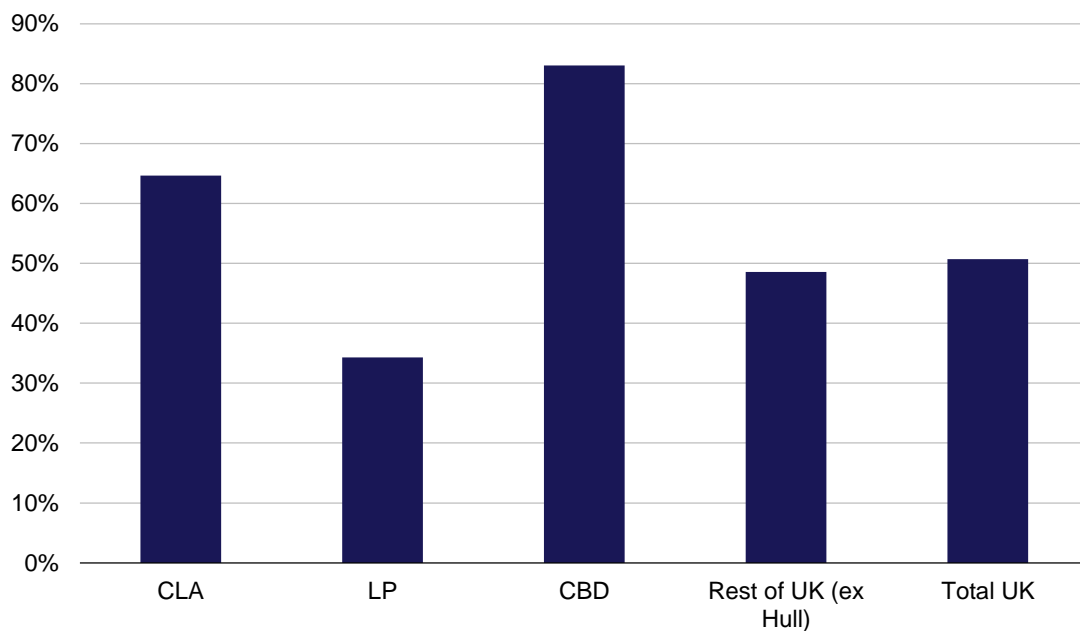
<sup>6</sup> See table 4.3. Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf)

<sup>7</sup> See page 291, Business Connectivity Market, Review – Annexes, Review of competition in the provision of leased lines. Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/annexes/BCMR\\_Annexes\\_Non\\_Confidential.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/annexes/BCMR_Annexes_Non_Confidential.pdf)

<sup>8</sup> Paragraph 4.81 of the 2016 consultation states "While some end customers use dark fibre as an alternative to leased lines, this is a niche customer segment and as such we do not expect dark fibre to have a material impact on competition for CISBO services for customers in general." Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf)

- Second, we accept that dark fibre is only used by a niche of specialist firms, but this is true of any very high speed circuit and should not be a reason for excluding dark fibre from the assessment. Ofcom’s dark fibre volume data shows that over 5000 dark fibre circuits are being used by organisations in self-supplied networks.<sup>6</sup> Assuming 2–3 wavelengths per dark fibre circuit, as Ofcom does, then self-supplied dark fibre is similar in size to the very high bandwidth circuit market (excluding dark fibre). We believe that this high usage of self-supplied dark fibre indicates that it is not just the preserve of a small minority of organisations but one of the options explored by organisations requiring very high speed circuits.
9. Ofcom’s data shows that, relative to the very high CISBO market, dark fibre circuits<sup>9</sup> would form a very significant share of the market; in fact, in some cases, dark fibre could represent over 80% of circuits, as shown in Figure 2, which is based on data from Table 4.3 in the 2016 BCMR consultation document.<sup>6</sup> Our calculations are based on the assumption that all dark fibre circuits in Table 4.3 are for end users and are not resold by communications providers as a managed service.<sup>10</sup>

Figure 2: Dark fibre circuits<sup>9</sup> as % of very high CISBO market by geography [Source: Analysys Mason, 2015]



10. However, Ofcom has chosen not to include dark fibre in its assessment of the very high CISBO market, arguing that “most dark fibre seems likely to be used outside the very high CISBO segment”<sup>11</sup> as between 10–30% of sales of dark fibre are to “universities, media and finance

<sup>9</sup> Note that here we are only counting dark fibre circuits, and not wavelengths.

<sup>10</sup> Paragraph 4.72 states “Our estimates of the volume of dark fibre sales to end-users, compared to active sales in the CISBO market as a whole and in the very high CISBO segment are shown in Table 4.3 below.” Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf)

<sup>11</sup> Paragraph 4.76. Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf)

companies”<sup>12</sup> which “are the most likely to use dark fibre for very high bandwidth connectivity”.<sup>12</sup> Ofcom appears to assume that all sales to other types of organisation are not for very high bandwidth connectivity.

11. The evidence supporting Ofcom's argument that dark fibre is not used for very high speed services is unclear. Ofcom states: “Based on a review of the customer information we have received, it is unlikely that the majority of dark fibre/duct leases are used to self-supply WDM connectivity or very high bandwidth services as they include organisations such as [redacted text]”.<sup>7</sup>
12. This statement contradicts Analysys Mason's previous research on this market<sup>2</sup> and Ofcom's own discussion on the use of dark fibre, both in the 2016 BCMR and the 2013 BCMR.
13. For example, in footnote 99 referring to the 2013 BCMR, Ofcom says “The research suggested that dark fibre tended to be economic when speeds greater than 10Gbit/s were required. One interviewee suggested that the threshold for using dark fibre was even higher at 40Gbit/s. See paragraph 7.569 of the BCMR 2013 Statement. See also paragraphs 7.376, 7.394, 7.568 and 7.571 – 7.572.”.<sup>13</sup> It seems unlikely that the economics of dark fibre have changed substantially between the 2013 and 2016 BCMR.
14. Later in the document, in section A23.159, Ofcom states that “[dark fibre] is in general only likely to be economic to substitute leased line circuits at and above 1Gbit/s with dark fibre-based circuits.”<sup>14</sup>
15. The impact of including dark fibre in service shares is illustrated below in Figure 3 and Figure 4 (Figure 3 is based around the ‘low end’<sup>15</sup> of Ofcom's service share assumptions,<sup>16</sup> while Figure 4 is based on the ‘high end’<sup>17</sup> data). BT's service share falls by between 2 and 10 percentage points depending on the geographical area. The two assumptions used in these calculations are that only 50% of dark fibre circuits are in the very high CISBO category, and each dark fibre carries two wavelengths: both of these assumptions we believe to be conservative. These assumptions imply that over 5000 very high bandwidth ends are self-supplied using dark fibre, significantly higher than Ofcom's assumption of 1700–2550.<sup>18</sup>

<sup>12</sup> Paragraph 4.74. Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf)

<sup>13</sup> See footnote 99 of the 2016 BCMR consultation document. Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf)

<sup>14</sup> Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/annexes/BCMR\\_Annexes\\_Non\\_Confidential.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/annexes/BCMR_Annexes_Non_Confidential.pdf)

<sup>15</sup> The ‘low end’ service share assumptions exclude MNO and LLU backhaul.

<sup>16</sup> See table 4.4 in [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf)

<sup>17</sup> The ‘high end’ service share assumptions include MNO and LLU backhaul.

<sup>18</sup> Paragraph 4.74. Available at Available at [http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR\\_Sections.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf)

Figure 3: BT's service share of the very high CISBO market by geography, including and excluding dark fibre (low) [Source: Analysys Mason, 2015]

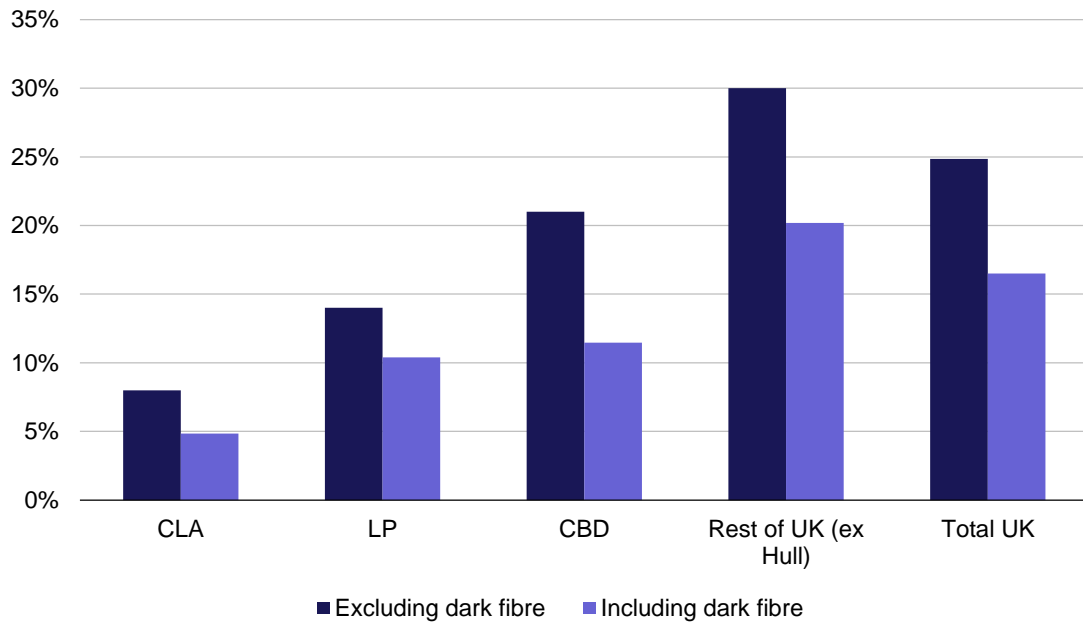
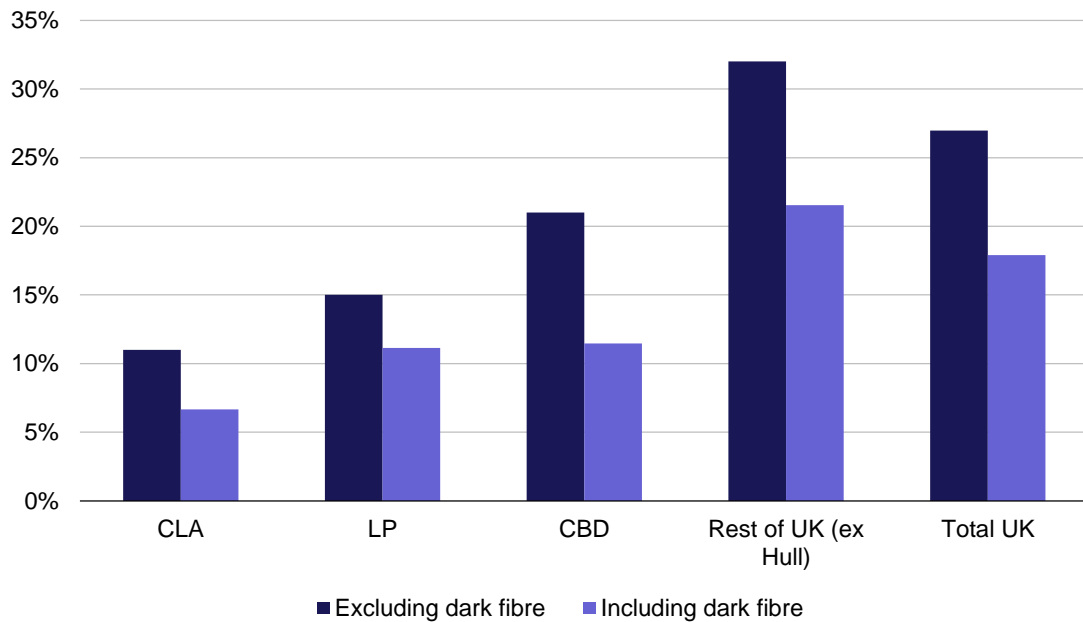


Figure 4: BT's service share of the very high CISBO market by geography, including and excluding dark fibre (high) [Source: Analysys Mason, 2015]



## Summary

16. In conclusion, we believe that Ofcom should consider including dark fibre as part of the assessment of very high CISBO market share calculations. Self-supplied networks using dark fibre are only used by organisations with specialist needs, as is the case with organisations that use very high speed circuits. Ofcom's figures show that usage of self-supplied dark fibre networks is large enough to have a significant impact on market share calculations. We also believe that dark fibre is most commonly used for very high speed services, a position supported by our own research and Ofcom's comments on the economics of building dark fibre networks.