



Business Connectivity Market Review

Very low bandwidth leased lines

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Notified to the European
Commission:

Draft Statement

22 March 2016

About this document

This document is a draft of the conclusions of our review of the retail market for very low bandwidth (VLB) leased lines in the UK, which forms part of the Business Connectivity Market Review 2016.

VLB leased lines provide dedicated, symmetric, data connections with either analogue interfaces or digital interfaces operating at bandwidths lower than 2Mbit/s. The most common services of this type are BT's Analogue and Kilostream Private Circuits.

The volume of these services is declining rapidly as users replace them with modern alternatives and the underlying equipment is becoming obsolete.

We have decided to stop regulating the retail market for VLB leased lines in the UK (excluding the Hull area). We have reached this decision having found that sufficient modern alternatives exist for the remaining users of these services and that users are already migrating rapidly to alternative services. We have also found that users that have not yet migrated have plans to do so in the next four years.

We have decided to continue regulating KCOM's retail provision of VLB leased lines in the Hull area with some changes from the current regulations.

Operators of public services such as water and energy utilities use VLB leased lines to support vital systems. In this document we explain how we plan to ensure that operators of these essential public services are aware of BT's plans to withdraw the services (as well as KCOM's, should it decide to do the same), so that affected organisations can take timely steps to migrate to alternative services.

This draft statement is being notified to the European Commission for its comments. Once this notification process is complete, we will publish a final statement and a notification within the 2016 BCMR Statement to bring our decisions into effect.

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Section 1

Executive Summary

- 1.1 This statement sets out and explains our decision not to impose *ex ante* regulation on the retail market for very low bandwidth leased lines in the UK.¹
- 1.2 Very Low Bandwidth (VLB) leased lines are legacy services that provide dedicated, symmetric² data connections with either analogue or digital interfaces operating at bandwidths lower than 2Mbit/s.
- 1.3 VLB leased lines are used by a wide variety of organisations, including operators of Critical National Infrastructure (CNI) in order to support essential public services.
- 1.4 BT has announced that it will withdraw most of these retail VLB leased lines – Analogue Private Circuits (including Own Exchange Analogue Services³) and KiloStream. The key dates are:
- 1 September 2016 – end of new supply; and
 - 31 March 2020 – withdrawal of all remaining existing services.^{4 5}
- 1.5 We consider that continuing to require BT to supply these services would not be in the best long term interests of users as BT has advised us that, over time, reliability is likely to decline.
- 1.6 On 15 May 2015, we published a consultation containing our proposals to remove regulation from the retail market for these services in the UK⁶. Our reasons for proposing this were:
- the network upon which BT provides a large portion of VLB services is ageing and is approaching the end of its life;
 - significant progress had been made with migration of VLB services that support CNI since the BCMR 2013 and we have taken steps to ensure that CNI operators are aware of the need to switch to alternative services and are able to do so;
 - as users can and are migrating to alternative services, and will increasingly do so over the market review period, any barriers to, and prospects for, the competitive provision of retail VLB services are now less relevant;
 - BT is managing an orderly process of service withdrawal of retail VLB leased lines over the next few years; and

¹ With the exception of those provided by KCOM in the Hull Area.

² They offer the same data rate in both directions.

³ An Own Exchange Analogue Service is where both ends of the circuit are served from a single exchange.

⁴ BT will be withdrawing DealerStream 1-6 and CitySure before 2020 on 31 March 2018.

⁵ BT, *BT's TDM services – product roadmap update (Mar 2015)*, 26 March 2015, http://www.globalservices.bt.com/static/assets/pdf/campaign/tdm_services/TDM_Roadmap_Mar_2015_Iss6.pdf

⁶ With the exception of the Hull area

- protection will be provided to end-users by regulation of the related upstream wholesale low bandwidth Traditional Interface Symmetric Broadband Origination (TISBO) market,⁷ which will remain in place.
- 1.7 Although the equipment used to supply these services is based on technologies dating back to the 1980s, some businesses and public sector organisations still use VLB leased lines to support certain applications, including some essential public services, such as:
- electricity distribution;
 - water supply;
 - river/water management;
 - traffic lights;
 - railways;
 - air traffic control; and
 - emergency services communications.
- 1.8 In the light of the importance of VLB leased lines to some essential public services, in February 2015 we launched a programme of engagement that sought to increase awareness of the withdrawal amongst organisations responsible for CNI (CNI operators) in a wide range of sectors. Our programme also sought assistance with this task from other sector regulators, government departments and industry associations.
- 1.9 In summary, we found a high level of awareness among CNI operators of BT's plans to withdraw the services. Many are already in the process of migration or have plans to do so, and a number have already completed this process. We also contacted CPs and service providers who sell VLB leased lines using retail or wholesale services purchased from BT and KCOM, asking them to ensure that they take adequate steps to inform their end-users of the withdrawal of these services if they have not already done so. We summarise more fully the progress of this programme in Section 4.
- 1.10 We received 17 responses to our May 2015 BCMR VLB Consultation (VLB Consultation) from a variety of stakeholders including CPs, industry bodies and end users.⁸ Together with the feedback from our programme of engagement, this showed that most CNI operators are aware of the need to migrate from VLB leased lines to more modern alternatives. However, given the importance of many of the services that these retail VLB leased lines support, we have decided to put in place a programme to monitor the migration of CNI operators to more modern alternatives.⁹
- 1.11 Whilst no stakeholders expressed concerns about the date of 1 September 2016 for the withdrawal of new supply, some respondents did raise the following concerns in relation to existing services:

⁷ The wholesale low bandwidth TISBO market includes circuits of 2Mbit/s up to and including 8Mbit/s.

⁸ In addition, we received two responses to the main BCMR consultation that we considered relevant to the retail very low bandwidth leased lines consultation.

⁹ BT's stated its willingness to share information with us about the progress of migration in its letter dated 2 February 2016, which can be found at Annex 5.

- that BT's current poor performance in delivering Ethernet services¹⁰ was inhibiting their migration and, if not addressed, may cause a delay in migration beyond the current deadline of March 2020;
- that BT's voluntary pricing commitment not to raise prices by more than RPI+8% per annum until these services are withdrawn was insufficient to prevent excessive pricing; and
- that BT should be offering customers commercial incentives to migrate to new services and should bear all the associated costs, and that BT should be subject to new SMP conditions requiring it to manage all end-of-life migration.

1.12 In relation to these concerns we consider that:

- the minimum standards that we have set in relation to the provision of Ethernet services¹¹ will mitigate the risk that users of VLB services will not be able to complete migration before March 2020.
- the level of BT's voluntary pricing commitment is not excessive, given the ongoing costs that are likely to be involved in the maintenance and eventual closure of the network over which a large portion of VLB services are provided.
- it would not be appropriate to require BT to offer commercial incentives to complete migration to alternative services. This is a commercial matter that is better addressed through discussions between BT and the purchasers of VLB services.

1.13 We summarise and respond to all the responses that we received to the VLB Consultation in Section 3.

1.14 Having considered stakeholders' responses, we conclude that imposing *ex ante* regulation is not appropriate for the following reasons:

- the volume of circuits in use has continued to fall rapidly since the BCMR 2013 and, as of October 2015, only 36% of the installed base of circuits as at March 2008 remained in use. We expect this decline to continue because the remaining end-users all need to move to alternative services in the next four years before BT withdraws VLB services in March 2020;
- any remaining technical barriers to migration – such as the unavailability of a technically suitable substitute service – have been addressed, so all end-users now have the option to migrate to a suitable alternative service. Such alternatives include higher bandwidth TI and Ethernet leased lines, Ethernet First Mile services, fixed broadband, and wireless technologies such as mobile and microwave;
- the vast majority of CNL operators – those end-users we consider will have the most difficulty migrating onto alternative services – are aware of the withdrawal and have plans to move to other services before the withdrawal deadline. In particular, the electricity utilities, which were the main focus of our concerns in the

¹⁰ One possible alternative replacement for VLB services.

¹¹ That are set out in Section 13 and Annex 12 of our 2016 BCMR Statement, <http://stakeholders.ofcom.org.uk/consultations/bcmr-2015/statement2016>

last BCMR, all have plans to migrate to alternative services, and the Office of Gas and Electricity Markets (Ofgem) is actively monitoring their progress;

- BT has adopted a more proactive approach in relation to communication and engagement with its customers; we understand that BT has already engaged with CNI customers and CNI-sector industry associations and is forming plans to engage with the rest of its customer base closer to the withdrawal date;
- We have undertaken an extensive programme of engagement to ensure that CNI operators are aware of the need to switch to alternative services and are able to do so. As set out in Section 4, we have spoken with numerous CNI operators in a variety of sectors and will maintain a programme to monitor the migration of customers to more modern services to address the residual risks that we have identified to essential public services; and
- BT has announced that it will maintain VLB services until 31 March 2020 (previously it had intended to withdraw support for the services on 31 March 2018), giving end-users extra time to switch to alternative services.

1.15 Collectively, these market developments have led us to conclude that the market failures that we identified in the BCMR 2013 are no longer present, contrary to the view presented by some respondents. In particular:

- risk that BT might withdraw services with insufficient notice - we are satisfied that BT has given sufficient notice of the withdrawal of its VLB retail services and has begun taking steps to ensure that its retail customers are aware of the withdrawal timetable.
- risk to CNI services – as noted above, significant progress has been made with CNI migration; we consider that going forward, the risk to CNI services is best addressed by our engagement and monitoring programme;
- risk of discriminatory practices and excessive prices – we consider that BT's incentive and ability to engage in discriminatory practices and to set excessive prices appears to be much reduced by a combination of reduced service volumes and end-users' ability to accelerate migration to alternative services. BT's voluntary commitment in relation to pricing of VLB services should provide additional assurance to end-users that price increases will not be excessive between now and March 2020.

Retail VLB leased lines in the Hull area

1.16 We also set out our decision for the continued regulation of retail VLB leased lines in the Hull area in the next review period. Although KCOM has not yet announced plans to withdraw its retail VLB leased lines in the Hull area, we understand that it intends to do so. We have therefore altered the regulations to permit KCOM to withdraw retail VLB leased lines from new supply and to withdraw existing services provided it gives at least two years' notice to Ofcom and its customers.

1.17 We have done this because KCOM faces similar issues of equipment obsolescence to those of BT, albeit that KCOM's volume of VLB leased lines is not of the same order of magnitude.

Consultation and next steps

- 1.18 We invite comments from the European Commission and BEREC on this draft statement, by 22 April 2016. Subject to any comments we receive, we intend to publish our final statement before the end of April 2016.

Section 2

Background

2.1 This statement sets out our decisions in relation to the provision of retail VLB Traditional Interface (TI) leased lines in the UK. These legacy services, which we refer to as retail VLB leased lines, provide dedicated, symmetric, data connections with either analogue or digital interfaces operating at bandwidths lower than 2Mbit/s. The most common services of this type are BT's Analogue Private Circuits and KiloStream.

Current regulatory arrangements

2.2 In the Business Connectivity Market Review 2013¹² (BCMR 2013) we identified the retail market for VLB leased lines at bandwidths below 2Mbit/s in the UK (excluding the Hull area) as susceptible to *ex ante* regulation. We found BT to have significant market power (SMP) in the provision of retail VLB leased lines and as a result we imposed the regulatory obligations listed below to address the competition problems that we had identified:

- obligation to supply retail leased lines: a requirement to supply existing analogue circuits and digital leased lines at bandwidths below 2Mbit/s until BT gives end-users and us notice of at least one year of their withdrawal;
- no undue discrimination: a requirement not to unduly discriminate in the provision of all analogue circuits and digital services at bandwidths below 2Mbit/s;
- obligation to publish a reference offer: a requirement to publish prices, terms and conditions for all analogue circuits and digital services of bandwidths below 2Mbit/s, and not to depart from the terms specified in the reference offer except with our permission;
- cost accounting obligations: a requirement to maintain a cost accounting system, which is a set of processes and systems that permit the costs of individual services to be determined; and
- safeguard price cap: a prohibition against raising:
 - the price of individual analogue services above RPI+10% per year; and
 - the collective price of all analogue services above RPI+2.25% per year.

¹² Ofcom, *Business Connectivity Market Review, Review of retail leased lines, wholesale symmetric broadband origination and wholesale trunk segments, Statement*, 28 March 2013, <http://stakeholders.ofcom.org.uk/consultations/business-connectivity-mr/?a=0>

Previous consultations

April 2014 BCMR Call For Inputs

- 2.3 When we started this BCMR, we published a Call for Inputs¹³ (April 2014 BCMR CFI) to gather stakeholders' views on a number of key issues. One of the topics that we highlighted was the future regulation of the retail market for VLB leased lines.
- 2.4 In the April 2014 BCMR CFI, we considered that it may not be proportionate for us to maintain retail regulation of this market after the end of the current review period. Our reasoning was that, given the prospective withdrawal of these services, the declining volumes and the extended notice already given to end-users responsible for essential services, the scope for harm is likely to have diminished considerably by the time we conclude this BCMR. We considered that any risk of harmful action by BT would also be likely to be mitigated by the accelerated migration of end-users to alternative services.

May 2015 BCMR VLB Consultation

- 2.5 Alongside the May 2015 BCMR Consultation we published the May 2015 BCMR VLB Consultation (VLB Consultation),¹⁴ which focused on whether we should continue to regulate retail VLB leased lines. The consultation set out our provisional conclusion that the retail market for VLB leased lines should no longer be regulated. We also outlined our risk mitigation plan, which is a programme of engagement aimed at reducing the risk that CNI operators would not have sufficient time to migrate to alternative services before the dates on which BT plans to withdraw the existing services, which could potentially lead to disruption of essential services.
- 2.6 We received 17 responses to our consultation from a range of stakeholders and two responses to the May 2015 BCMR Consultation which are relevant to retail VLB leased lines. The main points are summarised in Section 3 of this document and the non-confidential responses are published on our website here:

<http://stakeholders.ofcom.org.uk/consultations/very-low-bandwidth/?showResponses=true>

BT's plans to withdraw its retail VLB leased lines

- 2.7 Since 2006, BT has been planning to withdraw its retail VLB leased line services – including Analogue Private Circuits and KiloStream.
- 2.8 BT has advised us that there are two principal reasons that underpin this withdrawal. The first is that the volumes of these legacy services have been in steep decline for many years and are expected to continue to decline in the future as customers move to more modern alternatives, such as Ethernet, EFM (Ethernet First Mile) and fibre broadband. This is illustrated in Figure 2.1 below.

¹³ Ofcom, *Business Connectivity Market Review: Timetable and initial call for inputs*, 1 April 2014, <http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity-market-review/summary/Business-Connectivity-Market-Review.pdf>

¹⁴ Ofcom, *Business Connectivity Market Review: Very low bandwidth leased lines, Consultation*, 15 May 2015, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/summary/VLB_TI_retail_market.pdf

Figure 2.1: Actual and projected volumes for VLB TI retail leased lines and rebased relative to 2008 volumes for both Analogue and KiloStream services independently

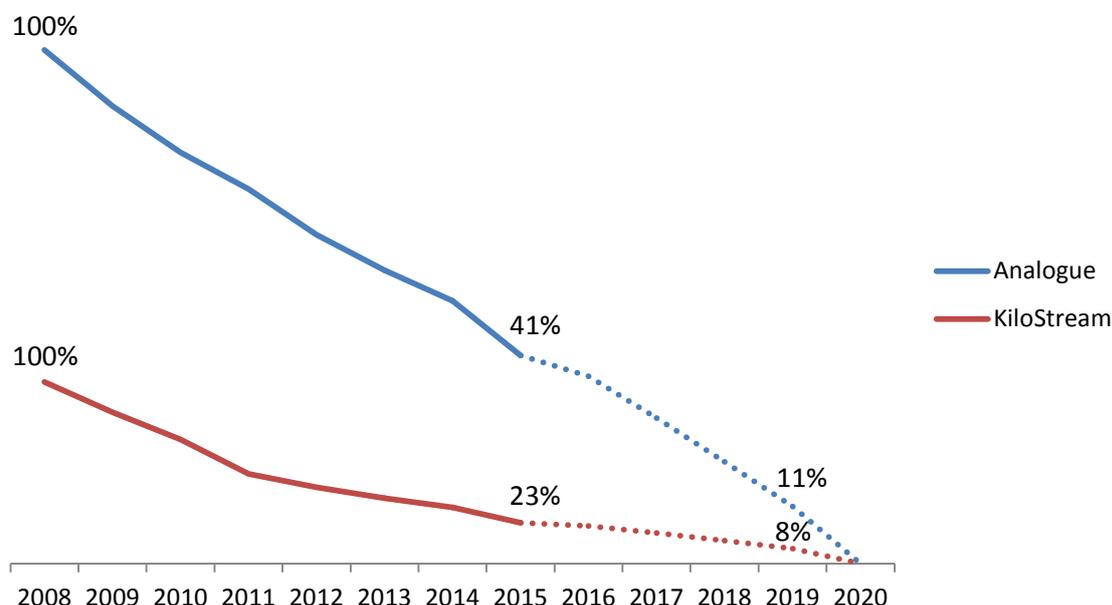


Chart based on data and projections received from BT. Solid line is actual volumes, dotted line is projected volumes.

2.9 The second reason is that BT is planning to close the ageing underlying platform that supports these services in 2021. The platform, known as the Digital Private Circuit Network (DPCN), is now over 30 years old and BT has advised us that spares are becoming increasingly difficult to source, and that the technical skills required to maintain it are difficult to retain. BT expects that both the maintenance costs and the risk of service failure will therefore increase over time.

2.10 While linked to the closure of the DPCN, BT has stressed that it will also be withdrawing some VLB services that do not run over the DPCN, in particular Own Exchange Analogue Services. BT is considering separately the withdrawal of wholesale VLB Partial Private Circuits (VLB PPCs), which are also run over the DPCN, and this is discussed further in Section 6.

2.11 In the course of BCMR 2008¹⁵ concerns were raised about BT's initial plans to withdraw retail VLB leased lines, under which services would have been withdrawn over the following four to seven years. There were particular concerns about the lack of suitable substitute services for some end-users, including those with responsibility for CNI. In view of the concerns we imposed an obligation for BT to continue to supply existing services and BT gave voluntary undertakings concerning the supply of new services. In those undertakings BT committed to:

- continue to supply new analogue retail circuits until 1 January 2011, or earlier if, subject to industry agreement and consent by Ofcom, the underlying platform is closed at an earlier date; and

¹⁵ Ofcom, *Business Connectivity Market Review: Review of the retail leased lines, wholesale symmetric broadband origination and wholesale trunk segments markets, Statement and Consultation*, 8 December 2008, <http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr08/summary/bcmr08.pdf>

- continue to supply new sub-2Mbit/s digital retail circuits until 1 January 2011, or earlier if, subject to industry agreement and consent by Ofcom, the underlying wholesale products are withdrawn from new supply at an earlier date.
- 2.12 BT subsequently reviewed its plans and announced on 15 January 2010 that it would defer service withdrawal to give users more time to migrate to other services.¹⁶ At that time BT said that where levels of demand for these services remained commercially viable, it would continue to support them on existing platforms, subject to other relevant services being available, until March 2018, at which point they would be fully withdrawn from service.
- 2.13 BT also committed to give at least three years' notice if it decided to bring the withdrawal date of specific services forward.
- 2.14 On 27 April 2011, BT offered to renew this voluntary undertaking, committing to supply new analogue and sub-2Mbit/s retail leased lines until December 2013, or earlier if, subject to industry agreement and consent by Ofcom, the underlying platform was to be closed at an earlier date. Ofcom accepted these undertakings on 26 May 2011.¹⁷
- 2.15 On 18 November 2011 BT announced the withdrawal of a range of KiloStream and KiloStream N services.¹⁸ This was to be a two-stage withdrawal, with new supply being stopped in November 2012 and existing services being withdrawn approximately two years later. The services included in this withdrawal were:
- all KiloStream services at bandwidths below 48Kbit/s (i.e. 2.4Kbit/s, 4.8Kbit/s, 9.6Kbit/s and 19.6Kbit/s); and
 - all KiloStream N services except 128Kbit/s, 256Kbit/s and 512Kbit/s (i.e. 192Kbit/s, 320Kbit/s, 384Kbit/s, 448Kbit/s, 576Kbit/s, 640Kbit/s, 704Kbit/s, 768Kbit/s, 832Kbit/s, 896Kbit/s, 960Kbit/s and 1024Kbit/s).
- 2.16 BT's position with regards to analogue and the remaining KiloStream services remained unchanged.
- 2.17 On 28 November 2012, BT formally announced the withdrawal from new supply of the services listed above.¹⁹ BT also confirmed that it would withdraw existing services approximately, but no earlier than, in December 2014. Once again, BT's position with regards to analogue and the remaining KiloStream services remained unchanged.
- 2.18 In our March 2013 BCMR Statement we noted BT's commitments to a March 2018 withdrawal for remaining services and to a three-year notice period.²⁰ Nonetheless, given the critical nature of some of the services that used these leased lines, we considered that it remained appropriate to retain regulatory oversight of BT's withdrawal. We therefore imposed regulations on BT to continue to supply existing users of these services until it gave end-users and us at least one year's notice. This

¹⁶ BT, *Briefing, Product Update – BT's TDM Services*, 15 January 2010, found at Annex 1

¹⁷ <http://stakeholders.ofcom.org.uk/consultations/bcmr08/renewal/>

¹⁸ BT, *Briefing, Product Update – BT's TDM Services*, 18 November 2011, found at Annex 2

¹⁹ BT, *Briefing, Product Update – BT's TDM Services*, 28 November 2012, found at Annex 3

²⁰ Paragraph 10.23, Ofcom, *Business Connectivity Market Review, Review of retail leased lines, wholesale symmetric broadband origination and wholesale trunk segments, Statement*, 28 March 2013, <http://stakeholders.ofcom.org.uk/consultations/business-connectivity-mr/?a=0>

was to act as a backstop and provide additional assurance to end-users that sufficient notice would be given to allow them to migrate critical applications to alternative services.²¹

2.19 In the March 2013 BCMR Statement we set out our view that these services should be regarded as legacy services that were approaching the end of their life, and that it would have been inappropriate for us to seek to extend the availability of these services artificially through SMP regulation. We therefore chose not to seek a further voluntary undertaking from BT, nor to impose SMP regulation, in relation to supplying new services.²²

2.20 On 1 August 2014, BT announced that it would be stopping new supply for the remaining retail VLB leased lines from **1 September 2016**.²³ This included:

- all Analogue Private Circuits, including Own Exchange Analogue Services; and
- all remaining KiloStream and KiloStream N (i.e. 48Kbit/s and 64Kbit/s, and 128Kbit/s, 256Kbit/s and 512Kbit/s respectively)

2.21 In April 2015, BT announced that it would extend its support for the majority of existing retail VLB leased lines until **31 March 2020**, after which time they would be withdrawn,²⁴ with the exceptions of DealerStream 1-6 and CitySure, which are designated for withdrawal on 31 March 2018.

2.22 In January 2016, BT updated the relevant Suppliers Information Notes (SINs) to reflect these withdrawal dates. These can be found at the following link: <http://www.sinet.bt.com/sinet/SINs/index.htm>.

BT's engagement with its customers

2.23 In anticipation of this withdrawal, over the last few years BT has been engaging with certain customer groups in order to raise awareness of the service withdrawal. We understand these groups to be:

- CNI operators;
- customers that use a large number of retail VLB leased lines;
- customers that have complex technical arrangements; and
- CPs.

²¹ Ibid, paragraphs 10.53 – 10.57 and 10.75 – 10.77

²² Ibid, paragraph 10.52

²³ For Analogue Private Circuits:

http://www.bt.com/pricing/current/Private_Cir_boo/0377_d0e14.htm#0377-d0e14 [Accessed on 19 February 2015]; For KiloStream:

http://www.bt.com/pricing/current/Private_Cir_boo/1321_d0e5.htm#1321-d0e5 [Accessed on 19 February 2015]

²⁴ BT, *BT's TDM services – product roadmap update (Mar 2015)*, 26 March 2015,

http://www.globalservices.bt.com/static/assets/pdf/campaign/tdm_services/TDM_Roadmap_Mar_2015_Iss6.pdf

- 2.24 We also understand that BT has engaged with both the Electricity Networks Association (ENA) and the Telecommunications Association of the UK Water Industry (TUAWI) in order to engage with the energy and water utilities.
- 2.25 We understand that BT is planning to begin a larger-scale engagement programme encompassing all of its customers nearer to the withdrawal date.

BT's voluntary commitment on prices

- 2.26 In April 2015, BT offered Ofcom a voluntary commitment not to raise the prices of any retail VLB leased lines by more than 8% above RPI per annum until these services are withdrawn on 31 March 2020.
- 2.27 The voluntary commitment that we received from BT is set out at Annex 4. BT reconfirmed its voluntary commitment in a letter to Ofcom dated 2 February 2016, which can be found at Annex 5.

We are notifying this draft statement to the European Commission in accordance with the Revised Framework

- 2.28 Under the revised Article 7 of the Framework Directive^{25, 26} National Regulatory Authorities (NRAs) are required to notify their draft statement to the European Commission, BEREC and other NRAs upon completion of their own domestic consultation and having taken account of all stakeholder responses. The European Commission, BEREC and other NRAs may make comments within a month. The notifying NRA needs to take utmost account of any European Commission and BEREC opinions.
- 2.29 Therefore, having taken account of consultation responses and having made modifications that appear appropriate to us in light of these comments, we are notifying our intended measures and an explanatory statement setting out the reasons for them to the European Commission, BEREC and the regulatory authorities in every other member state under section 48B. This draft statement comprises that notification.

Impact Assessment

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

²⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0037:0069:EN:PDF>

²⁶ The revised framework was transposed into UK law by the Electronic Communications and Wireless Telegraphy Regulations 2011 which came into force on 26 May 2011 and amended the Communications Act 2003. This notification requirement is implemented by Section 48B.

- 2.31 The analysis presented in this document, and the relevant sections of the 2016 BCMR Statement,²⁷ constitutes an impact assessment as defined in section 7 of the Communications Act 2003.

Equality impact assessment

- 2.32 As outlined above, this statement is one part of our BCMR 2016. Our Equality Impact Assessment for this market review is contained at Annex 3 of the 2016 BCMR Statement.

²⁷ Ofcom, *Business Connectivity Market Review – Volume One: Review of competition in the provision of leased lines*, <http://stakeholders.ofcom.org.uk/consultations/bcmr-2015/statement2016>

Section 3

Our decision to deregulate the VLB TI retail market

- 3.1 In this section we explain why we have decided to stop regulating BT's retail VLB leased lines in the UK (excluding the Hull area).
- 3.2 Below we review the responses we received to the VLB Consultation and explain why we have concluded that the retail market for VLB leased lines no longer satisfies the EC's three criteria test, which is the test used to determine whether markets are suitable for *ex ante* regulation. In light of this conclusion:
- we have not conducted a formal market definition and SMP assessment for this market; and
 - we will withdraw the existing regulation imposed under the BCMR 2013 with effect from the date the 2016 BCMR Statement is published.

The three criteria test

- 3.3 The EC Recommendation identifies the main product and services markets whose characteristics may justify the imposition of *ex ante* regulatory obligations.²⁸ Ofcom, as the UK NRA, has a duty to define national markets appropriate to national circumstances, taking utmost account of the EC Recommendation and the SMP Guidelines.²⁹
- 3.4 Insofar as is relevant, the EC Recommendation states the following:
- “*Ex ante* regulation imposed at the wholesale level should be considered sufficient to tackle potential competition problems on the related downstream market(s)...Should a national regulatory authority nonetheless demonstrate that wholesale interventions have been unsuccessful, the relevant retail market may be susceptible to *ex ante* regulation provided that the national regulatory authority has found that the three-criteria test prescribed in this Recommendation is met”³⁰;
 - “National regulatory authorities should...apply the three-criteria test to those markets listed in the Annex to Commission Recommendation 2003/311/EC³¹ and to Recommendation 2007/879/EC which are no longer listed in the Annex to this Recommendation if they are currently regulated in the light of national

²⁸ See paragraph 36 of the SMP Guidelines. Recommendation 2014/710/EC of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services.

²⁹ See Article 15(3) of the Framework Directive (see also Recital 5 of the EC Recommendation).

³⁰ See Recital 18.

³¹ Commission Recommendation 2003/311/EC of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services.

circumstances, in order to assess whether, on the basis of such national circumstances, such markets are still susceptible to *ex ante* regulation³².

- 3.5 Therefore, we can identify a market other than those in the EC's Recommendation, such as the VLB TI retail market, only if it meets all the following three criteria:
- i) the presence of high and non-transitory barriers to entry;
 - ii) a market structure which does not tend towards effective competition within the relevant time horizon; and
 - iii) the insufficiency of competition law alone to adequately address the market failure(s) concerned.³³
- 3.6 Failure to meet any of the three criteria would indicate that the market should not be identified as susceptible to *ex ante* regulation.³⁴

Our consultation proposals about the VLB TI retail market

- 3.7 Having determined in the BCMR 2013 that the VLB TI retail market was susceptible to *ex ante* regulation, in the course of this review we again applied the three criteria test to this market to determine whether it remains susceptible to *ex ante* regulation.
- 3.8 The first step in a market review is to define the relevant market. In doing so, we recognise that market definition is a means to an end, and the end is the identification of market power where it exists. The key to doing so is to determine whether competitive constraints are sufficient to prevent BT exploiting customers by raising prices.
- 3.9 We considered that the relevant market remains the narrowly-defined VLB TI retail market, but, as we explain in the above sections, this market has unusual characteristics, and we expect that it will soon disappear as users migrate to other services. The products in this market are legacy products for which more modern substitutes are now available. The relatively small number of remaining users of retail VLB leased lines are now migrating or planning to migrate to these more modern substitutes, but we would not expect to see any migration in the opposite direction. As we adopt a narrow market definition, the services to which customers are migrating are treated as outside the VLB TI retail market. This means that we need to recognise the price-constraining effect of switching to these alternative products at the stage of assessing whether there is market failure due to market power.
- 3.10 In the BCMR 2013 we concluded that the three criteria test was satisfied because there were high structural barriers to entry in this market and little prospect of effective competition emerging given its legacy nature. BT retained a near 100 per cent share of analogue services and more than 60 per cent of retail VLB digital services. We also considered that competition law alone would not adequately address the market failures. In particular we were concerned that:
- absent *ex ante* regulation BT might engage in discriminatory practices or withdraw services without sufficient notice, potentially leading to a disruption of some essential services; and

³² See Recital 22.

³³ See paragraph 2 of the EC Recommendation.

³⁴ See Recital 17 of the EC Recommendation.

- BT might charge excessive prices for analogue services given the absence of retail competition and users' inability to migrate quickly to alternative services.
- 3.11 We considered that *ex ante* regulation would be more effective than competition law in guaranteeing a timely and effective response to any such practices. Consequently we imposed *ex ante* regulation on BT designed to address these concerns, including a requirement to give notice of service withdrawal and a safeguard cap charge control on retail analogue prices.
- 3.12 In the VLB Consultation we explained that our analysis of potential market failures had changed since the BCMR 2013. Volumes in this market are falling steeply and most remaining customers have migration plans to move to alternative services. The available alternatives are provided in markets which are typically competitive at the retail level, supported where necessary by regulation at the wholesale level. Such alternatives include higher bandwidth TI and Ethernet leased lines, Ethernet First Mile services, fixed broadband and wireless technologies such as mobile and microwave. In addition:
- significant progress had been made with migration of CNI services since the BCMR 2013 and we had taken steps to ensure that CNI operators are aware of the need to switch to alternative services and are able to do so;
 - as users can and are migrating to alternative services, and will increasingly do so over the market review period, any barriers to, and prospects for, the competitive provision of retail VLB services are now less relevant;
 - BT is managing an orderly process of service withdrawal of retail VLB leased lines over the next few years; and
 - Further protection will be provided by regulation of the related upstream wholesale low bandwidth TISBO market,³⁵ which will remain in place.
- 3.13 In the light of these developments, we considered that the market failures identified previously are no longer present in this market and that competition law would be sufficient to address any other concerns which might arise. We therefore proposed that the three criteria test was no longer satisfied and that as a result:
- we would not conduct a formal market definition and SMP assessment for the retail VLB TI market; and
 - we would withdraw the existing SMP regulation imposed under the BCMR 2013 when we conclude our market review.

Overview of the consultation responses

- 3.14 We received 17 responses to the VLB Consultation, and two responses to the main BCMR consultation that are relevant to the VLB Consultation.
- 3.15 Respondents broadly agreed that VLB leased lines were a legacy product and that there was a need to migrate to more modern alternative services. Moreover, no

³⁵ The wholesale low bandwidth TISBO market includes circuits of 2Mbit/s up to and including 8Mbit/s.

respondents raised concerns about the date that BT plans to stop selling new services.³⁶ The main themes of the consultation responses were:

- Ofcom's assessment of the three criteria test and the need for *ex ante* regulation of the retail VLB market;
- concerns about the level of BT's voluntary commitment on retail prices;
- concerns about end-users' ability to migrate to alternative services, particularly in view of Openreach's poor quality of service in relation to Ethernet provisioning;
- concerns about the level of support for migration provided to CPs and end-users by BT;
- concerns about the price of alternatives to VLB leased line services;
- concern about the availability of radio spectrum;
- concerns about fault repair of existing retail VLB leased lines; and
- concerns about retail services resold by CPs.

3.16 We discuss each of these topics below.

The three criteria test applied to the VLB TI retail market

Summary of consultation responses

3.17 BT,³⁷ Bournemouth Borough Council,³⁸ the Energy Networks Association, the Joint Radio Company (JRC),³⁹ KCOM,⁴⁰ Scottish Water,⁴¹ South Staffordshire Water⁴² and the Telecommunications Association for the UK Water Industry (TAUWI)⁴³ agreed with our provisional conclusion that the three criteria test is not satisfied and that *ex ante* regulation is no longer required.

³⁶ 1 September 2016

³⁷ BT, *BT's response to Ofcom's consultation document "Business Connectivity Market Review: very low bandwidth leased lines, Non-confidential version, 22 July 2015,* <http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/BT.pdf>, p6

³⁸ Bournemouth Borough Council VLB Consultation response, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/Bournemouth_Borough_Council.pdf

³⁹ JRC, *JRC Response to the Ofcom consultation on the Business Connectivity Market Review: Very low bandwidth leased lines,* <http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/JRC.pdf>, p2

⁴⁰ KCOM, *Business Connectivity Market Review: very low bandwidth leased lines, Response by KCOM, Non-confidential version, 31 July 2015,* <http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/KCOM.pdf>, p3

⁴¹ Scottish Water VLB Consultation response, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/Scottish_Water.pdf, p2

⁴² South Staffordshire Water plc VLB Consultation response, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/South_Staffordshire_Water_Plac.pdf, p1

⁴³ TAUWI VLB Consultation response, [http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/Telecommunications_Association_of_the_UK_Water_Industry_\(TAUWI\).pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/Telecommunications_Association_of_the_UK_Water_Industry_(TAUWI).pdf), p2

3.18 Transport for London (TfL),⁴⁴ [redacted],⁴⁵ UK Power Networks (UKPN)⁴⁶ and Vodafone⁴⁷ disagreed with our provisional conclusion that the three criteria test is not satisfied and considered that *ex ante* regulation should be maintained. The main points made by these respondents were:

- there have been no substantial changes to the VLB retail market since the 2013 Review when we concluded that BT had SMP and that the three criteria test was satisfied;
- that Ofcom had previously concluded that the three criteria test was satisfied even though end-users have always been able to migrate to alternative services;
- the market failures identified in the 2013 Review still exist, specifically the risk of excessive prices, discriminatory practices and service withdrawal without sufficient notice;
- given the impending withdrawal of these services, stakeholders require more regulatory protection rather than less;
- upstream wholesale regulation is not a sufficient constraint on BT's retail market power at this late stage of the product lifecycle as there is insufficient time to recoup the costs of providing new VLB retail services using wholesale inputs;
- competition law is not sufficient to address the competition problems identified, in particular:
 - it would not provide end-users with certainty about retail pricing or mitigate the risk of excessive pricing;
 - it would not mitigate the risk to CNI services associated with service withdrawal because competition law is retrospective in nature; and
 - Ofcom would not be able to address market failures such as excessive pricing should they occur.
- Ofcom should retain *ex ante* regulation to maintain regulatory oversight of VLB service withdrawal in view of the importance of CNI services and the complexity of migration arrangements.

⁴⁴ TfL response to OFCOM Consultation on Business Connectivity Market Review (BCMR) - Very low bandwidth leased lines, July 2015, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/Transport_for_London.pdf

⁴⁵ [redacted] VLB Consultation response, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/Name_Withheld_1.pdf

⁴⁶ UKPN VLB Consultation response, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/UK_Power_Networks.pdf

⁴⁷ Vodafone, *Response to Ofcom's Consultation: Business Connectivity Market Review: Very low bandwidth leased lines, August 2015, non-confidential version*, <http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/Vodafone.pdf>

Further consideration, reasoning and decisions

Changes since the last review, market failures and the sufficiency of competition law

3.19 We disagree with the view that little has changed since the BCMR 2013. In our view there have been a number of significant changes that are material to our assessment of the three criteria test:

- the volume of circuits in use has continued to fall rapidly since the BCMR 2013 and, as of October 2015, only 36% of the installed base of circuits as of March 2008 remained in use. We expect this decline to continue because the remaining end-users all need to move to alternative services in the next four years before BT withdraws VLB services in March 2020;
- any remaining technical barriers to migration – such as the unavailability of a technically suitable substitute service – have been addressed, so all end-users now have the option to migrate to a suitable alternative service. Such alternatives include higher bandwidth TI and Ethernet leased lines, Ethernet First Mile services, fixed broadband, and wireless technologies such as mobile and microwave;
- the vast majority of CNI operators – those end-users we consider will have the most difficulty migrating to alternative services – are aware of the withdrawal and have plans to move to other services before the withdrawal deadline. In particular, the electricity utilities, which were the main focus of our concerns in the last BCMR, all have plans to migrate to alternative services, and the Office of Gas and Electricity Markets (Ofgem) is actively monitoring their progress;
- as mentioned above, BT has adopted a more proactive approach in relation to communication and engagement with its customers; we understand that BT has already engaged with CNI customers, CNI-sector industry associations and some select customers, and is forming plans to engage with the rest of its customer base closer to the withdrawal date;
- we have undertaken an extensive programme of engagement to ensure that CNI operators are aware of the need to switch to alternative services and are able to do so; as set out in Section 4, we have already spoken with numerous CNI operators in a variety of sectors and will continue to engage with impacted CNI operators until the withdrawal; and
- BT has announced that it will maintain VLB services until 31 March 2020, giving end-users extra time to switch to alternative services.

3.20 Collectively, these market developments have led us to conclude that the market failures previously identified are no longer present, contrary to the view presented by some respondents. In particular:

- risk that BT might withdraw services with insufficient notice - we are satisfied that BT has given sufficient notice of the withdrawal of its VLB retail services and has begun taking steps to ensure that its retail customers are aware of the withdrawal timetable.
- risk to CNI services – as noted above, significant progress has been made with CNI migration; we consider that going forward the risk to CNI services is best addressed by our programme of engagement and monitoring programme;

- risk of discriminatory practices and excessive prices – we consider that BT’s incentive and ability to engage in discriminatory practices and to set excessive prices appears to be much reduced by a combination of reduced service volumes and end-users ability to accelerate migration to alternative services. These alternative services are provided in markets which are typically competitive at the retail level, supported where necessary by regulation at the wholesale level.
- 3.21 Consequently, we do not consider that *ex ante* measures would be necessary in this instance.
- 3.22 In light of the above, and given the context that this is a legacy market, with rapidly declining volumes, we consider that it is appropriate to rely on *ex post* competition law rather than imposing *ex ante* regulation. Consequently, we have decided that the three criteria test is no longer satisfied and this market therefore is no longer susceptible to *ex ante* regulation.
- 3.23 Our conclusion that the VLB TI retail market no longer satisfies the three criteria test means that we no longer consider this retail market a relevant market for the purpose of this market review. The effects of this conclusion are that:
- i) we have not conducted a formal market definition and SMP assessment for this market; and
 - ii) we have withdrawn the existing regulation imposed under the BCMR 2013 with effect from the date the 2016 BCMR Statement is published.
- 3.24 We set out a notice revoking the SMP services conditions in Annex 35 of the 2016 BCMR Statement.

Constraint provided by upstream wholesale TISBO services

- 3.25 We accept that upstream wholesale regulation of VLB services may not provide a significant constraint on BT’s behaviour given the impending withdrawal of wholesale VLB services. We do, however, consider that continued *ex ante* regulation of wholesale 2Mbit/s TISBO services will provide some protection as these services can be utilised as replacements for VLB services for end-users that require the technical characteristics of TI services.

Regulatory oversight of service withdrawal for CNI services

- 3.26 We consider that the importance of CNI users is not by itself an indicator that *ex ante* retail regulation is justified. As we have discussed above, we consider that BT has provided sufficient notice of the withdrawal of VLB services and, as a result of our programme of engagement with operators of CNI services, we are satisfied that CNI operators are aware of the withdrawal and have plans to move to other services before the withdrawal deadline.
- 3.27 Moreover, we do not consider that continuing to require BT to provide VLB services beyond March 2020 would be in the best interests of end-users as BT has advised us that, over time, reliability is likely to decline. It is our judgement that the programme of engagement and monitoring discussed in Section 4 is the best way to ensure that CNI operators are not adversely affected by the withdrawal of VLB services.

Concerns about BT's voluntary commitment on retail prices

Summary of consultation responses

- 3.28 Three consultation respondents raised concerns about the level of BT's voluntary commitment on prices of retail VLB leased lines. The main points were:
- [3<] considered BT's voluntary commitment of RPI+8% to be excessive compared to previous price increases and TfL considered it to be excessive in view of the number of circuits still in use.
 - TfL⁴⁸ was concerned about the impact of price rises on public sector bodies whose budgets are likely to be considerably reduced in the next few years.
 - Vodafone was concerned about prospective price rises. Under Ofcom's proposal and BT's voluntary commitment, VLB TI retail prices could rise by RPI+8% per annum. In contrast the proposed charge control for the corresponding wholesale market (the wholesale low bandwidth TISBO market) would require BT to reduce its prices significantly over the three-year review period.⁴⁹ Vodafone considered that such a large divergence was unjustified particularly as VLB TI retail prices are in its view already excessive (based on PPC prices, Vodafone inferred that retail prices are 44.5% overpriced). Vodafone considered that Ofcom should impose a retail charge control mirroring the wholesale charge control.⁵⁰
 - Vodafone also considered that BT's voluntary commitment is an indication of market failure. It contended that if the market was competitive BT would attempt to mitigate the costs of disruption and migration in order to retain customers. Yet, instead of lowering prices to retain customers, BT may increase them by up to 8% per year above RPI.⁵¹
- 3.29 Vodafone also questioned whether retail prices rises would effectively incentivise end-users to migrate to alternative services as BT had suggested in its letter setting out its voluntary commitment, which can be found at Annex 4. Vodafone made three points:
- it explained that it continues to resell many retail VLB services, and in many cases its contracts with its customers prevent price rises from being passed through. As a result, the price rises would not increase migration as they would not be felt by the end-users.⁵²
 - it acknowledged that price rises during the last two market review periods had led to proactive migration. It suggested that the remaining users are those unable to migrate quickly and thus will not respond to pricing signals.⁵³
 - remaining end-users will not move until absolutely necessary because they are sceptical that BT will withdraw the services by the date it has published having previously delayed the withdrawal of these services on at least two occasions.⁵⁴

⁴⁸ TfL VLB Consultation response, p1

⁴⁹ In the June 2015 LLCC Consultation we proposed a charge control of CPI-12.25% and a starting charge adjustment of -7.75%.

⁵⁰ Vodafone VLB Consultation response, p2, p8

⁵¹ Ibid, p4, p9

⁵² Ibid, p10

⁵³ Ibid, p6

Our consideration of the consultation responses

- 3.30 BT has offered Ofcom a voluntary commitment in order to provide some certainty to end-users about VLB TI retail pricing in the run-up to service withdrawal (see Annexes 4 and 5). The voluntary commitment is not intended to act as an informal charge control on BT or to bring or keep prices in line with costs. However, in view of the concerns raised by consultation respondents, we have considered whether the level of the commitment appears to be reasonable. In this regard we note the following:
- The control that we are imposing on BT's charges for services in the corresponding wholesale market (the wholesale low bandwidth TISBO market) requires much smaller reductions than the control we proposed in the July 2015 LLCC Consultation. Our original proposal was for a control of CPI-12.25% and a starting charge adjustment of -7.75%. As we discuss in the 2016 BCMR Statement – Volume Two⁵⁵ at Section 6, we are in fact imposing a control of CPI-3.25% and a starting charge adjustment of CPI-10%. The difference between BT's voluntary commitment and the corresponding wholesale charge control basket is therefore much smaller than for our consultation proposals.
 - The charge control for wholesale low bandwidth TISBO services is designed to control the charges of wholesale 2Mbit/s services as well as wholesale VLB services and VLB services account for only a small proportion of that market (approximately [X] of costs and ([X] of revenues). Whilst we do not place too much weight on accounting rates of return on individual services within the basket, our modelling indicates that BT returns for VLB wholesale services (which run on a separate network to 2Mbit/s services) are below its cost of capital, at around [X] ROCE. This would suggest that wholesale charges for VLB services might need to increase in the course of the next review period – increases we have allowed for in the charge control by imposing an annual sub-cap of CPI+8% on each charge for all services within the TI basket.⁵⁶ As such, we consider it consistent for retail prices for these services to be allowed to rise by a similar level.
 - As service volumes are forecast to fall rapidly during this charge control period, unit costs will rise as the fixed costs of VLB services are recovered across a decreasing number of end-users and as maintenance costs increase.
- 3.31 Accordingly, we consider that BT's voluntary commitment seems not unreasonable.
- 3.32 We also consider that given the context, some price rises need not be an indication of market failure, and may be consistent with a signal to end-users about the need to migrate to alternative services alongside BT's notifications.
- 3.33 We accept that any such pricing signals will not motivate all end-users to migrate onto alternative services, including for the reasons Vodafone suggests. That said, we remain of the view that price rises can play a part in incentivising some end-users to migrate. Alongside any such signals, we have undertaken an extensive programme

⁵⁴ Ibid, p7

⁵⁵ Ofcom, *Business Connectivity Market Review – Volume Two: Review of competition in the provision of leased lines*, 22 March 2016, <http://stakeholders.ofcom.org.uk/consultations/bcmr-2015/statement2016>

⁵⁶ With the exception of interconnection services

of engagement to inform CNI operators in numerous sectors of the need to migrate onto alternative services before March 2020.

Support for service migration

Summary of consultation responses

- 3.34 Vodafone argued that BT does not provide adequate support for end-of-life service migration. It proposed that Ofcom should impose additional obligations requiring BT to provide better support for migration. In particular, BT should be required to undertake the management and absorb the costs of end-of-life service migration.⁵⁷

Our consideration of the consultation responses

- 3.35 Vodafone's comments draw on a more wide ranging submission on the arrangements for end-of-life service migration made in response to the May 2015 BCMR Consultation. We have therefore considered comments in the 2016 BCMR Statement.⁵⁸

Delays in migrating to alternative services

Summary of consultation responses

- 3.36 Several consultation respondents said that although they were willing to switch to alternative services, a lack of fibre infrastructure and Openreach's poor quality of provisioning were hindering their ability to migrate.
- 3.37 SP Energy Networks,⁵⁹ Northern Ireland Electricity (NIE)⁶⁰ and the JRC⁶¹ all raised concerns about Openreach's Ethernet provisioning quality of service. The service was described as poor and getting worse, characterised by late delivery, lack of ownership and poor communication. UKPN⁶² said that the provision of replacement services is often delayed because fibre infrastructure needs to be deployed to sites previously served only by copper cables. As a result, stakeholders were experiencing delays to their migration plans, and several were uncertain whether they would meet their deadlines as well as BT's own deadline for service withdrawal. SP Energy Networks said that at the current rate of delivery migration would not be completed until 2026, six years after BT's planned withdrawal date.
- 3.38 NIE added that if BT's Ethernet quality of service did not improve, electricity distribution network operators would have to install private networks. This would be a more expensive solution and lead to higher prices for consumers.

⁵⁷ Vodafone VLB Consultation response, p4-5

⁵⁸ 2016 BCMR Statement, Section 8, paragraphs 8.257 to 8.295

⁵⁹ SP Energy Networks consultation response to the May 2015 BCMR Consultation, 6 August 2015, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/SP_Energy_Networks.pdf

⁶⁰ Northern Ireland Electricity Limited, *Response to Ofcom's Consultation on Business Connectivity Market Review: Very Low Bandwidth Leased Lines*, July 2015, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/Northern_Ireland_Electricity.pdf

⁶¹ JRC VLB Consultation response, p1

⁶² UKPN VLB Consultation response, p1-2

- 3.39 UKPN was also concerned that lengthy migration lead times could lead to operators being exposed to unregulated BT pricing for lengthy periods.
- 3.40 NIE and the JRC both argued that BT should not be allowed to withdraw these services until BT's quality of service improves.
- 3.41 National Grid commented that migration options were limited at some of its sites and a decision to permit the withdrawal of these services should be delayed until the risks and costs of service removal can be fully assessed, so as to ensure that consumers are not adversely affected.⁶³

Our consideration of the consultation responses

- 3.42 The concerns raised by respondents about Openreach's quality of service when provisioning new Ethernet services echo the concerns raised with us at the outset of this BCMR by many of our stakeholders.
- 3.43 In the 2016 BCMR Statement, which has been published alongside this statement, we set out our own assessment of Openreach's performance, which we have found to be poor for provisioning, and our decision to impose minimum performance standards on Openreach's Ethernet provision and repair under the SMP regulatory framework. Included within this regime are the following obligations related to provisioning:
- a maximum limit for the 'mean time to provide' for all Ethernet orders – this would be set at 46 working days for 2016/17, then fall to 40 working days for 2017/18 and 2018/19;
 - a lower percentile 'maximum time to provide' limit for the quickest 40% of Ethernet orders – this would be set at 30 working days for 2016/17, then fall to 29 working days for 2017/18 and 2018/19;
 - an upper percentile 'maximum time to provide' limit for the quickest 97% of Ethernet orders – this would be set at 159 working days for 2016/17, then fall to 118 working days for 2017/18 and 2018/19; and
 - a minimum performance standard requiring a certain percentage of orders to be completed on or before the initial contractual delivery dates provided by Openreach to its customers – this would be set at 80% for 2016/17, then rise to 85% for 2017/18 and 90% for 2018/19.
 - a requirement for BT to publish Key Performance Indicators (KPIs) to enable us to monitor the 'tail' of open orders that have exceed the upper percentile 'maximum time to provide' limit (i.e. the 3% of orders that have not been completed after 159 working days in 2016/17 etc.).
- 3.44 The minimum standards require BT to make significant improvements in lead-times for Ethernet provisioning over the market review period. These measures will therefore help to ensure that VLB end-users who wish to migrate to Ethernet services can do so before VLB services are withdrawn.

⁶³ National Grid VLB Consultation response, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/National_Grid.pdf

- 3.45 We acknowledge that CNI services present a particular challenge for Ethernet provisioning as significant duct and fibre infrastructure deployment may be required to provide services in isolated locations. Nevertheless, we consider that with four years until VLB services are withdrawn, there is sufficient time to install replacement Ethernet services where required. However, it is important that orders for replacement services are submitted sufficiently in advance to ensure that replacement services can be installed before VLB services are withdrawn. BT and other retail CPs should be able to advise users about the necessary timescales for provision of replacement Ethernet services.
- 3.46 As discussed in Section 4, we will be monitoring the progress with migration of CNI operators as part of our risk mitigation plan.
- 3.47 We do not consider that it would be appropriate for Ofcom to require BT to delay withdrawal of VLB services beyond March 2020 as National Grid suggests. As we discuss in Section 2, BT has delayed withdrawal of VLB services by 12 years partly in response to requests from energy utilities for extra time to migrate CNI applications to alternative services. Moreover, we consider that requiring BT to maintain VLB services beyond March 2020 could constitute a risk to CNI services as it would increase the risk that these legacy services could not be reliably maintained.
- 3.48 With regards to the concerns about price rises for VLB services, we consider that BT's incentive and ability to set excessive prices is much diminished, as we have discussed in paragraph 3.20. We also note that BT has offered a voluntary commitment not to raise prices by more than RPI+8% per annum. This will give end-users some certainty about pricing until retail VLB services are withdrawn. We have considered respondents comments about the reasonableness of the voluntary commitment in paragraphs 3.30 to 3.33.

Concerns about the prices of alternative services

Summary of consultation responses

- 3.49 [X] and UKPN⁶⁴ were both concerned that alternative services are often more expensive than VLB TI retail services, raising end-users costs and creating a barrier to migration.

Our consideration of the consultation responses

- 3.50 As there are no direct replacements for VLB TI retail services, we expect that end-users will migrate to a range of alternative services including higher bandwidth TI and Ethernet leased lines, Ethernet First Mile services, broadband and wireless technologies such as mobile and microwave.
- 3.51 End-users that require leased line service features will need to migrate to higher bandwidth TI or Ethernet leased line services for which prices are currently higher than the prices of VLB services. In some cases, end-users may choose to pay more for a service with additional features which they value, for example, additional bandwidth or the prospect of lower costs in future. However, we consider that users who only require a VLB service will also be adequately protected because:
- the available alternatives are provided in markets which are typically competitive at the retail level, supported where necessary by regulation at the wholesale level

⁶⁴ UKPN VLB Consultation response

to ensure that prices are reasonable. The prices of alternatives are expected to decline relative to those of VLB services by the end of the charge control period;

- the prices of retail VLB leased lines do not reflect the cost of long-term provision on an ongoing basis, including the costs of asset replacement, as the option of replacing the assets is not available. The closure decision is in effect a recognition that the costs of maintaining and operating a separate network to provide VLB services on an ongoing basis would be prohibitive, and that it is efficient for VLB users to migrate to alternatives;
- whilst, in principle, a service offering less than 2Mbit/s bandwidth could be provided over the same network as a 2Mbit/s TI service by “throttling” the 2Mbit/s service, this would in fact add to costs rather than reducing them and thus would be inefficient.⁶⁵

Concern about the availability of radio spectrum

Summary of consultation responses

3.52 The JRC said that in some cases CNI operators may wish to migrate from VLB services to radio-based solutions for telemetry applications. It was concerned that the increasing scarcity of suitable UHF band channels and interference problems in the 1.4GHz band could impede such migration.⁶⁶

Our consideration of the consultation responses

3.53 We note that JRCs comments about the possibility of interference in the 1.4GHz band were considered in our recent consultation and statement on SDL,⁶⁷ and that we are considering the JRC’s detailed comments about UHF spectrum⁶⁸ as part of our strategic review of UHF spectrum at 420-470MHz.⁶⁹

Concern about fault repair of existing retail VLB leased lines

Summary of consultation responses

3.54 The JRC commented that the average repair time for retail VLB leased lines has increased three-fold in the past three years and is now greater than 24 hours. The JRC explained that this has a significant impact on electricity utilities, as during the service outage a related power system fault cannot be detected or cleared. In such circumstances, the utilities may be compelled to operate a significant section of the electricity network at risk for prolonged periods pending repair of the VLB leased line.⁷⁰

⁶⁵ We consider that CNI and other remaining users are likely to be relatively price insensitive.

⁶⁶ JRC Consultation response, p1

⁶⁷ Variation of the Spectrum Access Licence for 1452-1492 MHz and changes for fixed link use in the paired bands 1350-1375 MHz and 1492-1517 MHz,
<http://stakeholders.ofcom.org.uk/consultations/licence-variation-1.4ghz/>

⁶⁸ JRC, *JRC Response to the Call for Inputs on the Strategic Review of UHF Spectrum 420 to 470 MHz UHF Bands 1 and 2*, http://stakeholders.ofcom.org.uk/binaries/consultations/420-470-mhz/responses/Joint_Radio_Company.pdf

⁶⁹ <http://stakeholders.ofcom.org.uk/consultations/420-470-mhz/>

⁷⁰ JRC Consultation response, p1

Our consideration of the consultation responses

- 3.55 We have assessed BT's fault repair times between April 2014 and September 2015 and have not found any evidence of a worsening of average repair times.

Concerns about retail services purchased by CPs

Summary of consultation responses

- 3.56 In a supplementary response to the VLB Consultation⁷¹ Vodafone asked Ofcom to consider additional measures for the VLB retail services CPs purchase from BT, to prevent BT acting in a discriminatory manner.
- 3.57 Vodafone explained that CPs purchase retail analogue services as inputs to the services they provide to their customers, because BT does not provide wholesale inputs. Similarly, CPs also purchase retail KiloStream services. This practice pre-dates the introduction of wholesale services (i.e. PPCs) and for a variety of reasons has continued.
- 3.58 Vodafone was concerned that if retail regulation is withdrawn, BT might act in a discriminatory manner by offering its own retail customers preferential pricing and quality. Vodafone asked that Ofcom either: re-designate CPs retail VLB purchases as wholesale services and apply wholesale remedies; or secure a much clearer customer commitment from BT in relation to on-going pricing and service.

Our consideration of the consultation responses

- 3.59 As we have discussed in more detail paragraph 3.20, we consider that BT's incentive and ability to act in a discriminatory manner or to set excessive prices is much reduced. Discriminatory conduct could also be addressed under competition law. Therefore we do not consider that additional measures are necessary to prevent discrimination.

Concerns about the future of other services that support CNI

Summary of consultation responses

- 3.60 NIE raised two concerns about higher bandwidth leased line services that it uses for CNI applications.
- 3.61 Firstly, NIE was concerned that BT might change the specification of its wholesale Ethernet services without giving sufficient notice for NIE to install alternatives. In particular, BT might introduce network switches into the path of its Ethernet services making them vulnerable to power outages and therefore unsuitable for their telemetry applications.
- 3.62 Secondly, NIE was concerned that if BT decided to withdraw its higher bandwidth retail TI services (such as MegaStream that NIE uses for some of its most critical telemetry applications) it might not give sufficient notice for electricity distribution network operators. NIE explained that as electricity distribution network operators business plans are reviewed by Ofgem in eight-year price review periods, they may

⁷¹ Vodafone, *Response to Ofcom's Consultation: BCMR retail very low bandwidth*, December 2015, http://stakeholders.ofcom.org.uk/binaries/consultations/very-low-bandwidth/responses/vodafone_supplemental_RPC.pdf

require as much as 10 years' notice of service withdrawal so they can factor the costs into their business plans.⁷²

Our consideration of the consultation responses

- 3.63 BT is currently required to give a minimum of 90 days' notice to customers of any technical changes it wishes to make to its wholesale leased line services and we have decided to retain this obligation for the next BCMR period until March 2019.⁷³ We consider that this and the other general remedies we have decided to impose, including the requirement to provide network access on reasonable request, should provide sufficient protection for end-users.⁷⁴ We would expect customers that rely on specific features of a service to seek any assurances they require from their service providers in the first instance.
- 3.64 The future withdrawal of higher bandwidth TI retail services is not within the scope of this BCMR as we do not regulate their provision. However, Ofcom does monitor CNI matters that relate to communications services and would engage with BT were the withdrawal of services used to support CNI to become a realistic prospect. Moreover, in this instance too we would expect CNI operators to engage with their suppliers if they require long periods of notice before specific services are withdrawn.

⁷² Northern Ireland Electricity VLB Consultation response, p3

⁷³ 2016 BCMR Statement, Section 8, paragraphs 8.152 - 8.161

⁷⁴ The general remedies we have decided to impose are discussed in full at Section 8 of the 2016 BCMR Statement.

Section 4

Update on our risk mitigation plan

- 4.1 The primary risk identified in our consultation in relation to the withdrawal of retail VLB leased lines is that CNI operators might only become aware of the need to migrate to alternatives when there is insufficient time to do so before the withdrawal of the existing services, potentially leading to a disruption of essential services. To reduce this risk we have put in place a risk mitigation plan, which is a programme of engagement to ensure that every CNI operator affected by the withdrawal is aware of the scope of the withdrawal, its timetable, and of the need to migrate to alternative services. In this section we summarise the progress of our programme of engagement and our findings in relation to the awareness and preparedness of CNI operators for the withdrawal.
- 4.2 Responses to the VLB Consultation highlighted a further risk to CNI, namely that significant delays in the provision of replacement services for CNI operators could lead to a disruption of essential services. Primarily, we are concerned with delays in the delivery of new Ethernet services by Openreach. In this section we also outline our plans to mitigate this risk through engagement with Openreach and the CNI operators most exposed to this risk.

Programme of engagement and sector-by-sector summary

- 4.3 We launched this programme in February 2015. We outline below our progress in engaging with regulators, industry associations and CNI operators from a range of sectors and what we have learned about the preparedness of CNI operators in those sectors.

Energy – Electricity

England, Scotland and Wales

- 4.4 Electricity distribution network operators (EDNOs) are companies that own and manage the networks that carry electricity from the high voltage transmission grid to industrial, commercial and domestic users. There are 14 EDNOs in Great Britain and most were known users of retail VLB leased lines. The EDNOs in England, Scotland and Wales fall under the regulatory remit of Ofgem.
- 4.5 We have engaged with Ofgem since the beginning of this review and understand from Ofgem that it has been in regular contact with all the EDNOs about their use of retail VLB leased lines, requesting regular updates on migration plans and reminding them of the timetable for the withdrawal of these services. We wrote to Ofgem in March 2015 and we understand that Ofgem circulated our consultation on this matter to all the EDNOs in May 2015.
- 4.6 We understand that, as of October 2015, one EDNO has completed its migration away from retail VLB leased lines, while several others expect to finish within the next two years. We also understand that the remainder all have plans to complete their migrations before March 2020, although there are concerns that poor quality of service from Openreach in the delivery of Ethernet services may significantly delay their migrations. We understand that five EDNOs have elected to build or expand

their own communications networks to replace their retail VLB leased lines, while others are migrating to modern leased lines or wireless technology.

- 4.7 We have also been in discussions with the JRC, which represents UK gas and electricity transmission and distribution companies, since the beginning of 2015. We attended the JRC meeting held on 19 May 2015 to highlight our consultation and briefly explain the background to our proposals. We understand that the JRC engaged with its members about our proposals.

Northern Ireland

- 4.8 The energy sector in Northern Ireland falls under the remit of the Utility Regulator for Northern Ireland (URegNI). We made contact with the URegNI at the outset of this programme of engagement and formally wrote to the URegNI in March 2015 asking for its assistance in this area. We have had regular contact with URegNI since then, and understand that URegNI circulated our consultation on this matter to a number of its stakeholders.
- 4.9 In relation to the energy sector, at the time of the consultation URegNI identified two users that relied on retail VLB leased lines: SONI (System Operator for Northern Ireland), which is responsible for the operating the electricity transmission system, and NIE, which is responsible for procurement, transmission and distribution of electricity around Northern Ireland. We understand that NIE is managing the migration for both companies and is still in the process of finding alternative solutions to replace these circuits.

Energy – Gas

- 4.10 National Grid is the sole owner and operator of gas transmission infrastructure in the UK and also owns four regional gas distribution networks. National Grid uses retail VLB leased lines to allow operators to monitor and regulate the flow of gas in the distribution network. We understand that it has firm plans in place to replace over half of its retail VLB leased lines with wireless equipment within the next year, and is considering what technology is most suitable to replace the remaining VLB services.
- 4.11 Mutual Energy, which is responsible for gas transmission in Northern Ireland, does not rely on retail VLB leased lines to support any of its infrastructure.
- 4.12 Of the five other gas distribution network operators in the UK, only two, Wales and West Utilities, and Scotia Gas Networks, still use retail VLB leased lines for monitoring and controlling parts of their networks. We understand that both are in the process of migrating onto other technologies.
- 4.13 Gas utilities fall within the remit of Ofgem and URegNI, and as mentioned above we have made both these regulators aware of the importance of their stakeholders' migrations.

Water

- 4.14 We contacted TAUWI early in this review and were advised that a number of the water utilities used retail VLB leased lines for telemetry purposes. As noted in our consultation, we initially had concerns about the awareness of the withdrawal amongst the water utilities, especially the smaller companies. TAUWI, in its response to our VLB Consultation, has since allayed our concerns by advising us that its

members, which include most of the water companies in the UK, are now aware of the withdrawal and its impact.

- 4.15 In addition to our engagement with TAUWI, we wrote formally to Ofwat in March 2015 to ask for its assistance on this matter and Ofwat has circulated our consultation to the ten water and sewerage companies and eight water-only companies operating in England and Wales.
- 4.16 We also engaged with WICS (Water Industry Commission for Scotland) as part of this programme and WICS put us in contact with Scottish Water, the sole provider of water and waste water services in Scotland. We understand that Scottish Water uses retail VLB leased lines for telemetry and monitoring purposes. It has advised us that it is planning migration to alternative technologies.
- 4.17 In relation to Northern Ireland, URegNI advised us that Northern Ireland Water (NI Water), the sole provider of water and sewerage services in Northern Ireland, uses retail VLB leased lines for telemetry services. We understand from URegNI that NI Water is aware of the withdrawal and is currently formulating migration plans.

Rail

- 4.18 We engaged with Network Rail at the outset of this review and identified it as a user of retail VLB leased lines to support various operational services, including signalling, switching and power distribution substations. Network Rail advised us that it had chosen to build its own fibre network and will be migrating its retail VLB leased lines onto this network. We understand that this migration is due to be finished in 2016.
- 4.19 At the outset of this programme we engaged with the Office of Rail and Road (ORR) and wrote to the ORR in March 2015 to inform it of this matter.
- 4.20 We engaged with both ATOC (Association of Train Operating Companies) and the Rail Industry Association as part of our work and understand that both circulated our consultation to their members.

Road traffic management

- 4.21 Many UK traffic authorities use retail VLB leased lines for road traffic management, in particular for traffic light control systems. Our principal method of engagement with these users has been through the Traffic Systems Group (TSG), a body which represent traffic control engineers within local authorities. TSG conducted a survey of all its members on our behalf at the beginning of 2015 to help us understand the use of retail VLB leased lines within local authorities, and we understand also circulated our VLB Consultation to its members.
- 4.22 We understand that at least 30 traffic authorities continue to use retail VLB leased lines for road traffic management. Awareness of BT's withdrawal plans appears to be good amongst these users, with many having plans to migrate to wireless, IP or fibre-based solutions. This includes TfL, by far the biggest user of VLB services in this category, which is due to finish its migration by the summer of 2017.
- 4.23 Highways England operates, maintains and improves England's motorways and major A roads. We have spoken with Highways England and understand that it is in the process of replacing its retail VLB leased lines and will have completed its migration in 2016. We understand that the ORR intends to monitor this migration as part of its new responsibilities for English roads.

Environment

- 4.24 We have spoken to the environment agencies of each of the countries in the UK and understand that England's Environment Agency is the only agency that continues to use retail VLB leased lines. The Environment Agency has confirmed that the relevant departments are fully aware of the withdrawal and are currently working to assess the full impact of it. The Environment Agency is confident that it will have alternative solutions in place by 2020. The Northern Ireland Environment Agency and the Scottish Environment Protection Agency have already migrated to other services, while Natural Resources Wales reported not to have ever used retail VLB leased lines.

Air traffic control

- 4.25 At the outset of this review we engaged with National Air Traffic Service (NATS) about its use of retail VLB leased lines to support air traffic control systems for a large number of UK airports, including London Heathrow, London Gatwick and Manchester. We have been in contact with NATS during this review and we understand that it is working closely with BT to develop plans to migrate all its retail VLB leased lines onto an IP-based network by the time these services are withdrawn.
- 4.26 In light of NATS' use of retail VLB leased lines for air traffic control purposes, we have engaged with the Civil Aviation Authority (CAA) about this issue and formally wrote to the CAA in March 2015 to inform it of this matter. In January 2016 the CAA circulated an Information Notice about the withdrawal and the need to migrate to all its relevant stakeholders, including organisations responsible for Air Traffic Control, Air Traffic Services and Air Navigation Services.

Emergency services

- 4.27 We have been in contact with Airwave during the course of this review, as its provision of a radio communications network for the emergency services continues to rely on retail VLB leased lines. Our most recent update from Airwave is that its migration to microwave technology will be completed in October 2016.
- 4.28 In our consultation we noted that some law enforcement agencies use retail VLB leased lines for a range of purposes. In March 2015, we wrote to the Home Office to ask for its assistance in bringing this matter to the attention of law enforcement agencies. We understand that the Home Office has since engaged with the National Police Chiefs' Council's Information Management Coordinating Committee and the Police Technology Council in order to raise awareness of this issue and of the need to migrate among law enforcement agencies.
- 4.29 We have also engaged with the British Association for Public Safety Communications Officials (British APCO). We understand that it placed a link to our consultation on its website and also contacted the groups that oversee the control rooms of the Emergency Services to check they were aware of this issue.

Defence

- 4.30 In the course of our review we were advised that some defence sector organisations might still be using retail VLB leased lines. For this reason we wrote to the Ministry of Defence in March 2015 to ask for its assistance in raising awareness of the withdrawal in the defence sector.

Government

- 4.31 We have been in contact with the Government Digital Service (GDS) and a paper highlighting the withdrawal of VLB services was presented by the GDS to the Technology Leaders Network, which is made up of a Departmental Technology Leader from each main government department, plus Technology Leaders from each of the Devolved Administrations.
- 4.32 We have also been in contact with the Ministry of Justice (MoJ). We understand that the MoJ currently uses retail VLB leased lines, but is in the process of migrating to a new MPLS network. The MoJ anticipate concluding this migration in 2016.
- 4.33 We have been in contact with the Centre for the Protection of National Infrastructure (CPNI), which is a government authority which provides protective security advice to businesses and organisations responsible for national infrastructure. The CPNI is aware of this matter and its implications across many sectors, and we understand that it is advising companies to migrate away from these services.

Non-sector-specific organisations

- 4.34 The Federation of Communications Services (FCS) is an industry association for companies which deliver professional voice and data communications solutions to business and public sector customers in the UK. We engaged with the FCS's CNI Group at the end of 2014 as another conduit for raising awareness of the withdrawal among CNI operators.
- 4.35 In our VLB Consultation we discussed the risk posed by the fact that some CPs resell BT's retail VLB leased lines. In summary, the risk is that the CP will be reselling a BT retail VLB leased line to a CNI operator, but without the CNI operator knowing that it is receiving a BT service. As a result, the CNI operator may not be aware of the potential impact of the withdrawal on its systems and, accordingly, will not plan to migrate to alternative services. This could potentially lead to a disruption of essential services. To reduce this risk, in May 2015 we wrote to every CP that resells retail VLB leased lines from BT and sought their assurance that they will engage with their customers of VLB leased lines to avoid this risk.

CNI VLB migration monitoring programme

- 4.36 As illustrated above, a number of CNI operators have already completed their migrations and most that still use retail VLB leased lines have plans in place to migrate to alternative services. With the withdrawal still four years away, there remains sufficient time for all remaining CNI operators to plan and implement migration plans. To ensure that these migrations continue to progress as expected, we will be monitoring their progress by collecting information from BT⁷⁵ and the other CPs that provide retail VLB leased lines. This will enable us to react quickly should a CNI operator encounter problems in its migration. This monitoring programme will be run by Ofcom's Security and Resilience team and any concerns from CPs or CNI operators about migration should be directed to Ben Willis (Ben.Willis@Ofcom.org.uk).

⁷⁵ BT's stated its willingness to share information with us about the progress of migration in its letter dated 2 February 2016, which can be found at Annex 5.

Risk posed by migration delays

- 4.37 Responses to the VLB Consultation highlighted to us a risk that significant delays in the provision of replacement services for CNI operators could lead to potential disruption of essential services. Three EDNOs (UK Power Networks, SP Energy Networks and Northern Ireland Electricity) raised concerns about Openreach's poor quality of service when provisioning new Ethernet services and advised us that delays could delay their migration plans beyond March 2020. TfL raised a similar concern about Openreach's ability to deliver new IP on-street services.
- 4.38 Openreach's poor quality of service when provisioning new Ethernet services was raised with us at the outset of this BCMR by many of our stakeholders. In the May 2015 BCMR Consultation⁷⁶ we set out our own assessment of Openreach's performance, which we found to be poor in relation to delivery certainty and installation lead times, and proposed a new regime requiring BT to comply with minimum performance standards for Ethernet provision and repair under the SMP regulatory framework. In the 2016 BCMR Statement, which has been published alongside this statement, we set out our decisions to impose these quality of service measures.⁷⁷ We anticipate that these minimum standards will improve Openreach's quality of service and that this will assist CNI operators in completing their migrations before the withdrawal date.
- 4.39 In addition, Ofcom and CPs purchasing regulated Ethernet leased lines from Openreach for customers such as CNI operators will therefore be able to monitor service performance KPIs. The new SMP condition, that provides for the setting of minimum standards, affords us the power to direct further quality of service requirements on Openreach within the forward-looking period of this BCMR should we consider it appropriate and proportionate to do so.
- 4.40 Given the importance that CNI operators are not significantly delayed in migrating, we plan to engage with Openreach on this matter and are monitoring closely the migrations of those CNI operators most heavily reliant on Openreach for new services, particularly Ethernet. This will enable us to act quickly should the risk to essential services increase as a result of delays.

⁷⁶ Section 13 and Annex 17

⁷⁷ The relevant measures are set out at paragraph 3.43 above

Section 5

Retail VLB leased lines in the Hull area

- 5.1 The preceding sections of this statement concern the VLB TI retail market in the UK (excluding the Hull area). In this section, we summarise our decision to regulate retail VLB leased lines in the Hull area and the form of these regulations. These regulations will be imposed on KCOM, the operator we find to have SMP in the relevant retail market, from the date the 2016 BCMR Statement is published.
- 5.2 Our decision and rationale is set out in full in the 2016 BCMR Statement at Section 14.

Our decision to impose our proposed remedies

- 5.3 As yet KCOM has not announced any plans to withdraw its retail VLB leased lines from new supply or to withdraw existing VLB services. That said, we consider that these services are legacy services approaching the end of their life and that it would be inappropriate for us to seek to artificially extend their availability through *ex ante* regulation. Therefore, we have decided to implement our proposals to help facilitate the withdrawal of retail VLB leased lines as and when KCOM considers it appropriate to do so. This means that from the date the 2016 BCMR Statement is published KCOM:
- will not be required to supply new VLB TI leased lines; and
 - will be required to support existing VLB TI leased lines until it gives end-users and Ofcom at least two years' notice of their withdrawal.
- 5.4 We consider that these changes achieve a balance between adequately protecting existing customers, including CNI operators, while also permitting KCOM to withdraw these legacy services.

CNI operators in the Hull area

- 5.5 As we explained in the previous section in relation to CNI operators using BT services, we have decided to begin a CNI VLB migration monitoring programme that will monitor the migrations of CNI operators by collecting information from BT and other CPs. When KCOM announces the withdrawal of its retail VLB leased lines, we will also begin monitoring CNI operators' migrations from KCOM services by collecting data from KCOM. This will enable us to react quickly should a CNI operator encounter problems in their migration.

Section 6

Wholesale VLB services

6.1 The preceding sections of this statement concern the retail VLB leased lines sold in the UK. In this section, we discuss briefly the related matter of VLB Partial Private Circuits (VLB PPCs), which are wholesale services which other CPs use to create their own retail VLB leased lines. BT plans to withdraw these wholesale services on 31 March 2020. It is therefore important that end-users are made aware of this withdrawal and that they plan to migrate to suitable alternatives.

BT has confirmed its plans to withdrawal VLB PPCs

6.2 PPCs are wholesale digital services that we require BT to provide, that allow competing CPs to replicate BT's retail products effectively, both technically and commercially. PPCs are sold at numerous bandwidths, including below 2Mbit/s (VLB PPCs). These VLB PPCs enable CPs to replicate BT's retail VLB digital leased lines, although not BT's analogue leased lines.

6.3 Like retail VLB leased lines, VLB PPCs are also carried over the DPCN and BT has considered withdrawing them for many years. On 30 October 2015 BT announced that VLB PPCs would be withdrawn on 31 March 2020,⁷⁸ at the same time as retail VLB leased lines.

Risk to essential services from the withdrawal of VLB PPCs

6.4 As we explained in our VLB Consultation, VLB PPCs are major components of retail VLB digital leased lines provided by CPs other than BT. As such, the risk we identified in relation to BT's plans to withdraw retail VLB leased lines applies equally to the withdrawal of VLB PPCs: end-users who are customers of CPs other than BT might only hear of the withdrawal when there is insufficient time to migrate onto alternative services. In the case of CNI operators, this might even lead to a disruption to essential services. We therefore chose to highlight the withdrawal of VLB PPCs in the VLB Consultation and our programme of engagement, which involved circulating our consultation to CNI operators in a range of sectors.

6.5 With BT having now announced the withdrawal of VLB PPCs, we would expect CPs buying VLB PPCs to inform their customers, especially those that are CNI operators, in the near future of the need to make migration plans. We plan to engage with the CPs that purchase VLB PPCs in the latter part of 2016 to obtain an update on the progress of CNI operators' migrations onto alternative services. We consider this to be sufficient time for CPs to have given notice to their customers and for migrations to have started. We plan to continue monitoring the migrations for CNI operators from that point onwards until the withdrawal.

Our decision to impose our proposed remedies

6.6 As we explained in the VLB Consultation, from the perspective of this BCMR, VLB PPCs fall in the wholesale market for low bandwidth TISBO services. This market encompasses wholesale services at bandwidths up to and including 8Mbit/s. In the

⁷⁸ BT, *Product Update October 2015 BT Wholesale PPC and RBS Services*, 30 October 2015, found at Annex 2

2016 BCMR Statement we set out our decision to alter our regulations to permit BT to withdraw VLB PPCs upon giving one year's notice. This is in recognition of the fact that VLB PPCs are legacy services that are approaching the end of their life and that it would be inappropriate for Ofcom to use wholesale regulation to artificially extend the availability of these services. In practice, given BT's obligation not to discriminate unduly, this would allow BT to withdraw VLB PPCs from the date it withdraws retail VLB retail leased lines – currently scheduled for 31 March 2020.

- 6.7 Our decisions in relation to VLB PPCs are set out in full in our 2016 BCMR Statement at Section 11.

Annex 1

BT notice of withdrawal – January 2010

Briefing



Product Update – BT’s TDM Services

1 Introduction

This statement has been written in response to customer enquiries about BT’s plans for its retail TDM services.

BT has a well established portfolio of retail Point to Point Time Division Multiplexed (TDM)¹ services and understands that customers have come to rely on the stability and performance characteristics of these products.

However it is also clear that market demand for these services is changing as technologies evolve. Consequently BT has undertaken a commercial review of the product portfolio and their expected demand profile in future years, as well as a technical review of the platforms on which they are delivered. This has enabled us to determine the future roadmap for these services and plan for possible changes to the portfolio such that we can continue to meet customers’ current and future needs.

As a result, BT has concluded that where demand levels for these services remain commercially viable, we will continue to support them on existing platforms, unless otherwise stated, until March 2018, at which point they will be fully withdrawn from service. Existing product definitions and performance characteristics will therefore remain largely unchanged. Where practical, BT will withdraw services from new supply approximately two years in advance of full service withdrawal.

Where individual products are expected to reach the end of their commercially sustainable life before March 2018, BT intends to provide at least three years notification of their full withdrawal in recognition of the challenges some customers may experience with planning the migration of their critical applications.

2 Retail Digital Services 2Mb and above (BT MegaStream)

We will continue to support existing MegaStream products nationally, (at and above 2Mb) as long as it is commercially viable to do so, and subject to the availability of the relevant Partial Private Circuits (PPC) until at least March 2018. This does not apply to sales of MegaStream Directly

¹ TDM, in this context, is the generic term for private circuit type services typically running over “traditional” or legacy platforms such as the Digital Private Circuit Network (DPCN) or legacy Synchronous Digital Hierarchy (SDH) platforms, and includes products such as Analogue, KiloStream, KiloStream N and MegaStream private circuits.

Cabled, MegaStream 8 and MegaStream 622 services which have been withdrawn from new supply.

3 Retail Sub 2Mb Digital Services (BT KiloStream and KiloStream N)

We will continue to support existing currently available KiloStream and KiloStream N products (including current aggregated bearer variants) nationally, (at and above 64Kb) as long as it is commercially viable to do so, and subject to the availability of the relevant Partial Private Circuit products (PPCs) until March 2018. Services will continue to be provided on the existing access and transmission platforms therefore minimising service disruption, performance uncertainty and reactive migration planning. This timeframe however, does not apply to sales of KiloStream products such as KiloStream Assured Restore, already withdrawn from new supply.

BT is not currently planning to develop directly equivalent 21CN replacement services to replace sub 2Mb digital private circuits.

4 National Analogue Services

We will continue to support existing analogue point to point products nationally, as long as it is commercially viable to do so, and subject to the availability of the relevant BT copper access circuits where required, until March 2018. This means active (or amplified) products such as analogue standard {EPS 1 & 21}, analogue premier {EPS 25B} and analogue network {EPS 3N} product variants. Power feeding and line isolation facilities will also continue to be available for these services where required. These services will continue to be provided on the existing access and transmission platforms, therefore minimising service disruption, performance uncertainty and reactive migration planning. However it should be noted this timeframe does not apply to sales of Multipoint, Omnibus or other multi-terminal services, DealerStream and analogue products already withdrawn from new supply.

BT is not currently planning to develop directly equivalent 21CN replacement services to replace analogue private circuits.

5 Own Exchange Analogue Services

These services do not rely on inter-exchange transmission networks. We will continue to support Analogue Private Circuits that have both ends served from the same local exchange (own exchange circuits), as long as it is commercially viable to do so and where local BT copper access is available until at least March 2018. This includes both baseband services (indirectly wired EPS 8 & 9 services) and active (or amplified) products (analogue standard {EPS 1 & 21}, analogue premier {EPS 25B} and analogue network {EPS 3N} products). BT will also continue to provide power feed and line isolation facilities on these services where required.

6 Other BT Private Circuit Services

Only specific products detailed above should be considered within scope of this update. All other current private circuit products including DealerStream, Prime & OA product variants, Analogue Multipoint, Analogue Omnibus, CircuitSure, CitySure and MegaStream 1 products will be the subject of additional future updates as the roadmaps of these products are refined.

If you have any questions about this product update please contact your BT Account Manager.

Annex 2

BT notice of withdrawal – November 2011

Briefing



Product Update (Nov 2011) – BT's TDM Services

1 Introduction

This statement has been written in response to customer enquiries about BT's plans for its retail TDM services, and supersedes the previous update published in January 2010.

BT has a well established portfolio of retail Point to Point Time Division Multiplexed (TDM)¹ services and understands that customers have come to rely on the stability and performance characteristics of these products.

However it is also clear that market demand for these services is changing as technologies evolve. Consequently BT has undertaken a commercial review of the product portfolio and their expected demand profile in future years, as well as a technical review of the platforms on which they are delivered. This has enabled us to determine the future roadmap for these services and plan for possible changes to the portfolio such that we can continue to meet customers' current and future needs.

As a result, BT has concluded that where demand levels for these products remain commercially viable, we will continue to support them on existing platforms until the end of March 2018, at which point they, unless otherwise stated in the product specific sections below, will be fully withdrawn from service. Existing product definitions and performance characteristics will therefore remain largely unchanged. Where practical, BT will withdraw products from new supply approximately two years in advance of full service withdrawal.

Where individual products are expected to reach the end of their commercially sustainable life before March 2018, BT intends to provide at least three years notification of their full withdrawal in recognition of the challenges some customers may experience with planning the migration of their critical applications.

¹ TDM, in this context, is the generic term for private circuit type services typically running over "traditional" or legacy platforms such as the Digital Private Circuit Network (DPCN) or legacy Synchronous Digital Hierarchy (SDH) platforms, and includes products such as Analogue, KiloStream, KiloStream N and MegaStream private circuits.

2 Retail Digital Services 1Mb and above (BT MegaStream)

We intend to withdraw the MegaStream 1Mb product, and any associated commercial variants from new supply (known as the stop sell new or SSN date) during, or shortly after November 2012.

This means it will no longer be possible to order new MegaStream 1 circuits or re-site existing services after this date. BT will, however, continue to maintain any existing circuits after this date until this product is fully withdrawn from service. We currently expect this to be approximately, but no less than, two years after the date it is withdrawn from new supply (i.e. around but no earlier than November 2014). Any new supply orders in the course of provision on the SSN date will be allowed to continue to completion of the order.

We will continue to support all other existing MegaStream products nationally, (at and above 2Mb) as long as it is commercially viable to do so, and subject to the availability of the relevant Partial Private Circuits (PPC) until at least March 2018, i.e. there is currently no planned withdrawal date for these services. This does not apply to sales of MegaStream Directly Cabled, MegaStream 8 and MegaStream 622 services which have been withdrawn from new supply.

3 Retail Sub 2Mb Digital Services (BT KiloStream and KiloStream N)

We intend to withdraw the following products, and any associated commercial variants from new supply (known as the stop sell new or SSN date) during, or shortly after November 2012.

- All KiloStream products at speeds below 48Kb (i.e. 2.4Kb, 4.8Kb, 9.6Kb and 19.6Kb) thus removing the X.21bis (V.24) interface option from the KiloStream portfolio
- All KiloStream N speeds except 128Kb, 256Kb and 512Kb (i.e. 192Kb, 320Kb, 384Kb, 448Kb, 576Kb, 640Kb, 704Kb, 768Kb, 832Kb, 896Kb, 960Kb and 1024Kb)

This means it will no longer be possible to order new circuits or re-site existing services of these types after this date. BT will, however, continue to maintain any existing circuits after this date until these products are fully withdrawn from service. We currently expect this to be approximately, but no less than, two years after the date they are withdrawn from new supply (i.e. around but no earlier than November 2014). Any new supply orders in the course of provision on the SSN date will be allowed to continue to completion of the order.

We will continue to support all other existing and currently available KiloStream and KiloStream N products (including current aggregated bearer variants) nationally, (at and above 64Kb) as long as it is commercially viable to do so, and subject to the availability of the relevant Partial Private Circuit products (PPCs) until March 2018. Services will continue to be provided on the existing access and transmission platforms therefore minimising service disruption, performance uncertainty and reactive migration planning. This timeframe however, does not apply to sales of KiloStream products such as KiloStream Assured Restore and DealerStream 7-10 already withdrawn from new supply.

BT is not currently planning to develop directly equivalent 21CN replacement services to replace sub 2Mb digital private circuits.

4 National Analogue Services

We will continue to support existing analogue point to point products nationally, as long as it is commercially viable to do so, and subject to the availability of the relevant BT copper access circuits where required, until March 2018. This means active (or amplified) products such as analogue standard {EPS 1 & 21}, analogue premier {EPS 25B} and analogue network {EPS 3N} product variants. Power feeding and line isolation facilities will also continue to be available for these services where required. These services will continue to be provided on the existing access and transmission platforms, therefore minimising service disruption, performance uncertainty and reactive migration planning. However it should be noted this timeframe does not apply to sales of Multipoint, Omnibus or other multi-terminal services, DealerStream and analogue products already withdrawn from new supply.

BT is not currently planning to develop directly equivalent 21CN replacement services to replace analogue private circuits.

5 Own Exchange Analogue Services

These services do not rely on inter-exchange transmission networks. We will continue to support Analogue Private Circuits that have both ends served from the same local exchange (own exchange circuits), as long as it is commercially viable to do so and where local BT copper access is available until at least March 2018. This includes both baseband services (indirectly wired EPS 8 & 9 services) and active (or amplified) products (analogue standard {EPS 1 & 21}, analogue premier {EPS 25B} and analogue network {EPS 3N} products). BT will also continue to provide power feed and line isolation facilities on these services where required.

6 Other BT Private Circuit Services

BT will close CitySure and CircuitSure business continuity products to new customers (i.e. customers without existing CitySure or CircuitSure product instances) from November 2012. Existing customers of these services will be unaffected, and will be able to continue to reconfigure their business continuity requirements as required.

Only specific products detailed in this document should be considered within scope of this update. All other current private circuit products including DealerStream, Prime & OA product variants, Analogue Multipoint and Analogue Omnibus products will be the subject of additional future updates as the roadmaps of these products are refined.

If you have any questions about this product update please contact your BT Account Manager.

Annex 3

BT notice of withdrawal – November 2012

Briefing



Product Update (Nov 2012) – BT's TDM Services

1 Introduction

This statement has been written in response to customer enquiries about BT's plans for its retail TDM services, and supersedes the previous update published in November 2011.

BT has a well established portfolio of retail Point to Point Time Division Multiplexed (TDM)¹ services and understands that customers have come to rely on the stability and performance characteristics of these products.

However it is also clear that market demand for these services is changing as technologies evolve. Consequently BT has undertaken a commercial review of the product portfolio and their expected demand profile in future years, as well as a technical review of the platforms on which they are delivered. This has enabled us to determine the future roadmap for these services and plan for possible changes to the portfolio such that we can continue to meet customers' current and future needs.

As a result, BT has concluded that where demand levels for these products remain commercially viable, we will continue to support them on existing platforms until the end of March 2018, at which point they, unless otherwise stated in the product specific sections below, will be fully withdrawn from service. Existing product definitions and performance characteristics will therefore remain largely unchanged. Where practical, BT will withdraw products from new supply approximately two years in advance of full service withdrawal.

Where individual products are expected to reach the end of their commercially sustainable life before March 2018, BT intends to provide at least three years notification of their full withdrawal in recognition of the challenges some customers may experience with planning the migration of their critical applications.

¹ TDM, in this context, is the generic term for private circuit type services typically running over "traditional" or legacy platforms such as the Digital Private Circuit Network (DPCN) or legacy Synchronous Digital Hierarchy (SDH) platforms, and includes products such as Analogue, KiloStream, KiloStream N and MegaStream private circuits.

2 Retail Digital Services 1Mb and above (BT MegaStream)

BT has now withdrawn the MegaStream 1Mb product, and any associated commercial variants from new supply, also known as stop sell new (or SSN).

This means it's no longer possible to order new MegaStream 1 circuits or re-site existing services. BT will, however, continue to maintain any existing circuits until this product is fully withdrawn from service. We currently expect this full withdrawal to be approximately, but no less than, two years after its SSN date (3rd December 2012) - i.e. around, but no earlier than, December 2014. Any new supply orders in the course of provision on the SSN date will be allowed to continue to completion of the order.

We will continue to support all other existing MegaStream products nationally, (at and above 2Mb) as long as it is commercially viable to do so, and subject to the availability of the relevant Partial Private Circuits (PPC) until at least March 2018, i.e. there is currently no planned withdrawal date for these services.

In addition to MegaStream 1 the following MegaStream products have previously been withdrawn from new supply.

MegaStream Directly Cabled, MegaStream 8 and MegaStream 622.

3 Retail Sub 2Mb Digital Services (BT KiloStream and KiloStream N)

BT has now withdrawn the following products, and any associated commercial variants from new supply, also known as stop sell new (or SSN).

- All KiloStream products at speeds below 48Kb (i.e. 2.4Kb, 4.8Kb, 9.6Kb and 19.6Kb) thus removing the X.21 *bis* (V.24) interface option from the KiloStream portfolio
- All KiloStream N speeds except 128Kb, 256Kb and 512Kb (i.e. 192Kb, 320Kb, 384Kb, 448Kb, 576Kb, 640Kb, 704Kb, 768Kb, 832Kb, 896Kb, 960Kb and 1024Kb)

This means it's no longer possible to order new circuits or re-site existing services of these types. BT will, however, continue to maintain any existing circuits until these products are fully withdrawn from service. We currently expect this full withdrawal to be approximately, but no less than, two years after its SSN date (3rd December 2012) - i.e. around, but no earlier than, December 2014. Any new supply orders in the course of provision on the SSN date will be allowed to continue to completion of the order.

We will continue to support all other existing and currently available KiloStream and KiloStream N products (including current aggregated bearer variants) nationally, (at and above 64Kb) as long as it is commercially viable to do so, and subject to the availability of the relevant Partial Private Circuit products (PPCs) until March 2018. Services will continue to be provided on the existing access and transmission platforms therefore minimising service disruption, performance uncertainty and reactive migration planning.

In addition to the services listed above the following KiloStream products have previously been withdrawn from new supply.

KiloStream Assured Restore, KiloStream Plus and DealerStream 7-10

BT is not currently planning to develop directly equivalent 21CN replacement services to replace sub 2Mb digital private circuits.

4 National Analogue Services

We will continue to support existing analogue point to point products nationally (i.e. circuits with inter-exchange main links), as long as it is commercially viable to do so, and subject to the availability of the relevant BT copper access circuits where required, until March 2018. This means active (or amplified) products such as analogue standard {EPS 1 & 21}, analogue premier {EPS 25B} and analogue network {EPS 3N} product variants. Power feeding and line isolation facilities will also continue to be available for these services where required. These services will continue to be provided on the existing access and transmission platforms, therefore minimising service disruption, performance uncertainty and reactive migration planning. However it should be noted this timeframe does not apply to any analogue products already withdrawn from new supply.

Although no stop sell new or final withdrawal dates have been set for sales of DealerStream (1-6) Multipoint, Omnibus or other multi-terminal services it should be recognised many installations of these services also rely on the same national network as those analogue products listed above. We therefore expect likely SSN and full withdrawal dates for these DealerStream and multi-terminal services to broadly align with those for other national analogue services described in this section.

BT is not currently planning to develop directly equivalent 21CN replacement services to replace analogue private circuits.

5 Own Exchange Analogue Services

These services do not rely on inter-exchange transmission networks. We will continue to support Analogue Private Circuits that have both ends served from the same local exchange (own exchange circuits), as long as it is commercially viable to do so and where local BT copper access is available until at least March 2018. This includes both baseband services (indirectly wired EPS 8 & 9 services) and active (or amplified) products (analogue standard {EPS 1 & 21}, analogue premier {EPS 25B} and analogue network {EPS 3N} products). BT will also continue to provide power feed and line isolation facilities on these services where required.

6 Other BT Private Circuit Services

As of 3rd December BT closed CitySure and CircuitSure business continuity products to new customers. Existing customers of these services will be unaffected, and will be able to continue to reconfigure their business continuity requirements as required for as long as they continuously maintain at least one instance of either service from 3rd December 2012 onwards. Although no stop sell new or final withdrawal dates have been set for sales of CitySure and CircuitSure to existing customers it should be recognised these services offer disaster recovery backup to many services that will be fully withdrawn in March 2018. We therefore expect likely SSN and full

withdrawal dates for CitySure and CircuitSure services to broadly align with the normal point to point services protected by them.

Only specific products detailed in this document should be considered within scope of this update. All other current private circuit products and products referenced without specific dates including DealerStream, Prime, Analogue Multipoint and Analogue Omnibus products will be the subject of additional future updates as the roadmaps of these products are refined.

If you have any questions about this product update please contact your BT Account Manager.

Annex 4

BT's voluntary commitment on pricing



Marina Gibbs
Competition Policy Director
Competition Group
Ofcom
Riverside House
2a Southwark Bridge Road
London SE1 9HA

28th April 2015

By email only

Dear Marina,

Business Connectivity Market Review 2016 – very low bandwidth retail TI leased lines

I write further to our recent discussions with Keith Hatfield and Menachem Grunewald in relation to sub 2 Mbit/s analogue and digital retail leased lines (“very low bandwidth retail TI leased lines”) and the treatment of them in the forthcoming Business Connectivity Market Review.

These services have been in decline for many years and are now scheduled to be fully withdrawn from service on March 31st 2020. We have already published a stop sell new notice effective September 1st 2016¹ and after this date it will not be possible to order new services or to request changes to existing services.

We understand from our discussions to date that you do not believe continued SMP regulation of these services will be effective or necessary under BCMR 2016 and we would support such a finding. As stated in our discussions and in our letter from Sean Williams to Jonathan Oxley we believe these services should be de-regulated and that Ofcom can be confident that this would not cause significant detriment to consumers.

However given the nature of these services we understand you are concerned that remaining consumers of these services could suffer if prices rose unreasonably or support was withdrawn suddenly during the period of the next market review.

In recognition of this I can confirm that if Ofcom were minded, at the conclusion of BCMR 2016, not to regulate the very low bandwidth retail TI leased lines market, BT would be willing to offer the following commitments:

- Pricing: in any one year, prices for the services would not be increased by more than RPI+8%. Our pricing commitment reflects the expectation that costs will increase as the network platform that supports the services reaches the end phase of its life and

¹ <http://www.bt.com/pricing/notifs/01-08-2014/index.htm>

as volumes on the platform decline there will be fewer connections to recover network platform costs from. It also allows for annual price increases to motivate consumers to migrate to modern alternatives.

- Support for existing very low bandwidth retail TI leased lines: BT has recently revised its plans for the full withdrawal of these services and has published a full update² setting out its plans. On the basis of this update BT now intends to support almost all of the services to March 31st 2020. This extension to the previous closure date of March 31st 2018 gives consumers a further two years to migrate to modern alternatives.

This offer of commitments is made in good faith based on our current assessment of the viability and costs of the network platform which supports the services. We would reserve the right to vary or terminate them on a minimum of one (1) years' notice in the event that circumstances change materially.

I am sure you will appreciate that this offer of commitments is made without sight of Ofcom's proposals in the BCMR 2016 consultation and without prejudice to BT's right to make such representations as we consider appropriate in response to the consultation in due course.

If you have any queries, or would like to discuss this matter further, please do not hesitate to contact me.

Yours sincerely

Alex Tomb

BT Global Services Director of Regulatory Affairs

² BT will provide the link to the TDM Product Update when published. Ofcom have seen the content.

Alex Tomb

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Annex 5

BT's reconfirmation of its voluntary commitment



Jonathan Oxley
Group Director, Competition
Ofcom
Riverside House
2a Southwark Bridge Road
London SE1 9HA

2 February 2016

Dear Jonathan,

Very low bandwidth retail business connectivity services

Thank you for your letter of 22 December 2015, following on from our exchange in January 2015. I am happy to provide the following assurance, which I hope meet your needs.

As you know, BT supports Ofcom's proposals to de-regulate our retail very low bandwidth (VLB) services as part of the current Business Connectivity Market Review. We also fully appreciate the importance currently of these services to some of the UK's critical national infrastructure (CNI) operators and the concerns Ofcom has to ensure that there is an appropriate, efficient and timely migration away from VLB services for such operators. BT will continue to play its part in this regard.

Our Digital Private Circuit Network (DPCN) platform, over which these VLB services are provided, is planned to be closed in 2021, with our VLB services using the platform being withdrawn in March 2020. Current users of our VLB services have a variety of modern alternatives available to them from BT and other communications providers. Given the timescales concerned we believe there is sufficient time left to provide for efficient migration and closure of the platform. We will, of course, continue to engage with the relevant teams in Ofcom keeping them informed of progress to make sure that Ofcom can remain comfortable with the overall process of service withdrawal.

Turning to the specific issues you raise in your letter, you first seek our commitment to provide Ofcom with information about the progress of migration, in particular in relation to critical national infrastructure (CNI) customers and services, every six months. We are happy to provide information as far as we reasonably can. Some types of information which you set out

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in your letter are similar to that which BT has been providing under section 135 of the Communications Act 2003 on an ad-hoc basis. In principle, we can commit to continue to provide this type of information to Ofcom. In practice of course we will need to agree on the detail of what information is required by Ofcom, and the way in which Ofcom plans to request this information, conditioned by our system capabilities and appropriate definitions of the scope and format of the relevant data. This is also subject to ensuring we maintain our confidentiality obligations vis a vis our customers (especially if this information is sought by Ofcom on a voluntary basis outside the framework of the section 135 notice process). Other information such as visibility of Ethernet orders placed by CNI operators present different issues as discussed below. I know that our respective teams are due to discuss the scope of the information requested and the extent to which BT can provide such in the near future, when I expect we will be able to agree a satisfactory way forward.

It is important to note that CNI operators may currently procure our retail VLB services indirectly (e.g. via a CP or Systems Integrator) and as such BT does not have a direct relationship with the CNI operator. CNI operators have a choice of alternative services available to them from a variety of suppliers. As a result BT will not always have visibility of current VLB use by CNI operators or which alternative services are being used to replace existing VLB leased lines consumed by CNI operators. I would therefore encourage Ofcom to also consider collecting relevant information direct from CNI users of VLB services themselves as well as this could provide the foundations for an agreed record of CNI VLB circuits.

You specifically also asked about the possibility of flagging circuits used by operators of CNI services. Our systems are not currently capable of such an approach and this also raises the issue of how any such circuits would be defined. Introducing this capability in any systematic way would be likely to involve non-trivial systems development, the cost of which cannot be justified given the stage in the product lifecycle. As part of the discussions referenced above BT proposes discussing this point further and we can consider if any manual-based approach may be appropriate and proportionate. Such alternative options, particularly if Ofcom were able to collect circuit information from CNI users as mentioned above, could be explored which would enable this or similar information to be collected in a different way.

You also asked for an update on a number of related issues

1. *Progress on migration.* we provided up to date information on the current progress with migration to Ofcom in response to the Very Low Bandwidth section 135 notice on 20 November 2015. I hope this is what you need
2. *Plans set out in my January 2015 letter.* I can confirm that the plans set out in my letter to you of last year remain the same. We issued an update confirming our plans in March 2015.

3. BT's communications programme: we will of course keep an active dialogue with our customers. In addition to the communications detailed in the May 2015 Very Low Bandwidth consultation, the relevant Supplier Information Notes are in the process of being updated with information about our plans in this area and are due to be published shortly. We also have a statement on BT.com regarding these product closures¹ and continue to engage with major customers. We will plan to write to all customers under our contractual obligations, although we haven't reached the stage when this is required or appropriate.
4. Pricing commitment: in my January 2015 letter I set out our intentions on future pricing of these services in a de-regulated environment and noted that it would not be in BT's interests to raise these prices excessively. Subsequent to that Alex Tomb wrote to Marina Gibbs (on 28 April 2015) offering a commitment that in any one year our prices for the services concerned would not be increased by more than RPI+8%. I can re-confirm BT's willingness to offer this pricing commitment on the basis of our letter of 28 April 2015. This pricing commitment is not a statement of a plan to increase prices, but an assurance to you which gives us at least some flexibility.

We look forward to discussing the detail of the above issues with Ofcom in the coming weeks.

Yours sincerely,



Sean Williams
Group Director, Strategy, Policy and Portfolio

¹ <http://www.globalservices.bt.com/uk/en/products/tdm-services>

Annex 6

BT notice of withdrawal of PPCs

Product Update October 2015 BT Wholesale PPC and RBS Services

This statement has been written in response to customer enquiries about BT Wholesale's plans for its Partial Private Circuits (PPC) and Radio Base Station Backhaul (RBS) services, and supersedes all previous updates.

Read this briefing for further details.

1. Introduction

This statement has been written in response to customer enquiries about BT Wholesale's plans for its Partial Private Circuits (PPC) and Radio Base Station Backhaul (RBS) services, and supersedes all previous updates, the last of which was published in March 2012.

BT Wholesale has a well established portfolio of Time Division Multiplexed (TDM)1 partial private circuit and radio base station backhaul services. However it is also clear that market demand for these services has been declining for some time now as technologies and the requirements of our customers' naturally evolve. Six years ago we undertook both a technical review of the network to assess its sustainability and a commercial assessment of the viability given the projected demand profiles of the time. From this we published a briefing advising that the sub 2Mbit/s PPC portfolio would be withdrawn on 31 March 2018.

In late 2013 we repeated this exercise and, together with feedback from customers on our original timescales, examined again the expected future demand profile and technical view of the platform to assess the scope for an extension to the life of these products.

As a result, BT Wholesale concluded that a process of network compaction intended to release additional spare equipment capacity for maintenance re-use, will enable us to continue to support sub 2Mbit/s products on existing platforms for a further two years i.e. until the 31 March 2020, at which point they will be fully withdrawn from service – i.e. they will cease to be operational after this time. RBS sub 2Mbit/s products will follow the same withdrawal timescales. This decision was announced to Industry in January 2014 via the PPC Industry Forum.

It is important to note however that the transmission platform continues to age and will become increasingly challenging to support. We anticipate that beyond March 2018 there will be potential for a slight but progressively increasing risk of impairment to current Service Level Agreement (SLA) performance. We recommend customers recognise and allow for this when planning their migration strategy and approach thus minimising any impact on, or potential risk to, their normal business operations. We do not, however, have any plans to modify the SLAs on these PPC and RBS products after March 2018.

2. PPC and RBS Services sub 2Mbit/s

Products assessed:

- All PPC products at speeds 64kbit/s and migration only below 64kbit/s (i.e. 2.4kbit/s; 4.8kbit/s; 9.6kbit/s; 19.6kbit/s and 48kbit/s)
- All PPC N-times at speeds 128kbit/s – 960kbit/s and migration only 1024kbit/s products.
- All RBS N-times at speeds 128kbit/s – 960kbit/s.

These products will all be withdrawn on 31st March 2020.

3. PPC and RBS Services 2Mbit/s and above

We currently have no planned withdrawal dates for these products and will, subject to sufficient demand existing, continue to support them nationally until at least 31st March 2021 when the next review will take place. If at any point in time after this review a decision is made to withdraw this product set withdrawal notices will be issued with detailed timescales. Should volumes drop to a level which makes a commercial review necessary prior to the March 2021 date then further communication will be issued.

4. Migrations

BT Wholesale would like to support CPs who are wishing to migrate PPCs to other products. Please contact your Account Team or the PPC Product Line to discuss requirements.

5. Critical National Infrastructure (CNI)

BT Wholesale is aware that CPs may use a PPC to support CNI providers. BT Wholesale would like to support CPs with their future plans and is happy to work with CPs to minimise the impact of the withdrawal of the PPC sub 2Mbit/s portfolio on their business.

6. Retail TDM Services

A briefing was issued by the BT Global Services Private Circuits Product Line on 26th March 2015 outlining BT's plans for its retail TDM services (Product Update (Mar 2015) – BT's TDM Services), copy attached for reference.

In this briefing BT GS confirmed their intention to continue to support almost all of these products on existing platforms until the 31st March 2020, at which point they, unless otherwise stated in the product specific sections of the document, will be fully withdrawn from service.

7. Next steps

Feedback on Migrations (section 4) and CNI (section 5) is requested by COP Friday 30th November 2015.

Further information

If you have any queries about this briefing, please contact your Account Team or the PPC or RBS Product Team.

¹ TDM in this context is the generic terms for private circuit type services typically running over "traditional" or legacy platforms such as the Digital Private Circuit Network (DPCN) or legacy Synchronous Digital Hierarchy (SDH) platforms.

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Impact Matrix		
End User Experiences	Customers CP Experience	Systems
Dots in the selection above are a guide to briefing impact		