Charge control review for LLU and WLR services Annexes

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Contents

Annex 1

Valuation of duct assets

Introduction

A1.1 In this Annex we set out our detailed analysis and conclusions for the treatment of duct in the LLU/WLR charge controls.

A1.2 We invited stakeholders to comment on our approach to the valuation of BT's duct assets and provide evidence to support their views. Informed by these comments, we have concluded that:

- the RAV methodology established in 2005 remains appropriate, meaning that assets deployed before August 1997 will continue to be valued on an indexed HCA basis;
- assets deployed since August 1997 will continue to be valued on a CCA replacement cost basis;[1]
- the appropriate method for estimating the CCA valuation in this case is indexing annual spend on the network by RPI.

A1.3 In making this adjustment, Ofcom are satisfied that each of the pre-1997 and post-1997 valuation of duct, when included as part of a subsequent charge control, are capable of satisfying the legal tests in the Act which apply when setting charge control conditions; in particular, the requirements that:

- the setting of a charge control condition should be appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on the end-users of public electronic communications services; and
- in setting such a condition, Ofcom must take account of the extent of the investment in the matters to which the condition relates of the person to whom it is to apply.

A1.4 In the remainder of this Annex we consider the following issues:

- the appropriateness of the continued application of the 2005 *Valuing BT's Copper Network* decision (the "2005 Cost of Copper Review"), which established the RAV adjustment of the valuation of pre-1997 duct investment;[2]
- new arguments from Openreach that the benefit of any "windfall gain" in respect of BT's pre-1997 duct assets fell to the Government and not to BT's shareholders following privatisation of the company in 1984; and
- the appropriate valuation methodology for BT's post-1997 duct assets.

A1.5 As part of our investigation of these issues prior to the March 2011 Consultation, we commissioned Analysys Mason to review alternative approaches (their report was

[1] For brevity, in the remainder of this statement we refer to "CCA replacement cost" as just "CCA".
[2] http://stakeholders.ofcom.org.uk/binaries/consultations/copper/statement/statement.pdf.

published as part of the March 2011 Consultation). Analysys Mason undertook a review of how such assets are valued elsewhere and the advantages and disadvantages of alternative approaches.[3] We will refer to this as the Analysys Mason report throughout this Annex.

Pre-1997 duct valuation

Economic arguments as to the appropriateness of the RAV adjustment

March 2011 Consultation proposals

A1.6 In the 2005 review, we determined the basis that we would adopt in valuing BT's access assets. The decision was that we adopt an indexed HCA value for duct assets that BT had in place before August 1997, while continuing to use a CCA value for assets that had been built from August 1997. This followed an earlier 1997 decision to change the valuation methodology for BT's entire asset base from HCA to CCA.

A1.7 Annex 5 of the March 2011 Consultation set out our detailed assessment of the 2005 review. In summary, we considered that the decision on the treatment of duct assets set out in the 2005 review remained sound. We further considered whether the revised valuation BT had proposed for post-1997 assets could be reconciled with expenditure over that period. We considered that, for the purposes of this charge control, the value should be based on an indexation of post-1997 expenditure, with allowance for BT's estimate of the economies of scale for large scale construction.

A1.8 In the March 2011 Consultation, we summarised Openreach's view that the RAV treatment of pre-1997 investment is no longer appropriate because the competition that we were seeking to promote in 2005 (based on WLR, SMPF and MPF) has now been established and because encouraging investment into the local access market is now a key Government and regulatory objective.[4]

A1.9 One key consideration at the heart of these arguments arose from the changes to BT's obligations with respect to the SMP finding in the WLA 2010 Market Review. BT was required to provide access to its duct and pole networks (the PIA remedy) to companies wishing to lay fibre for access services. Duct access within the PIA remedy was designed to promote investment in NGA infrastructure which we said in future would compete with LLU and WLR. BT had argued that competition between current and next generation infrastructure could be distorted if the former is priced too low.

A1.10 We did not accept Openreach's arguments for the following reasons.

- Recent market reviews (i.e. the WLA Market Review and WFAEL Market Review did not suggest that the competitive landscape had changed materially since 2005. Openreach's position of SMP in local access provision was not affected by competition based on LLU and WLR, which relies on the use of Openreach's local access network rather than providing competition to it;

[3] We considered alternative approaches to CCA valuation in the March 2011 Consultation, paragraphs A5.159 to A5.178.
[4] March 2011 Consultation, Annex 5, paragraphs A5.23 and A5.24.

- Efficient investment in NGA is encouraged if prices are set on the basis of forward-looking opportunity costs. Sunk costs, which may be included in CCA asset values, are not part of forward-looking opportunity cost. If the only objective was to encourage statically efficient investment to take place,[5] it may be best to set prices to recover costs excluding sunk costs rather than on a CCA basis, which includes sunk costs. The setting of efficient prices does not therefore require a return to full CCA asset values for duct;[6]

- An unexpected return to full CCA valuation of all assets could undermine the business cases of the LLU operators and create a perception that further changes to the basis of duct valuation could occur in future, with the risk that future competitive investment would be stifled;

- The RAV is sufficient to allow Openreach a reasonable return on pre-1997 investment, while a return to full CCA valuation may lead to over-recovery of costs by BT; and

- Consistency between LLU and WLR charges and PIA charges is desirable but can be achieved by reflecting the RAV valuation in the charges for each of these services rather than removing the RAV valuation from LLU/WLR charges.

A1.11 Accordingly, we proposed that the RAV methodology established in 2005 remains appropriate and asked stakeholders the following question in Section 3 of the March 2011 Consultation:

> ***Question 3.5****: Do you agree with our assessment that the decision on the treatment of pre-1997 duct assets set out in the 2005 Valuing BT's Copper Network remains appropriate for this set of charge controls? If not, why do you consider that the basis of valuing pre-1997 assets should change and what valuation basis should be used?*

March 2011 Consultation responses

A1.12 Most respondents who commented on the matter agreed with our proposed approach. Sky said that the RAV adjustment was "*justified*" and agreed that "*BT's duct revaluation should be ignored for the purposes of setting LLU and WLR prices*".[7] TTG also agreed, stating that "*using a CCA valuation approach (rather than RAV) for pre-1997 assets and employing a 'direct' CCA valuation method (rather than CCA indexation) would be clearly against consumers' interest and gift BT a windfall gain that is based on spurious and inaccurate assumptions*".[8] Both Sky and TTG referred to the likely absence of further competitive investment in duct

[5] Static efficiency exists at a point in time and focuses on how much output can be produced now from a given stock of resources and whether producers are charging a price to consumers that fairly reflects the cost of the factors of production used to produce a good or a service.
[6] On the (lack of) relevance of sunk costs in the context of investment appraisal, see for example, paragraph 5.15 of the Treasury Green Book which states: "*Costs of goods and services that have already been incurred and are irrevocable should be ignored...They are 'sunk costs'. What matters are costs about which decisions can still be made*". See http://www.hm-treasury.gov.uk/d/green_book_complete.pdf.
[7] Sky response, paragraphs 6 to 19.
[8] TTG response, paragraph 10.

as reasons for their views.[9] TTG also noted that "*the benefits from duplicating BT's duct network would be relatively small, and greatly outweighed by the costs*".[10]

A1.13 Sky, however, told us that in the longer term the RAV adjustment approach is "*weak*" and referred to a report it had commissioned from Frontier Economics. Frontier Economics concluded that the CCA depreciation charges within the RAV model were likely to have significantly exceeded capital expenditure since 2005, and that the sustained discrepancy between the two suggested that depreciation may be overstated. Sky said this has the "*potential for BT to manipulate prices by changing cost assumptions*" and recommended that we start work now on an alternative approach.[11]

A1.14 EE said that "*Ofcom's reasoning in the [March 2011] Consultation for retaining the current approach is sound*",[12] while C&WW agreed that there had been no material change in the market since 2005 and hence believed that the RAV for pre-1997 assets should remain in place.[13]

A1.15 GC "*agree[d] with Ofcom's observations in relation to the significance of BT's audit by PWC and that BT appears to have significantly over-estimated the Net Replacement Cost for its duct network*".[14]

A1.16 VM did not address the specific questions in the March 2011 Consultation but set out its general concerns with respect to setting prices expressing the concern that *"If the regulated price is set at too low a level ... it could very likely cause those competing providers, in attempting to compete, to lower their charges to a level which renders them unable to recover their costs. Moreover, at the extreme, it could lead to them exiting the market ... entities that have already invested in competing infrastructures will not contemplate further deployment of infrastructure, or upgrades to their existing investments, if regulated (and de facto benchmark) prices in the market are set at a level which renders them unable to recover their costs*".[15]

A1.17 Openreach disagreed with our proposed approach, repeating its earlier position that efficiency requires that charges be set on the basis of full CCA asset values.[16] Openreach also submitted a detailed analysis of the returns to BT shareholders since privatisation which, it argued, showed that there had been no windfall gain from the switch to CCA in 1997 and that Ofcom's current approach would lead to under-recovery of costs. Openreach proposed a return to full CCA for all duct assets.

A1.18 Regarding the efficiency of setting charges on the basis of full CCA asset values, in response to the March 2011 Consultation, Openreach made the following points:

- CCA asset values provide appropriate price signals for suppliers, consumers and entrants;[17]
- The RAV adjustment reduces Openreach's incentives to invest;[18]

[9] See paragraph 6 of Sky's response and paragraph 119 of TTG's response.
[10] TTG response, paragraph 121.
[11] Sky response, paragraph 24.
[12] EE response, page 8.
[13] EE response, pages 10 and 11.
[14] GC response to question 3.5 of the March 2011 Consultation.
[15] VM response page 2.
[16] Openreach response, paragraph 308.
[17] Openreach response, paragraph 308.

- The RAV adjustment postpones competitive entry which could otherwise occur "*to a material degree*" in the longer term. Ofcom should also take account of the incentives to invest in adjacent markets, particularly mobile broadband access;[19]

- The resulting increase in charges (based on full CCA asset values) would affect all operators, including BT Retail, equally and so would not distort competition;[20]

- Ofcom had not reconsidered whether market conditions had changed and had not taken account of the achievement of its goal of promoting downstream competition;[21]

- The incentives for productive efficiency are provided by the charge control and do not depend on the way assets are valued;[22] and

- Past changes to the basis of asset valuation in 1997 and 2005, and the fact that Ofcom in 2005 signalled its intention to review the decision again by 2009/10, indicate that regulatory stability is "*a secondary consideration*" on which Ofcom placed "*undue weight*" in the March 2011 Consultation.[23]

A1.19 Openreach also objected to what it believed to be a suggestion that sunk costs could be disregarded in setting MPF and WLR charges. In its view, allocatively efficient charges should be based on LRIC, which it regards as including full replacement costs.[24]

A1.20 We respond to these points in turn below. We respond to Sky's arguments on the need for a longer-term solution in the sub-section below on alternatives to the RAV.

Our response

Points raised by VM

A1.21 VM urged Ofcom not to set BT's charges at a level at which other access providers would be unable to recover their costs. VM noted that these operators would "*invariably*" have higher costs than BT, because of their smaller scale and that, "*if the regulated price is set at too low a level*", then "*at the extreme, it could lead to [other access providers] exiting the market*".[25]

A1.22 We do not consider that the LLU / WLR charge control carries such a risk. Market exit is only likely if expected future revenues are less than forward-looking costs. Most of the costs of an existing access network are sunk, and the forward-looking costs are likely to be low. This is true of competing networks like VM's, as it is of Openreach's. As we discuss in paragraph A1.32-A1.39 below, the charge control is intended to allow Openreach to recover the costs which it has sunk in creating its

[18] Openreach response, paragraph 79.
[19] Openreach response, paragraph 78.
[20] Openreach response, paragraph 103.
[21] Openreach response, paragraphs 82 and 83.
[22] Openreach response, paragraphs 90 to 98.
[23] Openreach response, paragraphs 99 to 107.
[24] Openreach response, paragraph 87. Openreach defines LRIC as "*a specific form of marginal cost, which includes sunk costs (valued on a replacement cost basis)*". Ofcom regards marginal cost as a special form of incremental cost in which the increment is a single unit of output. A long-run cost concept will include costs which are fixed in the short run, but a forward-looking LRIC will not include sunk costs which will not be incurred again in future.
[25] VM response, page 2.

duct network. Given that the costs of competing access networks (like VM's) are also largely sunk, we consider it very unlikely that there is risk of the charge control leading to market exit. Even if competitors are not able to match BT's economies of scale, some at least (again like VM) are able to enjoy economies of scope from supplying multiple services including voice, broadband and TV over their local access networks.

CCA and efficient price signals

A1.23 In the March 2011 Consultation, we argued that Openreach's duct network is, in economic terms, a "sunk asset", that is, one that would not require replacement in order for the operator to remain in the market.[26] As it is a sunk asset, setting charges on the basis of CCA asset values would not achieve allocative efficiency. This is because, for allocative efficiency, charges should reflect only forward-looking costs and if duct does not need replacement the cost of replacing it is not part of forward looking costs.[27]

A1.24 Openreach does not contest these points in detail, but states that giving appropriate price signals is "*a very well-known attribute of CCA*".[28] Our view remains that the fundamental principle is that prices should reflect forward looking costs – on this basis Openreach's proposition is only true to the extent that CCA asset values are a good reflection of forward looking costs.

A1.25 It will often be the case that prices set on the basis of CCA asset values provide appropriate incentives for investment and consumption. CCA will often be superior to HCA as a basis for pricing because in many situations it more closely approximates the costs of the resources needed to provide a service today, rather than at some time in the past when the necessary assets were first acquired. In other words, CCA is likely to be superior to HCA because it is often a better approximation of forward looking costs.

A1.26 This is only true, however, if the assets in question will actually require replacement. In most cases, replacement after a period of a few years is probably a reasonable assumption. However, if, as in the case of duct, replacement is not likely and the asset is a "sunk asset", then the cost of replacing that asset is not taken into account as part of the forward-looking costs. If setting prices to achieve allocative efficiency were the only objective, they would not therefore be set on a CCA (or indeed HCA) basis but rather on the basis of forward-looking costs, excluding all sunk costs.[29]

A1.27 Openreach said that "*[a]ssets valued on a forward looking CCA basis provides appropriate price signals for both suppliers and consumers, as well as sending the correct investment signals to potential market entrants. This is a very well-known attribute of CCA as set out, for example, in the Analysys Mason report, which explains why replacement cost methodologies, such as CCA based approaches send the right signals to allow market entrants to make efficient build/buy decisions*".[30]

[26] March 2011 Consultation, paragraph A5.33.
[27] March 2011 Consultation, paragraph A5.31.
[28] Openreach response, paragraph 72.
[29] March 2011 Consultation, paragraph A5.31.
[30] Openreach response, paragraph 72.

A1.28 Openreach referred specifically to the Analysys Mason report which stated that "*[a]s recognised by Ofcom in [the 2005 Cost of Copper Review], replacement cost methodologies can provide efficient signals for entry. The reason for this is that current cost methodologies value the regulated asset at the cost to a new entrant operator of constructing or acquiring the asset*".[31]

A1.29 We agree with the general point that CCA asset values *can* provide efficient price signals, where replacement of the assets is an appropriate assumption. However, the question here is whether, in the case of duct, CCA *would* lead to efficient price signals. Analysys Mason stated that: "*[a]llocative efficiency would be achieved by pricing at the incremental costs. In the case of duct, where so much of the investment is sunk and where additional (spare) capacity is commonly deployed at the time of the initial build, these incremental costs can be very low. Accordingly, even allowing for some new construction costs, incremental costs will be likely to be substantially below the fully allocated current replacement cost or [LRIC](and indeed below HCA FAC)*."[32]

A1.30 We are not proposing that it is appropriate to set charges which value Openreach's duct on the basis of marginal or incremental costs (nor is Analysys Mason).

A1.31 Rather, we are illustrating that, in contrast to the argument made by Openreach that it is necessary to incorporate full CCA values in order to achieve allocative efficiency, allocative efficiency can be achieved on the basis of forward looking costs. We agree that pricing on the basis of the RAV is likely to involve some sacrifice of allocative efficiency, but this is because it leads to prices which are *above* the true forward looking cost of using Openreach's ducts.

Incentives for investment and entry

A1.32 Openreach argues that the RAV adjustment weakens incentives for it and other fixed and mobile operators to invest in their networks.

A1.33 We do not agree that the RAV adjustment reduces the strength of Openreach's incentives to invest. This is because the RAV adjustment only applies to assets which were in place before 1997. New duct investment is valued at its full CCA value and remunerated accordingly, and this preserves Openreach's incentives to invest. We also note that BT and Openreach have publicly announced plans for significant investment in future on the basis of the current regulatory regime which includes use of the RAV to set charges for the use of Openreach's local access network.[33]

A1.34 We agree that, in principle, the RAV adjustment may reduce the incentives for investment in competing access networks, relative to valuation on a full CCA basis. However, the relevant questions are whether, if the full CCA value of BT's duct assets were reflected in charges, such competing investment would be efficient, and whether it would be likely.[34]

A1.35 The Analysys Mason report explains that even valuing duct on a full CCA basis would be unlikely to result in new competing investment which was efficient.

[31] Analysys Mason report, page 23.
[32] Analysys Mason report, page 23.
[33] BT Group plc Annual Report 2011: http://www.btplc.com/Sharesandperformance/Annualreportandreview/pdf/BTGroupAnnualReport2011.pdf.
[34] Consultation, Annex 5, paragraph A5.60.

Analysys Mason stated that "*thanks to the fact that BT's ducts are already highly utilised by BT, unit prices based on a fair allocation of BT's replacement costs are likely to be lower than the stand-alone cost of entrants, and therefore may discourage even efficient operators from parallel build. The impact of the valuation method on the incentives for efficient build is therefore limited*".[35]

A1.36 Analysys Mason therefore highlights two points. First, as we noted above, because duct is a sunk asset, the true forward looking costs of Openreach's duct network are likely to be very low. The forward-looking incremental costs of creating a new duct network would almost certainly be higher than the forward-looking incremental costs of using BT's existing network. Second, Openreach's economies of scale and scope are such that, even if duct were valued on a full CCA basis, it would be difficult for a new competing fixed network operator to achieve lower costs. Analysys Mason further noted that "[d]*eterring entry may be less of a concern in the case of duct than in other markets, as entry is extremely unlikely: high sunk costs and strong economies of scale mean that barriers to entry are high, and the one-off opportunity given by the exclusive cable franchises will not recur. With regard to past investors in parallel infrastructure, there are also opportunities for these past investors to enhance their offering by renting duct from BT*".[36]

A1.37 In practice therefore, we consider that the gradual move towards full CCA valuation (as the value of pre-1997 assets falls) embodied in Ofcom's approach is unlikely to postpone efficient competitive entry to a material degree as Openreach argues. However we also noted in the March 2011 Consultation that it may in future become appropriate to review this and to undertake a detailed assessment of the long-term prospects for competitive entry.[37]

A1.38 To the extent that mobile broadband is a substitute for fixed broadband, then demand for one will be affected by the price of the other. In theory, therefore, it is possible for the price of Openreach's MPF and SMPF services, which are used to provide retail fixed broadband, to affect incentives to invest in mobile broadband networks. However, our most recent review of the wholesale local access market concluded that mobile broadband access was in a separate market to fixed broadband access.[38] In the 2010 WLA statement we considered that, for the forward look period of the market review, substitutability between mobile and fixed broadband services would be limited. This in turn suggests that any effect of fixed broadband prices on mobile broadband investment will itself be limited.[39]

A1.39 However, in any event, correct signals for investment by other operators (the "build/buy" decision) are given when the charge for use of Openreach's duct reflects the forward-looking costs of that duct. This is the case whether the alternative investment is in another fixed network or in a mobile network. Accordingly, a recognition of the investments being made in mobile broadband networks would not affect our conclusions on the appropriate valuation of Openreach's duct.

[35] Analysys Mason report, page 14.
[36] Analysys Mason report, page 19.
[37] March 2011 Consultation, Annex 5, paragraph A5.63.
[38] 2010 WLA statement paragraph 3.42-3.43.
[39] See http://stakeholders.ofcom.org.uk/binaries/consultations/wba/statement/wbastatement.pdf, paragraph 1.18.

The RAV and competitive neutrality

A1.40 Openreach argues that a return to full CCA valuation for duct would be competitively neutral because all users of WLR and MPF services, including BT Retail, would be equally affected. Openreach supports this argument by drawing an analogy with changes to Corporation Tax and the price of fuel, which it also regards as competitively neutral.[40]

A1.41 We agree that an increase in the value of the duct which discriminated against some operators or which was not applied consistently to different services could lead to inefficiency and could possibly harm competition. We said in the March 2011 Consultation that relative charges for different services (such as MPF, WLR+SMPF or PIA) which can be used to provide a given downstream service should reflect the differences in their incremental costs in order to give users the incentives to make an efficient choice.[41] However, we do not agree that the economics of LLU and WLR usage are necessarily unaffected by the level of the LLU or WLR charge. Our view would seem to be borne out by the history of LLU usage, which expanded rapidly after the 2005 reductions to the LLU charges (BT's revised LLU charge was subsequently followed by Ofcom's setting of a charge ceiling on the LLU charge which incorporated the RAV adjustment[42]). In addition, an increase in LLU and WLR charges could encourage substitution to operators of other networks, such as VM or even to mobile broadband and this might not be efficient.

A1.42 Our final reason why we believe that a return to full CCA valuation would not be competitively neutral is not the risk of discriminatory charges but the signal that it would give about regulatory consistency over time. Regulatory decisions which are not consistent over time can lead to "regulatory risk" which can stifle competing investments.

A1.43 We explained in the March 2011 Consultation that an unexpected return to full CCA valuation of all duct assets could undermine the business cases of the LLU operators.[43] This is because, in the case of a CP using MPF, the line rental is a significant part of its costs.

A1.44 In our recent statement setting a control on BT's wholesale broadband access charges in Market 1, we noted that the main determinants of the extent of MPF rollout were the size of the exchange and the costs of MPF.[44]

A1.45 We also noted that, at the margins of rollout, the investment case is likely to be finely balanced and a change to one factor could be sufficient to tip it one way or another. Thus an increase in the MPF rental following a return to full CCA valuations could affect future rollout of MPF and make some rollout which had already taken place appear uneconomic *ex post*.

A1.46 Even if existing LLU rollout would not be reversed, the perception that further similar changes to the regulatory framework could occur in future could stifle competitive investment. It would signal that regulation in this area may not be consistent over time and may change in ways which could mean that sunk investments would not

[40] Openreach response, paragraph 103.
[41] Consultation, Annex 4, paragraph A5.40.
[42] See "Local loop unbundling", consultation, September 2005 at: http://stakeholders.ofcom.org.uk/binaries/consultations/llu/summary/llu.pdf.
[43] March 2011 Consultation, paragraph A5.47.
[44] "WBA charge control", July 2011, paragraph 3.25 at http://stakeholders.ofcom.org.uk/binaries/consultations/823069/statement/statement.pdf.

be recovered. Openreach also argues that the expectation that sunk costs will be recovered is important to investors.[45] We agree that, at the point when they are incurred, there should be an expectation of the opportunity to recover sunk costs, and that expectation should be reflected in future regulatory decisions.

Market conditions

A1.47 In the March 2011 Consultation, we referred to the WLA market review and the WFAEL market review, both of which confirmed that BT continues to have SMP in relevant markets.[46] The WFAEL and WLA market reviews included a "forward look" – a view of the likely development of competition over the three to four years following publication. Further, in the November 2011 Consultation we considered whether there has been a material change which would cause the prior market power determination to be different and whether any difference is capable of impacting on the setting of a charge control on LLU / WLR. We have concluded in this draft Statement that there has not been a material change.

A1.48 Openreach refers to the increase in usage of MPF, SMPF and WLR as evidence of a change in competitive conditions since 2005.[47] However, the additional competition which has emerged takes place downstream, for example, in the markets for wholesale and retail broadband access, and does not represent additional competition to Openreach at the upstream local access level, which Openreach accepted.[48]

A1.49 The additional competition involves the use of Openreach's local access network rather than competing directly with it. Hence the increase in usage of MPF, SMPF and WLR does not provide a basis for arguing that there has been a change in Openreach's position of SMP in the WLA market since 2005 and is not relevant to the continued appropriateness of the RAV. Moreover, as we argue above, an unanticipated change in the basis of the regulation on which this competition depends – such as a return to full CCA valuations – after entry has taken place would risk stifling future entry. We consider that this risk would be enhanced if the return to full CCA valuation were explicitly linked to the development of LLU and WLR competition, that is investors would perceive entry as encouraging higher charges.

Productive efficiency

A1.50 We agree with Openreach that the charge cap provides an incentive for Openreach to control and reduce costs. RPI-X type controls provide incentives for productive efficiency because charges are independent of actual costs for the duration of the charge control and the firm subject to the RPI-X type control is able to retain the benefits of cost reductions it makes, at least until the control is reset.

A1.51 In the March 2011 Consultation, we discussed two other important considerations under the heading of productive efficiency (that is total cost minimisation).[49]

1.51.1 One productive efficiency consideration was the desirability of setting charges to give operators the correct build/buy incentives and so minimise

[45] Openreach response paragraph 86.
[46] WLA 2010 Market Review paragraph 1.2 and WFAEL 2010 Market Review paragraph 1.9.
[47] Openreach response, paragraph 83.
[48] Openreach response to the November 2011 Consultation, paragraph 2.
[49] March 2011 Consultation, paragraphs A5.36 to A5.40 and A5.48 to A5.49.

total costs (i.e. the combined costs of Openreach and other operators). We argued that this meant that charges should be set to reflect Openreach's forward-looking duct costs. As we noted above, these may be very low, because duct is a sunk asset, and this means that the most productively efficient option will often be to use Openreach's duct. Use of the full CCA valuation would not then give the correct build/buy incentives, because the full CCA valuation will include the costs of sunk assets and hence exceed forward looking costs. A full CCA valuation approach could encourage investment in network build even when it is inefficient and increases total costs.

1.51.2 The other consideration related to the choice between wholesale inputs that are alternative ways of providing a given downstream service. For example, MPF, WLR+SMPF and PIA can all be used to provide voice and broadband services. Setting prices which encourage users to make the cost-minimising (productively efficient) choice between inputs requires the difference between the charges for the inputs in question to reflect the difference in their incremental costs. Since this is an issue of relative prices, not the absolute level of prices, the RAV adjustment is consistent with this aspect of productive efficiency provided the RAV adjustment is reflected in the charges for each of these services in a consistent way.

A1.52 Openreach does not argue that productive efficiency considerations favour the use of full CCA valuations. Openreach only makes the claim that "*there is no basis to conclude that consideration of "productive efficiency" favours any one cost basis over another*".[50] Accordingly, we could infer from this that Openreach's view is that both the RAV and full CCA are consistent with productive efficiency. We think this may be true of the incentives to minimise costs arising from the RPI-X mechanism which do not depend on whether the costs used in setting the charge control are based on the RAV or on a full CCA valuation. It may also be the case that the choice between different Openreach products is unaffected by the choice of cost basis though only provided that the chosen cost basis is applied consistently to set all relevant charges. However, as we note above, because Openreach's duct is a sunk asset, a full CCA valuation would overstate its forward-looking costs and would not therefore give correct build/buy incentives, that is it will tend to encourage competing network build when it would be more efficient to buy and use an Openreach service.

The importance of regulatory stability

A1.53 In the March 2011 Consultation we said that regulatory consistency over time was important for investment and entry because it enables industry players to plan their investments and outputs with the certainty they need.[51]

A1.54 We do not agree that the changes to the method of asset valuation in 1997 and 2005 indicate that we gave little regard to regulatory stability. As is clear from the consultations and statements we published at the time, we gave serious thought to regulatory consistency before reaching our decisions. For example, regulatory certainty was a major factor in our decision not to clawback any of the windfall gains which BT might have made between 1997 and 2005.[52] Similarly, the fact that we

[50] Openreach response, paragraph 98.
[51] March 2011 Consultation, paragraph A5.42.
[52] See the 2005 Cost of Copper Review, paragraph 1.8 at http://stakeholders.ofcom.org.uk/binaries/consultations/copper/statement/statement.pdf.

proposed in the March 2011 Consultation to reconsider the 2005 review does not indicate that regulatory stability is given little weight because it would certainly be a factor in any review of the 2005 decision. The mere fact that a decision is under review does not indicate that regulatory consistency is to be ignored. It will be appropriate to take it into account alongside other factors which may or may not suggest that a change in policy is desirable. In this case we are of the view that other factors support a consistent approach to duct valuation and continued use of the RAV.

Recovery of sunk costs

A1.55 We do not intend to disregard sunk costs in setting the LLU and WLR charge control. The reason why we do not disregard sunk costs in setting charges – even though to do so may be consistent with allocative and productive efficiency – is because the approach would not be consistent with encouraging dynamic efficiency.

A1.56 In the March 2011 Consultation we explained that investment and innovation by the regulated firm is one aspect of dynamic efficiency and competitive entry and investment is another.[53] However, if such investment is to take place, it must be possible for the costs of the investment to be recovered, and for an adequate return on it to be made.[54] If investors believed that their costs, once sunk, would be regarded by the regulator as irrelevant for pricing purposes, they would be very reluctant to invest in assets which could be regarded as sunk once the investment had been made.

A1.57 The purpose of the discussion of sunk costs in the March 2011 Consultation was to show that it is not necessary to value sunk assets such as BT's duct on the basis of full CCA in order to set charges at an efficient level. The statically efficient level of charges may in fact be well below the level implied by the full CCA valuation of Openreach's duct. However, the RAV adjustment for pre-1997 assets and the use of CCA for post-1997 assets are consistent with the recovery of sunk costs and hence with maintaining incentives for investment and dynamic efficiency.

Our conclusions

A1.58 In the light of the comments received from stakeholders in response to the March 2011 Consultation and, in particular, our assessment of the arguments made by Openreach, we have reached the conclusion that our decision on the treatment of pre-1997 duct assets set out in the 2005 review remains appropriate for this LLU / WLR charge control.

[53] March 2011 Consultation, paragraphs A5.41 to A5.45.

[54] We set charge controls according to the "fair bet" and "no retrospection" principles. This means that BT is allowed the opportunity to recover expected costs on a forward-looking basis, but is not provided with certainty that actual costs will be recovered. The "fair bet" principle means that prices are set to cover the expected value of costs, and BT has opportunities for over- or under-recovery of costs which are symmetric. If the actual costs turn out to be higher or lower than the forecast figures, then the gain or loss is kept by BT. This is known as the "no retrospection" principle and is fundamental to incentives to productive efficiency.

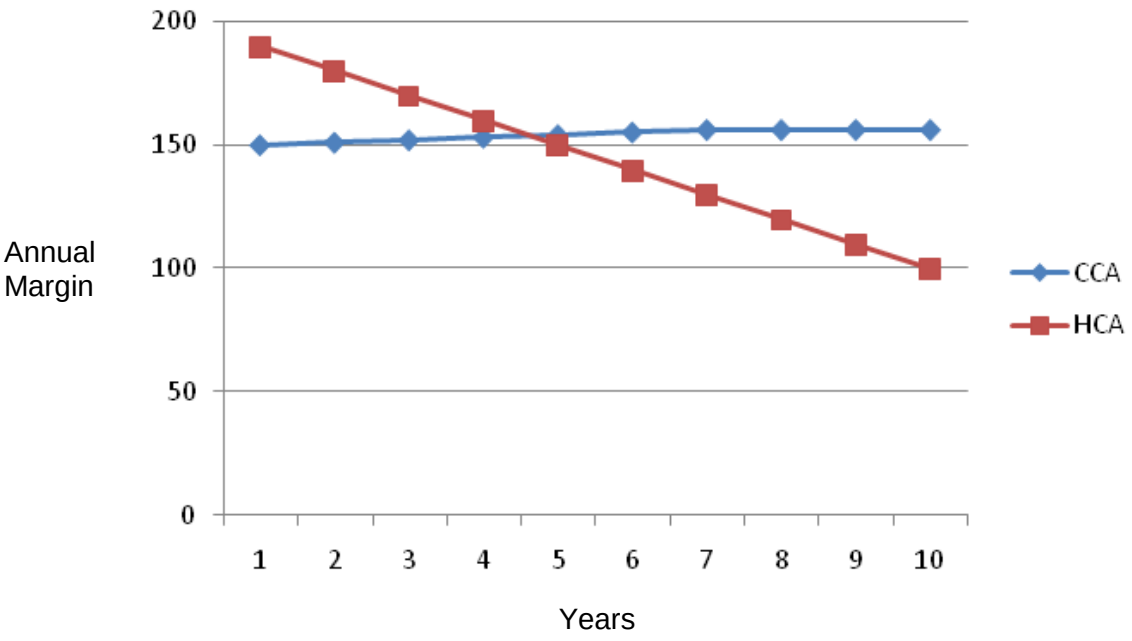
Returns to investors: under-recovery or over-recovery

March 2011 Consultation proposals

A1.59 The March 2011 Consultation we referred to the 2005 review, in which we had recognised that, in the case of assets with rising values, such as duct, moving from HCA to CCA would result in windfall gains for BT over time and that the resultant higher wholesale costs could stifle LLU-based competition downstream of this point. As a result, in 2005, we had introduced the RAV adjustment whereby BT's pre-1997 assets were no longer valued on a CCA basis and valued on an HCA basis indexed forwards from 2005 instead.

A1.60 In the March 2011 Consultation, we illustrated how a change from HCA to CCA may lead to a higher margin being earned over the lifetime of the asset (see Figure A5.1 of the March 2011 Consultation (reproduced below as Figure A1.1).

Figure A1.1: Diagram to illustrate potential windfall gains



A1.61 As noted above in A1.11, in the March 2011 Consultation, we asked stakeholders the following question, in response to which Stakeholders also made the following responses relevant to cost recovery:

***Question 3.5**: Do you agree with our assessment that the decision on the treatment of pre-1997 duct assets set out in the 2005 Valuing BT's Copper Network remains appropriate for this set of charge controls? If not, why do you consider that the basis of valuing pre-1997 assets should change and what valuation basis should be used?*

March 2011 Consultation responses

A1.62 Sky and TTG agreed that changing from the RAV adjustment to a CCA basis would result in over recovery by BT.[55] TTG said that "*[t]he resultant increases in prices would increase the charges paid by wholesale customers and consumers and diminish downstream competition – yet there would be no clear countervailing benefit*".[56]

A1.63 Openreach sought to explain, on the basis of new modelling work (the "Openreach Model" that:

- the benefit of higher initial HCA cost recovery fell to the Government and not to BT's shareholders following privatisation of the company in 1984;
- BT's shareholders bought BT's assets, including duct at close to its CCA value at privatisation and are entitled to recover costs on that basis; and
- cost recovery under HCA will not meet shareholders' reasonable expectations and will result in a windfall loss for BT.[57]

A1.64 We respond to these three points in turn below.

Our response

Shareholder returns

A1.65 In the 2005 review, our main economic concern was to ensure that investors would be appropriately compensated for their investments. We note that in the case of duct assets the investor was BT, although following privatisation of the company in 1984, shareholders would also have expectations in respect of investment returns.

A1.66 Openreach, in its response to the March 2011 Consultation, argued that the returns to shareholders since 1984 have been insufficient to recover their investment in duct, plus the cost of capital, and hence that, far from resulting in a windfall gain, "*moving to CCA pricing from 2011 onwards would still result in an under-recovery of costs*".[58]

A1.67 We consider Openreach's arguments below and explain why we do not agree with Openreach that there was no possibility of a windfall gain in 1997, or that a return to a full CCA valuation is now required in order to reward shareholders adequately.

A1.68 Openreach's calculation included the assumptions on the initial amount which shareholders are deemed to have paid for BT's duct assets at privatisation. This amount is not observable and Openreach therefore relies on an imputed value calculated from the total amount paid by shareholders at privatisation.

[55] Sky response, paragraph 5 and TTG response, paragraph 122.
[56] TTG response paragraph 122.
[57] The model, which we assess in detail at paragraphs A1.83-A1.88 estimates the profile of allowed revenues (i.e. depreciation plus return on capital) under HCA and CCA pricing based on actual historic capex by BT on duct assets installed from 1984 (and thus relevant to the period since privatisation) to 1996. Openreach's arguments that there is no windfall gain from CCA valuation for pre-1997 assets is set out at paragraphs 108 to 130 of its response.
[58] Openreach response, paragraph 127.

A1.69 The imputed value is then compared to the returns which shareholders are assumed to have earned on the duct assets. The returns in the model take the form of estimates of duct depreciation plus the cost of capital applied to the accounting value of the duct assets. We note that Openreach's method of calculating the return on duct takes no account of the value of the services which shareholders expected to be provided using that duct. We discuss the appropriateness and consistency of Openreach's method of calculating the value of duct at privatisation and the returns to shareholders below (A1.83-A1.88).

A1.70 The method that Openreach used in valuing its duct assets is an example of the "sale-price" approach to asset-valuation. This is one of a number of market-based methods discussed in the Analysys Mason report. In our view, the "sale price" approach to asset valuation is an unsuitable method to apply to BT's duct assets. Analysys Mason stated:

> "*The sale price approach is useful in the case of newly privatised companies or recently traded assets… In practice, this method uses the valuation of the entire company that owns the asset to value the asset itself. This is most appropriate for companies that are made up substantially of one single asset – otherwise adjustments must be made to account for other assets owned by the company*".[59]
>
> "*The successful use of the sale price methodology requires that the asset itself has been sold recently, since it values the asset at that price. But this is not the case with BT's duct, since it is still wholly within BT's ownership. Therefore, the methodology is not practicable...These [market-based] methods are very poor at meeting this [robustness] criterion: each involves a number of assumptions that can reasonably be challenged, which means that the asset values determined by these methods are easily disputable*".[60]
>
> "*However, the sale of the asset often happens only once, and since market – and even political – conditions that may affect the sale price can vary over time, it is possible to dispute the valuation based on the timing of the sale. For example, if the sale happened at the height of an investment boom, it could be argued that it reflects an inefficiently high value*".[61]
>
> "*It is true that the sale price method, if the asset in question has been recently sold, can be transparent and based on objective data. However, this is not the case with BT's duct assets, since it has not been sold*".[62]
>
> "*It is our view that financial-based methodologies are not suitable for the valuation of BT's duct assets. Whilst there are practical problems in implementation, the most important reason is that they are either explicitly or implicitly circular, and can also have serious problems regarding robustness which could result in significant disputes over*

[59] Analysys Mason report, page 7.
[60] Ibid. page 27.
[61] Ibid. page 28.
[62] Ibid. page 28.

the asset value produced by the application of these methodologies".[63]

A1.71 Analysys Mason rejected market-based approaches to valuing Openreach's duct, and it is clear that the general problems with the sale-price method identified by Analysys Mason are acute in the case of duct. In particular, BT is far from being "*substantially [a] single-asset*" company, and the absence of a market valuation of Openreach's duct means the method is "*not practicable*" and lacks transparency and objectivity.

A1.72 As there is no transparent sale valuation of Openreach's duct assets at privatisation, any attempt to derive an implicit valuation requires assumptions to be made. The crucial assumption made by Openreach is that all assets were sold at the same discount to NRC, equal to the percentage by which BT's aggregate privatisation proceeds were less than the total NRC of its assets at privatisation. This assumption is entirely arbitrary. In fact the aggregate sale value of BT at privatisation is consistent with a wide range of values for the duct assets which made up only a part of BT's total asset base. There is no reason to suppose that the buyers of BT shares implicitly discounted all assets by an equal proportion of their NRC.

A1.73 The value which investors placed on BT's assets, including its duct assets, at privatisation will have reflected the returns which they expected to earn on those assets. Given the importance of regulated services to BT at that time, expectations about what Oftel would allow BT to charge are likely to have been a key determinant of what investors were prepared to pay. It is important therefore that, when assessing the returns which investors have earned since privitisation, assets are valued in a way which is consistent with the expectations which investors could rationally have held at privatisation. The approach adopted by Openreach does not meet this test of internal consistency.

A1.74 During the period 1984 – 1997, BT did not offer a wholesale exchange line product, as Oftel did not require BT to do so. This meant that any customer taking an access line from BT will very likely have used it to make retail calls, which at the time were highly profitable. Indeed, the need to address the very considerable advantages which BT derived from being able to operate as a vertically integrated entity ultimately led to the creation of Openreach. At privatisation, however, it would have been rational for share buyers to value BT as a vertically integrated company. One internally consistent approach to assessing whether investors have earned a reasonable return on their initial investment in BT shares would therefore be to compare the sale value of BT as a vertically integrated company, including its access, core and international network assets, with the returns earned on calls and access combined since privatisation. In general, BT's shareholders have earned good returns on domestic and international calls and access services taken together, which have partly been offset by poor performance in other parts of BT.

A1.75 Openreach does not adopt this approach but instead calculates an implicit value for the duct assets alone, albeit an arbitrary one. As we noted above. Openreach's approach is inherently problematic because investors' implicit value of duct at privatisation is unobservable. However, to the extent that investors might have attempted such a valuation, rational investors would have based it on expectations about future allowed returns on duct assets. Therefore, in order to apply Openreach's approach, it is necessary to make an assumption about what rational

[63] Ibid. page 29.

investors might have regarded as the expected returns on duct alone. Suppose, for example, that investors had expected that the returns on duct would be regulated in the way assumed by Openreach, that is, allowed revenues would equal the sum of accounting depreciation and the required rate of return on the accounting value of the duct assets. Openreach would presumably view such expectations as rational and reasonable. However the implication is that Openreach's methodology is completely circular, since by definition the implied sale value of the duct assets is then equal to the discounted value of the expected future cash flows.

A1.76 It is possible, however, to carry out a simple check of the realism of an assumption that investors expected BT to be regulated in the way Openreach assumes. We first note that, given that the aggregate privatisation value of BT is fixed, the lower the assumed value placed on the duct assets at privatisation, the higher the value which must have been placed on the remaining assets. Hence if duct assets were sold at a larger than average discount to NRC, this would imply a smaller than average discount to NRC on BT's other assets – but by a relatively small amount because only around 20% of BT's initial share value was accounted for by duct according to Openreach's figures. Accordingly, if shareholders' implicit valuation of the duct assets had been consistent with Openreach's calculation of the revenue they would actually receive, the discount on the other assets would have been about 18.5%. There is no obvious reason for regarding this as less plausible than Openreach's assumption of a uniform 24.5% discount.

A1.77 Indeed, to the extent that it is possible to hypothecate values to individual assets at privatisation, a relatively low valuation for duct is more plausible than the valuation assumed by Openreach. As we noted above, rational investors would have based such a valuation on expectations about future returns on duct assets. These might, to a large extent, have depended on the residential line rental which would have been allocated a significant part of the costs of access duct. The retail residential line rental was at the time, and for some years afterwards, required to be below HCA FAC (giving rise to the so-called "access deficit"). Rational investors would then have valued duct assets on the expectation that returns would be below HCA FAC and hence at a larger than average discount to NRC. On the other hand, assets which were primarily used to provide unregulated services, such as BT's international network, may have been sold at a premium, reflecting the expectation of profits in excess of the cost of capital.

A1.78 Of course, the lower the initial value of duct, the more likely it is that shareholders have received an adequate return, or more, on their initial investment, even if the subsequent revenues are calculated using Openreach's method. As the amount implicitly paid for the duct assets cannot be clearly identified, the claim that there has been a shortfall of revenues from duct is not robust.[64]

A1.79 Another problem which Analysys Mason identified is the circularity of market-based methods. The circularity arises because the market value of the company depends on the profits which shareholders expect to make in future and this depends on their expectations about how the firm is to be regulated. This is somewhat less of a problem with the sale-price method than with some other market-based methods but it is an issue nonetheless. If we suppose the initial market value had been "inefficiently high" (a risk noted by Analysys Mason) either because of market sentiment or the expectation that regulation would be lax and allow market power to be exploited in some markets. A regulator who set charges in order to allow

[64] This is not a new point: it was also made in the Cost of Copper Review paragraphs 4.66 – 4.70.

shareholders a given rate of return on this market value would perpetuate this expectation by imposing inefficiently high charges that would harm consumers.

A1.80 It is possible that, in 1984, shareholders expected BT to be unregulated in many markets. It is certainly the case that between 1984 and 1996 the scope of BT's retail price caps increased, as did the values of X, to reflect concerns about BT's ability to exploit market power.[65] It seems possible therefore that the initial sale price reflected the belief that BT would be allowed to earn high rates of return in some markets which initially were unregulated. It is not clear whether the share price also reflected the expectation that regulation (and competition) would be extended over time.

A1.81 As we noted above, assets primarily used to supply unregulated or loosely regulated services may have been sold at a premium and, given the average discount to NRC at which BT was sold, this would imply a bigger than average discount on the remaining assets including duct. Again, however, the key point is that we cannot know what expectations BT shareholders had in 1984 and hence it is not possible to derive a robust estimate of the amount paid for BT's ducts at privatisation.

A1.82 Whilst expectations in 1984 are unobservable and so we can say little about the value placed on duct at privatisation, we have better information about how this value would have changed in the run-up to Oftel's proposals on new retail price control arrangements to take effect on 1 August 1997.[66] It was clear by the early to mid-1990s that the setting of BT's retail price cap was informed by its HCA costs and this knowledge would have been reflected in contemporary share prices. It was in the mid-1990s that a switch from HCA to CCA valuations started to be considered, and it would have been known that this would result in an increase in the accounting value of BT's duct. Thus, in the 1995-1997 retail price control review in which the move to CCA valuations was mooted, considerable attention was devoted to the possibility that this would result in a windfall gain to BT shareholders and to ways of addressing this. The argument is expressed simply in the March 1996 consultation:

> "*If the asset base is to be uprated to a level above that on which prices had previously been set, because for competitive reasons it is desirable for prices to reflect the costs facing new entrants, then prices would be higher than if this uprating had not taken place. Shareholders would then enjoy windfall gains on the existing assets of incumbent operators*".[67]

A1.83 Considering the issue in the abstract (i.e. apart from all the other changes in expectations and sentiment which no doubt affected BT's market value between

[65] BT was initially subject to retail price controls on residential and business exchange lines and inland direct dialled geographical calls. Between 1984 and 1989, the price cap was set at RPI-3%. In the first review of BT's price controls in 1989, the cap was tightened to RPI-4.5% and operator assisted calls and Freephone and "Lo-Call" services were added to the basket. This control remained in place until 1991 when international calls were added to the retail basket and the value of X raised to 6.5%. Lo-Call and Free-Call services left the basket at the same time. In 1992, connection charges were added to the basket and the cap was tightened to RPI-7.5%. The next review took place in 1995-1997.

[66] http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/pricing/pri1997b/chap1.htm.

[67] March 1996 consultation, paragraph 7.17. See also paragraphs 6.43 – 6.46 of the June 1996 statement; Section 7 of the December 1995 price control review consultation, especially paragraphs 7.6 – 7.11 and 7.19 – 7.22, plus section 5 paragraphs 5.53 – 5.58 and Annex E paragraph E52 onwards; and the March 1996 consultation, paragraphs 7.15 – 7.21.

1984 and 1997) it is clear that, all other things being equal, the move from HCA to CCA in 1997 had the potential to gift BT shareholders a windfall gain at that time. Indeed this can be illustrated using figure 4 of Openreach's response by imagining a vertical move in 1997 from the lower HCA line to the higher CCA line. At the time, Oftel concluded[68] that there would not be a windfall gain over the period 1997-2001, but this was an empirical matter, dependent on the size of projected holding gains in the final year of the cap offsetting the higher CCA asset values and hence allowing the value of X in the price control to be approximately the same whether set on an HCA or a CCA basis. Oftel did not however consider the potential for windfall gains to arise after 2001 if sufficient competition (from operators with their own access networks) did not emerge, and this was left for Ofcom to address in 2005.

Model used by Openreach

A1.84 Openreach provided us with a model which quantifies BT's duct recovery and compares it to the corresponding investment made by BT's shareholders. It uses this model to support its arguments that:

- BT's shareholders did not experience a windfall gain through the change in duct valuation from HCA to CCA valuation in 1997; and
- If Ofcom were to revert to CCA valuation for all assets, no windfall gain would arise.

A1.85 Openreach agrees that in the case of a single hypothetical asset switching from an HCA valuation to CCA valuation, given increasing prices, over recovery would occur. However Openreach argues that this is not applicable to BT because pre-1984, the Government, and not BT, was the beneficiary. Hence Openreach argues that only the returns from 1984 onwards should be considered in assessing whether a windfall gain occurred.

A1.86 Openreach's argument critically depends on the value that it believes shareholders placed on duct at privatisation. This valuation is, as discussed in the paragraphs above, extremely subjective.

A1.87 The remaining assumptions on which Openreach's modelling depends are those relating to cost recovery on duct from 1984 onwards. The approach, though less subjective, is still dependent on significant assumptions, changing any of which would give very different results. For example:

- Duct asset life is assumed to be 40 years. In reality duct asset lives have varied in value. The asset life was 60 years prior to 1968, then it was changed to 45 years for the period up to 1993, then 25 years, then a common expiry date policy was adopted. Since 2006/07 the current asset life policy of 40 years has been adopted; and
- The return on capital employed is assumed to be that of the applicable regulatory WACC within each charge control. However, BT's actual recovery would, on average, have been above that of the regulatory WACC as both Oftel and Ofcom have traditionally adopted a glide path approach rather than imposing a one-off cut at the start of a charge control period.

[68] Paragraph 6.43-6.46 http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/pricing/pri1997b/chap6.htm.

A1.88 The RAV model provides a record of actual HCA and CCA costs reported, for duct and copper, within the regulatory accounts. The RAV model covers the time period from 1997 onwards. Hence it can be used as a comparator to the cost recovery profile generated by the the Openreach model, which claims to reflects actual cost recovery. To clarify, for each year, we can go to the RAV model to see the financials reported at that year for duct in terms of the depreciation charges, the holding gains and the opening and closing asset balances. These are the actual financials at a particular point in time. Due in part to the differences in assumptions listed in paragraph [A1.80] above, the profile modelled by Openreach differs significantly from that actually incurred. In conclusion the Openreach model does not reflect the profile of cost recovery that was actually incurred.

A1.89 In summary we believe that the Openreach Model is highly subjective and does not provide a compelling case that windfall gain has not or will not occur. In the 2005 review, Ofcom did not attempt to quantify the level of windfall gains, in part because of the inherent subjectivity of any such exercise, but mainly because it was not deemed necessary as the RAV adjustment was set to prevent potential future over-recovery of costs for assets and not to quantify or claw back any past over-recovery.[69]

Use of absolute valuation alone for setting charge controls

A1.90 For completeness we would like to consider now how using BT's absolute valuation compares to the use of the RAV adjustment in setting charge controls. This is the method that Openreach currently uses to estimate the value of its duct assets as reported in its RFS. As illustrated in Figure A1.2 below, this is, in effect, a large and complex calculation of price multiplied by quantity.

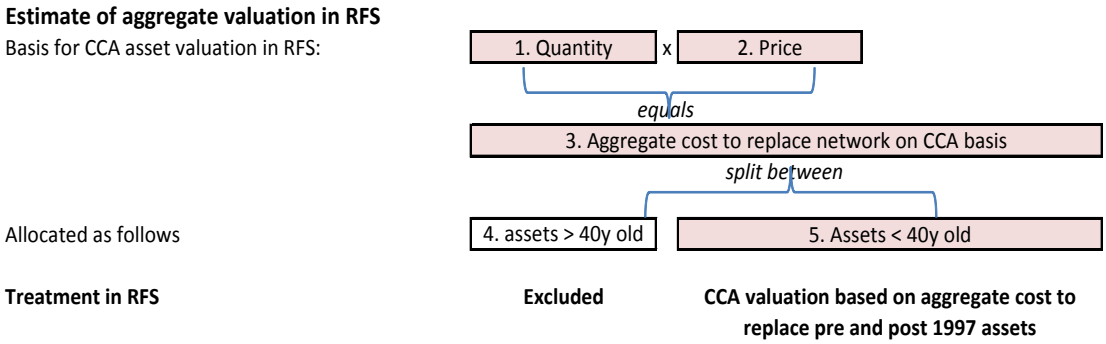
A1.91 Of course, BT's absolute valuation method is a version of full CCA replacement cost so it yields a significantly higher value for the pre-1997 assets than the RAV and as we have explained a full CCA valuation of the pre-1997 assets would not be appropriate for charge control setting purposes. However, we will put aside this point for a moment to consider the impact of the methodology alone.

A1.92 BT derives the duct assets' CCA valuation from an estimate of the cost of replacing the duct assets acquired in the last 40 years based on current contractor rates, reduced by a hypothetical scale-discount that might be achieved on these rates if the entire duct network was replaced on a planned national basis over a short period (the "national discount").

A1.93 BT then deducts an estimate of the proportion of the total cost that it considers relates to assets acquired more than 40 years ago to give the gross book value of the duct assets acquired in the last 40 years. This estimate is based on the indexation of all identified historical spend plus an assessment of historical spend for which detailed supporting evidence no longer exists (and for which an aggregate CCA value assessment has been made by BT).

[69] The 2005 Cost of Copper Review, paragraph 4.73.

Figure A1.2 Estimate of aggregate valuation in RFS



A1.94 Figure A1.3 shows the duct NRC over the last 10 years.

A1.95 The historical cost of duct (based on capital expenditure from BT's records) has steadily increased over the last 10 years. By contrast, BT's absolute duct valuation has shown some significant fluctuation over the recent years. The major movements were the fall in duct valuation by £0.8 billion in 2006/07, then an increase by £1.7 billion in 2009/10 and another fall by £0.7 billion in 2010/11. The reasons given by BT to account for this fluctuation were:

1.95.1 The value of duct fell by £0.8 billion in 2006/07 due to a change in accounting policy. Specifically, in that year the duct that was more than 40 years old was written off and the accounting useful life of duct changed to 40 years.

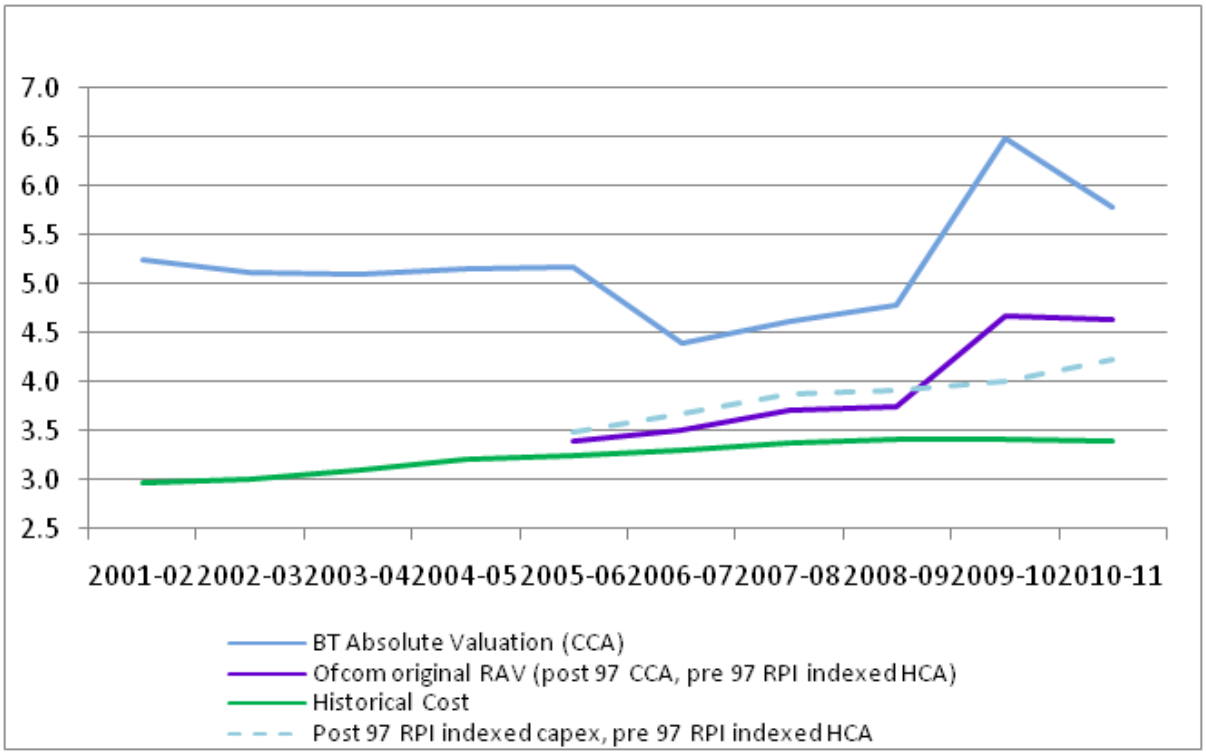
1.95.2 In 2009/10 the value of duct increased by £1.7 billion due to the change in the hypothetical national discount estimate from 40% to 14.5%. The discount was estimated by BT's management prior to 2009/10, in 2009/10 the estimate was obtained from an independent contractor.

1.95.3 In 2010/11 the value of duct fell by £0.7 billion due to reduction in independent contractor prices and reduction in the length of duct. The reduction in length occurred because, for the purposes of the absolute duct valuation, BT estimates the quantity of duct on a sample basis and then extrapolates the sample. In 2010/11 the duct length decreased by 4% as a result of sampling.

A1.96 Although according to Figure A1.3 below, BT's duct valuation does not show an abnormal trend in 2008/09, the final valuation number masks the fact that the valuation would have been much higher without the national discount. In 2007/08 the Piper system[70] was introduced with the resulting increase in quality of information held by BT. As a result, the quantity of duct in BT's system increased dramatically. However, the concept of national discount was introduced in the same year with the value of 45% based on BT's senior management judgement. As a result, the valuation did not increase significantly. Absent the national discount, the absolute valuation would have been 40% higher in 2008/09.

[70] Piper (Physical Inventory for Planning and eRecords) is BT's asset recording system.

Figure A1.3 Duct Net Replacement Cost values (£ billion)



A1.97 As can be seen from Fiigure A1.3, the absolute duct valuation determined by BT has fluctuated significantly over the last 5 years, despite no major changes in the underlying duct asset.

A1.98 It is clear that the reasons for the changes to the absolute duct valuation were changes to methodology and accounting practices. Such changes are not related to any underlying change in the asset yet have a direct impact on the valuation.

A1.99 We see no reason such changes to the method will not continue in the future. While such changes may be appropriate in seeking to more accurately assess the asset value, the appropriateness of such an approach in the context of a charge control process is highly questionable.

A1.100 To be useful in setting charge controls future asset values, as far as possible, should be predictable and not lead to dramatic changes in charges. While for some asset, exogenous cost impacts cannot be avoided (eg fuel prices, copper metal prices) this is clearly not a factor for duct. Accordingly, as the absolute valuation method does not appear to change in line with the expected movements in the underlying asset, it does not seem to be an appropriate basis for charge controls.

A1.101 The Frontier report on 'Duct and Copper valuation' states that its "*analysis supports Ofcom's view that BT's valuation is inconsistent with past capital expenditure, when using credible price trends*".[71]

A1.102 Frontier compared the GRC and NRC from BT's duct valuation with Frontier's estimate of GRC and NRC based on different assumed price trends, mainly based on RPI (with 2% efficiency implied pre-1997). In its report, Frontier highlighted unexplained movements in BT's duct valuation, notably the increase in 2009/10 and

[71] Frontier report for Sky and TTG on duct and copper valuation, page 1.

said that the "*movements do not appear to be consistent with changes in costs as implied within the RAV model and the price trends used in [...] analysis*".[72]

A1.103 The original RAV valuation comprises RPI indexed pre-1997 duct capital expenditure and post-1997 absolute valuation. As can be seen from Figure A1.3 above, a duct value modelled on this basis increases in line with historical cost up to 2009/10 where the valuation jumps by £0.9 billion. It is the absolute valuation element of the method leads that to the unexpected increase in value.

Our conclusions on pre-1997 duct valuation

A1.104 For the reasons given above, we do not consider that any of the economic arguments put forward by Openreach give us grounds to depart from our view that Ofcom's decision on the treatment of pre-1997 duct assets set out in the 2005 review remains appropriate for this LLU / WLR charge control.

A1.105 As explained above, we do not agree with Openreach that there was no possibility of a windfall gain in 1997, or that a return to CCA is now required in order to reward shareholders adequately.

A1.106 We have also considered whether BT's absolute valuation is a potential alternative to the RAV adjustment. In our view, it would produce unexpected values that move up and down over the years, while the RAV adjustment provides greater predictability to stakeholders.

A1.107 Accordingly, we have decided that the RAV adjustment is still required. It is important to understand that our principal duty is to further the interests of citizens and consumers and it is on this basis that the RAV adjustment is made – not on the basis of the cost recovery of private shareholders.

Physical Infrastructure Access

March 2011 Consultation proposals

A1.108 In the March 2011 Consultation, we said that we believed that the principles we had applied to setting the relative prices for MPF and WLR were also relevant to setting the relative charges for MPF and PIA.[73] We also noted that, in order to ensure the charges provided incentives to make the most efficient choice of wholesale input, whilst maintaining incentives for upstream entry, the difference between the charges for MPF and PIA should be at least as great as the difference in their respective incremental costs. A ceiling set on this basis would mean that the RAV was reflected in the maximum level of PIA charges.

A1.109 In the March 2011 Consultation, we explained that if we maintained the RAV adjustment in copper based access services, we would expect any assessment that we make in respect of PIA charges would reflect a consistent approach to asset valuation, recognising the RAV adjustment. In reaching this view, we took account of the European Commission's recommendation on NGA which states that NRAs should regulate access prices to civil engineering infrastructure consistently with the

[72] Frontier report for Sky and TTG on duct and copper valuation, page 17.
[73] March 2011 Consultation, paragraphs A5.50 and A5.51.

methodology used for pricing access to the unbundled local copper loop.[74] We noted that was also consistent with our anchor pricing approach to legacy access charges.

A1.110 In the March 2011 Consultation, we asked stakeholders the following question:

> ***Question 3.6****: We note that we would expect that the difference between the charges for MPF and PIA should be at least as great as the difference in their respective incremental costs. Thus, if we maintain the RAV adjustment in copper based access services, we would expect that any assessment that we make of duct access charges would reflect a consistent approach to asset valuation, recognising the RAV adjustment. In reaching this view we have taken utmost account of the European Commission's recommendation on NGA. Do you agree with this assessment of the need to recognise the RAV adjustment in the setting of duct access charges? If not, please give your reasoning.*

March 2011 Consultation responses

A1.111 There was broad agreement with our proposals from GC,[75] C&WW,[76] EE[77] and Fujitsu.[78] TTG noted that "*no allocation has been made to PIA services. Ofcom should consider whether any allocation is made to this service*".[79]

A1.112 Openreach, on the other hand, said that "*[w]ith regard to the pricing of PIA, Openreach considers it highly inappropriate that the Ofcom consultation contains a question about the approach that Ofcom should adopt*". Openreach went on to note that "*PIA is outside the scope of the LLU and WLR charge controls which are the subject of the Ofcom consultation*", "*PIA is a separate product and subject to a different remedy (a cost orientation obligation, not a charge control)*" and that "*stakeholders interested in PIA cannot be assumed to have reviewed and responded to the proposals for a charge control on LLU and WLR*".[80]

Our response and conclusions

A1.113 We acknowledge the comments from Openreach that PIA isoutside the scope of our consultation on the LLU and WLR charge control (i.e. the March 2011 Consultation and the November 2011 Consultation). We are not reaching any decision in this draft Statement on this issue as any future decision will need to be based on the information available at the time. However, our current view remains that the principles we have applied to setting the relative prices for MPF and WLR are likely to be relevant to setting the relative charges for MPF and physical infrastructure access.

[74] Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (NGA): http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010H0572:EN:NOT.
[75] GC response, page 2.
[76] C&WW response, pages 11 and 12.
[77] EE response, pages 9 and 10.
[78] Fujistsu response, page 5-6.
[79] TTG response, paragraph 545.
[80] Openreach response, paragraph 231.

Post-1997 duct assets

Basis of valuation

March 2011 Consultation proposals

A1.114 In the March 2011 Consultation, we proposed to conclude that CCA remains the appropriate approach for the valuation of post-1997 duct assets for this LLU / WLR charge control. We said that this would allow the total duct valuation to move towards an appropriate valuation for promoting competitive investment without the need for step changes in value or charges.[81]

A1.115 In the March 2011 Consultation, we asked stakeholders the following questions:

> ***Question 3.7:*** *Do you agree that it remains appropriate to value post-1997 assets on a replacement/CCA basis? If not, please give your reasoning*

March 2011 Consultation responses

A1.116 Openreach agreed that it remains appropriate for the post-1997 assets to be valued on a CCA basis. It said that "*retaining the existing CCA approach in respect of the post-1997 assets also provides greater regulatory certainty to stakeholders*"[82] (though as discussed below we differ on how this value is determined).

A1.117 GC[83] and Fujitsu agreed with our proposals.

A1.118 Sky suggested that "*…for newer assets, the valuation should be based upon BT's past capital expenditure appropriately indexed forwards to account for both cost inflation and recent efficiency gains*".[84]

A1.119 TTG agreed with our approach on asset valuation, but said that:

> "*In respect of the CCA valuation method (for post-97 assets) we consider that, as Ofcom has proposed, an indexation method should be used. The absolute or direct CCA valuation method (particularly the one that BT has proposed) has a number of very significant flaws*
>
> - *It is opaque, unreliable and potential inaccurate since it relies on a complex methodology and a number of arbitrary and highly subjective assumptions (see §5.116).*
> - *In the case of BT's suggested revaluation, the huge 55% increase in price is based on a single 'guesstimate' of the price/discount for work that will never actually happen and so is wholly hypothetical (and consequently unreliable)*

[81] March 2011 Consultation, paragraphs A5.56 to A5.65.
[82] Openreach response, paragraphs 311 and 312.
[83] GC response, page 2.
[84] Sky response, paragraph 5.

- *It could lead to under- and/or over-recovery due to changes in methodology or due to methodological, measurement or sampling errors in the construction of the valuation*

- *It provides no additional incentives for BT to make efficient investments in the future as all investments are included in the asset base*

- *There is clearly a strong incentive for BT to game this valuation method to inflate the value to achieve windfall gains – for instance, conducting this type of upward revaluation prior to a charge control review resulting in holding gains that are not reflected in a reduction in charges in the period in which they are recognised.*"

A1.120 C&WW said that "*In the longer term we are not convinced that the long term valuation of post-1997 assets should remain on a CCA /replacement basis. A CCA valuation, over time, increases the value of an asset leading to increasing costs for services supplied over that asset. A CCA valuation is only desirable in a situation in which it is expected that alternative providers might enter the market*".[85]

Our response and conclusion

A1.121 It is clear from the above comments that consensus as to whether or not a CCA valuation should be used largely depends on how that valuation should be undertaken.

A1.122 As discussed in paragraphs A1.89-A1.102 above, the absolute valuation methodology used by BT has serious flaws in the context of setting a charge control. As noted by TTG is opaque and inconsistent, with the potential incentives on BT to 'game' the process.

A1.123 However, we consider that it is appropriate to determine a value of post-1997 assets that does encourage the right incentives for both BT and other potential telecommunications asset investors. Our view on these incentives is derived from our wider view on market conditions and we agree with TTG and C&WW that it is may be appropriate to reconsider the basis of valuation of BT's post-1997 duct assets which we would do this as part of our next WLA market review. This would allow us to consider the role of duct in the context of the range of access remedies.

A1.124 While, we share some of the concerns of stakeholders on the risks in a CCA valuation we consider that these can be modified through the approach taken to deriving the valuation.

A1.125 As we discuss in the final paragraphs of this annex, a CCA valuation based on an appropriate index, rather than the existing absolute valuation approach, can avoid many of the risks identified and in effect satisfies the need to set a value that provide the risk investment incentives while ensuring that the value is not out of line with movements in costs and efficiency (as advocated by Sky).

A1.126 Accordingly, we have decided that it is appropriate for BT's duct assets deployed post-1997 to be valued on a CCA though one derived from indexation rather than absolute valuation.

[85] C&WW response, pages 12 and 13.

Valuation methodology

Consultation proposals

A1.127 In the March 2011 Consultation, we explained BT's approach to its valuation of post-1997 assets by reference to the cost of replacing the entire network (as reflected in BT's RFS) and the cost of replacing the post-1997 assets.[86] On this basis, BT had proposed a CCA value based on the NRC of the post-1997 duct assets of £2.9 billion, an increase of around 50% from its 2008/09 estimate.

A1.128 We considered BT's revaluation of its post-1997 assets and found that it did not represent a robust basis for estimating a current cost valuation. The reasons for this included the following:[87]

- BT's method for valuing the post-1997 assets assumes that the replacement cost of capital expenditure undertaken in each and every previous year should be inflated by 47%;
- This method means that relatively new assets have gross replacement costs significantly higher than the amount actually spent on those assets, rather than reflecting underlying cost trends in its valuation BT's approach inflates actual expenditure;
- Further, BT omits to apply the discount factor used in its aggregate valuation – or indeed any discount at all – to the grossed up post-1997 expenditure estimate; and
- BT's methodology fails to weigh the impact of inflation and other adjustments correctly over the period during which the total asset base was constructed.

A1.129 As explained in the March 2011 Consultation, we did not accept Openreach's basis for valuing post-1997 assets, and as there was no clear approach to 'correcting' BT's methodology, it was necessary for us to consider alternative approaches, where the value can be derived independently.

A1.130 In the knowledge that we were undertaking this charge control review and aware of the RFS change to duct valuation, stakeholders provided contributions to the question of the valuation of BT's ducts. UKCTA submitted a report by Towerhouse Consulting containing an analysis of duct valuation and Sky and TTG addressed this point in a Frontier Economics report on Openreach's next price controls.[88]

A1.131 Both reports emphasised the need for a valuation of duct assets that allows for efficient and informed investment decisions and generates adequate economic incentives, while avoiding excessive cost-recovery for BT. We considered that these principles, and the preference for index-based valuation methods which the reports outline, were compatible with our own proposed approach.

A1.132 Analysys Mason's conclusion was that if a CCA approach remained appropriate an absolute valuation was desirable. However, Analysys Mason noted that in the absence of a robust absolute valuation, indexation is an acceptable "*second best*" method of valuation, ideally using an index derived from industry costs. It noted

[86] March 2011 Consultation, paragraphs A5.86 to A5.103.
[87] March 2011 Consultation, paragraphs A5.146 to A1.158.
[88] March 2011 Consultation, paragraph A5.161.

that continued use of indexation to estimate CCA values is likely over time to lead to a variation from a 'true' replacement value.

A1.133 We considered that establishing an alternative robust approach for determining an absolute valuation for post-1997 duct assets, would require us to undertake a fundamental review of BT's duct infrastructure that would go beyond the scope of, or time available for, the charge control review. It was also not clear that we could develop an alternative absolute valuation approach. Therefore, given the concerns expressed above over BT's proposed valuation of post-1997 assets, we considered alternatives derived from indexation of actual expenditure since 1997. However, we considered that any approach should as far as possible remain consistent with the principles of valuation used in the past. Accordingly, we did not solely draw on indexation but also took into consideration how a true 'replacement' network would be provided.

A1.134 Analysys Mason reviewed available indices. Analysys Mason noted that there are a number of industry-specific price indices that potentially could be used for duct assets, in particular the GBCI and the TPI. The GBCI is a national index that measures the cost of construction works, including materials and labour. The TPI measures actual tender prices charged for construction work. This has historically been more volatile than the GBCI, with significant changes due to changing economic conditions. This reflects the fact that it includes margins earned by construction contractors, and not simply input costs, as are measured by the GBCI.

A1.135 Analysys Mason also noted that other regulatory authorities, both in the UK and elsewhere, have used indexing in the roll-forward of asset valuations. Ofwat specifies the use of the RPI for indexation. Likewise, the UK's air traffic control regulator NATS uses a general index for its price regulation calculations.

A1.136 We reviewed the appropriate index for use in our estimate. Clearly, given its use in other elements of our charge control we considered whether RPI was appropriate. It is a widely used and well understood price index. However, as illustrated in the Analysys Mason report industry price indices have tended to run significantly above RPI.

A1.137 We considered the alternative options set out by Analysys Mason as best fitting the duct construction market, GBCI and TPI. The TPI based on actual tender prices charged for construction work is clearly attractive as it gives a 'spot' price of values in the market. However, as noted by Analysys Mason, TPI has historically been more volatile than the GBCI, with significant changes due to changing economic conditions. This suggested that the TPI was not, comparatively, as robust a basis for a forward valuation of duct.

A1.138 The GBCI is based on a cost model of an average building and reflects changes in the costs of labour, materials and plant costs. We therefore considered that it might provide a more appropriate starting point for an assessment of changes in the cost of building duct.

A1.139 However, we also sought to be consistent with the general approach taken by BT. Accordingly, we considered that we should continue to apply the "national discount" that BT considers would be achieved if the network was to be rebuilt on a planned basis over a short period. This is, of course, not reflected in the GBCI indexation alone as existing investment does include a national discount. To capture the effect of this discount, it would be necessary to reduce the indexed value by an amount to reflect the potential discount.

A1.140 BT had estimated that a national roll-out discount of 14.5% could be achieved. Other stakeholders had suggested that this may underestimate the discounts that could be achieved through effective management of multiple contractors. However, in the absence of a clearly defined alternative we proposed to continue to use 14.5%.

A1.141 As illustrated in the Analysys Mason report, we also observed that BT appeared to be achieving better value for money in its costs than the UK industry average. In its report, Analysys Mason suggested that this could be by as much as 2% each year.

A1.142 We were not certain that there was evidence that BT was achieving a productivity premium of 2% over the industry average in duct. BT is reliant on contractors for its duct provision the cost of which would be expected to align towards industry averages. However, given BT's buying power and evidence of recent contract negotiations we considered that there was evidence that BT may be achieving an above average productivity delivery in duct in the order of 1%.

A1.143 In the March 2011 consultation we asked these questions:

Question 3.8: *Do you agree with our assessment that as BT's recent valuation of post-1997 assets is not consistent with alternative estimates of replacement values it does not form a appropriate basis for setting charges? If not, please give your reasoning.*

Question 3.9*: Do you agree with our proposal to include a valuation of duct in the charge controls based on indexation of post 1997 expenditure? If so, should this indexation be based on RPI; GBCI or GBCI adjusted for either productivity, scale economies or both (the detailed examination of these indices is set out in Annex 4? Please give reasons for your answer.*

Question 3.10: *Do you agree with our proposal to discount the indexed valued by an estimate of a national roll out of duct? If so, do you consider BT's estimate of 14.5% to be appropriate? If you disagree with our approach please give your reasons.*

Question 3.11: *Our range for the duct value is defined by the degree to which BT is able to establish contracts with cost below the national average? Do you consider that it is reasonable to expect BT to achieve below national costs on average?*

A1.144 While we consulted on a range of possible approaches (including RPI and GCBI alone) we further observed in Annex 5 of the March 2011 Consultation that a range of plausible CCA values (before depreciation) could be defined by the extent to which BT's cost are below the industry average which we used for illustration:[89]

- at the high end, actual expenditure indexed by GBCI each year, less 14.5%; and
- at the low end, actual expenditure, indexed by GBCI – 1% each year, less 14.5%.

A1.145 The impact of these approaches is summarised in Figure A1.4 below:

[89] Historic duct expenditure is available as part of the RAV model.

Figure A1.4 Ofcom estimate of CCA for post-1997 assets[90]

	Low case	High case
	£ bn	£ bn
Gross Replacement Cost	2.5	2.7
Less depreciation	(0.5)	(0.5)
Net Replacement Cost	**2.0**	**2.2**

A1.146 We used a valuation of £2.1 billion in our modelling for the March 2011 Consultation.

A1.147 To consider the reasonableness of our assessment, we asked BT to calculate the annual unit cost trend that was consistent with its proposed 2010 asset valuation and assumptions.

A1.148 BT explained that an annual unit cost trend of RPI+1.35% would be consistent with its aggregate valuation of [✂]. The effects of a long term trend of RPI+1.35% is broadly similar to that of GBCI.

A1.149 We therefore asked BT to re-run its apportionment of the aggregate asset value between pre-1997 and post-1997 assets using indexation of RPI + 1.35%.

A1.150 On this basis, BT's estimate of the net replacement cost of the post-1997 assets aligned closely with the top of our valuation range.

March 2011 Consultation responses

BT's proposed CCA valuation of post-1997 assets

A1.151 Openreach told us that its valuation of £2.9 billion had been reasonably derived following the application of a methodology specified by Ofcom, a practice which it said had been shared with Ofcom over a number of years.[91]

A1.152 GC,[92] C&WW,[93] EE[94] and Fujitsu[95] all agreed that the proposed BT valuation is not consistent with previous approaches and is therefore an inappropriate basis for valuing post-1997 assets. [96] EE told us that "*BT's approach, leading to a replacement cost for post-1997 duct of £2.9 billion, cannot be sensibly or robustly reconciled to the accumulated actual spend (identified by Ofcom as being £2.4 billion over the 1997-2010 period). EE agrees that a change of this magnitude could only be justified on the basis of robust and convincing evidence of a real cost increase, which BT appears not to have provided*". EE went on to note that" *Ofcom's approach, based on actual spends and relatively objective measures such as relevant inflation measures, is not only not so deficient, but provides a reasonable and reconcilable value*".[97]

[90] Reproduced from figure A5.7 in the March 2011 Consultation.
[91] Openreach response, paragraph 317.
[92] GC response page 2.
[93] C&WW response page 13.
[94] EE response page 10.
[95] Fujistsu response pages 5-6.
[96] GC response, C&WW response and EE response to question 3.8 in the March 2011 Consultation and Fujitsu response, page 6.
[97] EE response, page 10.

A1.153 C&WW said in its response that "*BT's recent decision to revalue of its post 1997 assets is startling and we wholeheartedly agree with Ofcom that it cannot form the basis for setting future charges*". C&WW also noted that "*BT's decision to drastically alter the hypothetical national discount used to determine the replacement cost from 45% to 14.5% fails to stand up to scrutiny. The basis of their decision seems to stem purely from the fact that a new civil engineering contract for the maintenance and provision of duct was negotiated during the previous year, but nothing has been presented by BT which would justify such a big swing in the input assumptions for the regulatory financial statements and we welcome Ofcom's proposal to disregard it for the purpose of setting this charge control*".[98]

Choice of indexation

A1.154 Openreach agreed with Analysys Mason that an industry-specific cost index should be used and that the GBCI would be an appropriate index. It said this was more precise than the RPI and thus more likely to follow replacement costs for the specific activity in question. Openreach considered that we should use a figure no higher than 0.5% as an adjustment factor for higher BT efficiency if the GBCI is used, and that using a higher figure would underestimate replacement cost.[99]

A1.155 TTG said that the indexation used for the CCA value of post-1997 assets should reflect efficiency / productivity improvements. TTG observed at paragraph A5.80 of the March 2011 Consultation that we noted BT had assumed a 2% annual productivity improvement. TTG said this may well under-estimate what BT has actually achieved since assets were acquired or what an efficient operator could achieve compared to BT's level of unit costs when the capital expenditure was made. Therefore, in its view, the efficiency assumption that we should make to reflect BT's current costs or those of an efficient operator may be higher.[100]

A1.156 C&WW advocated the use of an RPI index, while EE considered that the RPIY index (which excludes the impact of mortgage interest payments and indirect taxation) would better reflect the movement of the value of money to BT and better reflect its opportunity cost from having made these investments.[101] GC, on the other hand, disagreed "*with Ofcom's intended continued use of RPI and note the Competition Commission's comments relating to inflation measures as highlights by Of com in its 2008/9 Leased Line Charge Control. We propose that Ofcom should conduct a thorough analysis of the inflation index issue, especially to consider whether (i) GCSI (adjusted or not) and RPI in relation to duct valuations and (ii) more generally, whether CPI would be a more suitable inflation index than RPI in relation to this and all other charge controls*".[102]

National build discount

A1.157 Openreach told us that it does not agree with our proposal to discount the indexed valued by an estimate of a national roll out of duct in the manner we proposed.[103] Openreach said BT had revisited the discount to ensure that it provides a reasonable estimate of the savings which might be made, and therefore that the RFS continues to provide a valuation which reflects the specific replacement cost of a hypothetical entrant.

[98] C&WW response page 16.
[99] Openreach response, paragraphs 138 and 139.
[100] TTG response, paragraph 125.
[101] EE response, page 12.
[102] C&WW response page 16.
[103] Openreach response, paragraph 3.28 to 3.45.

A1.158 As part of this review Openreach engaged an independent external expert, Matt Malloy. in quantity surveying and construction management. Openreach said the expert had built a model to identify what discount is probable if a hypothetical national build of Openreach's network assets was required. The expert concluded that a national discount of between 8% and 9% is appropriate.[104]

A1.159 Openreach said that the valuation of network assets which we proposed to use in the charge control did not take into account any holding loss and consequently excluded the full value of the duct network. Openreach said the effect of this approach is an under-recovery of Openreach's efficiently-incurred costs and that we must either justify why such an outcome is appropriate, or not apply the national discount such that the valuation reflects the piecemeal basis on which Openreach invests in network assets in the real world.[105]

A1.160 TTG said that in the case of BT's suggested revaluation, the huge 55% increase in price is based on a single 'guesstimate' of the price/discount for work that will never actually happen and so is wholly hypothetical (and consequently unreliable).[106]

A1.161 C&WW considered 14.5% to be "*hypothetical and arbitrary*".[107] C&WW said it had no doubt that should a competitive tender be offered for such a project that a far greater percentage discount could be achieved. Similarly, GC said that it did not believe that the accuracy of BT's clamed 14.5% figure had been rigorously established and that a thorough examination of this claim should be conducted before reliance is placed upon the figure.

A1.162 Fujitsu agreed that the valuation should be adjusted to account for the fact that large scale infrastructure projects will be delivered at a discount to small project rates.[108]

Whether BT can achieve contracts below cost of national average

A1.163 C&WW[109] and GC agreed that BT's scale will enable it to obtain contracts with costs below the national average.[110] GC said that "*[i]t most certainly is to be expected that any procurer of a contract on such a large scale as the one being considered here would be able to achieve a lower than average charge for at least two reasons. Firstly, the economies of scale that the contractor/s would be able to deploy would enable considerable efficiency gains to be made. Secondly, BT would be in a position to leverage countervailing buying power of such magnitude as to be able to drive a heavily discounted price*".[111]

A1.164 However, Openreach noted that "*Ofcom neither needs, nor intends, to make an assumption about the costs Openreach can achieve relative to the national average. It said that by using capex, which reflects actual spend, as a basis for valuation, we had already reflected the costs that Openreach achieved. Therefore, if*

[104] Openreach response, paragraphs 336 and 337.
[105] Openreach response, paragraphs 338 to 345.
[106] TTG response, paragraph 123.
[107] C&WW response, pages 16 to 18.
[108] Fujitsu response, page 6.
[109] C&WW response page 16 to 18.
[110] C&WW response and GC response to question 3.11 in the March 2011 Consultation.
[111] GC response page 3.

Openreach experienced lower costs, this would automatically be taken into account".[112]

Our response

A1.165 We note Openreach's concerns about the application of an additional efficiency factor in the indexation of expenditure. We consider that it may be reasonable to assume that BT benefits from economies of scale in its purchases, but it is not clear that these economies of scale will progressively increase year on year as would be implied by an efficiency factor applied to a national index which will already include national efficiency gains. Accordingly, we do not consider that we should seek to apply an efficiency factor to the index chosen.

A1.166 We accept Openreach's argument that it is difficult to be confident in the level of discount BT could obtain in rebuilding their duct network.

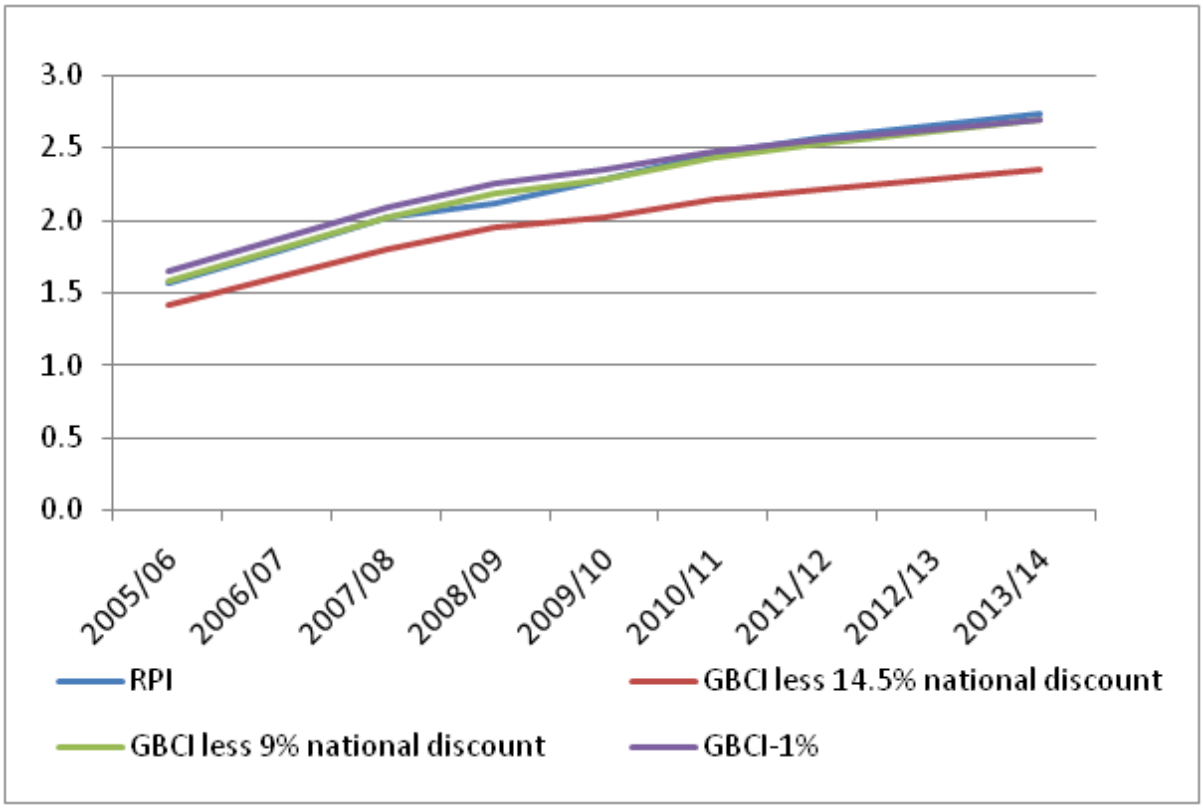
A1.167 We have taken account of the evidence provided by BT that a lower discount may be appropriate, noting also that Openreach's disagreement to the application of such a discount in setting the index.

A1.168 Nevertheless, we consider that there clearly is scope for a cost discount in a single large scale rebuilding project while recognising that it is difficult to determine a robust figure for what might be possible in a theoretical scenario (of an overnight rebuild of the full network) in an environment of limited scope for economies of scale for a dispersed infrastructure project. We consider that the discount used in BT's last accounts (14.5%) and its latest estimate (9%) set a plausible range. However, there is not sufficient information to determine a single "correct" figure.

A1.169 There are a number of plausible indices within the range defined by CBGI-14.5%-GBCI-9% including RPI, which was one of the indices we proposed in the March 2011 consultation. See Figure A1.5 below.

[112] Openreach response, paragraphs 346 to 350.

Figure A1.5 Post 97 Duct RAV NRC illustration using different indices (£bn)



A1.170 In the light of the above we conclude that RPI is the most appropriate index to use as the basis for duct valuation for the following reasons:

- Its value sits within the range determined by CBGI-14.5%-GBCI-9%;
- RPI is a well recognised index that is used by other regulators for indexed valuations and price regulation calculations.
- The use of RPI will enable a more transparent calculation without the need to estimate the exact figure for the national discount. This is advantageous as even if the 'correct' discount could theoretically be determined, the figure may change year on year leading to unpredictable movements in duct valuation. The use of RPI index removes the need for the re-evaluating the national discount estimate annually.

A1.171 We have updated the calculation to reflect BT's actual capex for 2009/10 and the relevant RPI. The resulting figures for 2009/10 duct valuation which we will use in our CA model, along with the current 2010/11 capex figure, are:

	£ bn
Gross Replacement Cost	2.9
Less depreciation	(0.6)
Net Replacement Cost	2.3

Conclusions

A1.172 We have concluded that CCA remains the appropriate approach for valuing post-1997 duct assets. We consider that the appropriate method for estimating CCA value in this case is indexing annual spend on the network by RPI.

Annex 2

LLU and WLR Service Volumes

Introduction

A2.1 In this Annex we set out our conclusions for the volume forecasts for the services within the scope of the LLU and WLR charge controls for the duration of the controls.

A2.2 We invited stakeholders to comment on our approach to volume forecasts set out in the March 2011 Consultation and submit evidence and arguments in support of their views. We also set out volume assumptions in Section 4 (no material change assessment) of the November 2011 Consultation.[113]

A2.3 In light of comments received from stakeholders and our own further consideration, we have noted that:

- The significant decline in total residential lines evidenced in the March 2011 Consultation included an assumption that mobile-only households were significantly increasing, while, in fact, the trend had levelled out and hence the total copper fixed line numbers are expected to be broadly flat; and
- The impact of NGA on churn, i.e. customers switching away from LLU and WLR broadband services to NGA, is difficult to estimate. BT has experienced low initial take-up of NGA lines but the pace of NGA roll-out is increasing.

A2.4 Accordingly, we have concluded that there should be an upward adjustment in our assumptions of total MPF, WLR and SMPF lines at the end of the charge control period but we have not modified our assumption of churn volumes, see Figure A2.1.

A2.5 In the remainder of this Annex, we discuss the following issues:

- The relevance of volume forecasts to the setting of the LLU and WLR charge controls and Ofcom's volume forecasts for the period of the charge controls;
- Ofcom's observations in the March 2011 Consultation on volume trends of key Core Rental Services and the factors driving them, comments received from stakeholders in response to the March 2011 Consultation and the November 2011 Consultation, and – in the light of stakeholders' comments and new data – Ofcom's revised volume forecasts for Core Rental Services for the charge control period; and
- Ofcom's observations in the March 2011 Consultation on migration and churn trends between Core Rental Services, stakeholders' responses to the March 2011 Consultation, and – in the light of stakeholders' comments and new data sent in response to the March and November 2011 Consultations – Ofcom's revised view of migration and churn between Core Rental Services for the charge control period.

[113] See Figure 4.3 of Section 4 of the November 2011 consultation.

Volume forecasts and their relevance

A2.6 As discussed in the March 2011 Consultation,[114] future demand projections have an impact on aggregate and unit costs for the following reasons:

- The existence of fixed costs means that unit costs will increase if volumes fall, because the fixed costs must be recovered over fewer lines; and
- Shifts in demand (e.g. from WLR+SMPF to MPF) will result in changes to the profile of cost recovery.

A2.7 For the purpose of Ofcom's cost modelling, it is necessary to forecast future demand for a range of in-scope and out of scope services. The demand for several of these services is interlinked with demand for other services, e.g. leased line services and ISDN30, which draw on common assets. This, together with the various unknowns and uncertainties (such as broader economic conditions, competing technological change and retail marketing initiatives by suppliers of substitute services), makes it difficult to forecast demand for all of these services with certainty, particularly on a year-by-year basis over several years.

A2.8 To forecast volumes for the LLU and WLR charge control modelling, we have considered the following sources:

- Openreach's forecasts of volumes for the period to 2013/14[115] and Openreach's explanation of the assumptions underlying these volumes;
- Recent Openreach volumes[116];
- Views on and/or forecasts of future product volumes from other CPs who purchase LLU and WLR;[117]
- Ofcom current and historical volume data;
- Existing trends in WLR, MPF and SMPF volumes to see how they compare with the trends shown by Openreach's forecasts;
- Independent forecasts from other sources.[118]

A2.9 Taking into account these sources as well as comments received from stakeholders in response to the March 2011 Consultation and the November 2011 Consultation, we consider – as we explain in the following paragraphs in this Annex – that the forecasts shown in Figure A2.1 below represent our best estimate of WLR rental and LLU rental and migration service volumes over the relevant period.

A2.10 The main trends in Ofcom's updated volume forecasts are as follows:

- A slight reduction in aggregate demand for copper fixed lines, from 23.87 million in 2010/11 to 23.26 million by 2013/14;

[114] March 2011 Consultation, Annex 6, paragraph A6.2.
[115] Openreach's 6 October 2010 response to Ofcom's 3rd S 135 notice (sent 4 October 2010);).
[116] Openreach's 6 January 2011 response to Ofcom's 13th S 135 notice (sent 21 December 2011
[117] In response to Ofcom's volume forecasts set out in the March 2011 Consultation (Annex 6), comments were received from Sky, TTG, VM, EE and C&WW.
[118] We have reviewed forecasts from Analysys Mason and IDATE (FTTx Watch Service 2010).

- A significant shift in demand from WLR+SMPF to MPF; and
- A decline in demand for SMPF from 2010/11 to 2013/14, although slightly less than forecast in the March 2011 Consultation, given the higher total number of lines.[119]

A2.11 Figure A2.1 below sets out Ofcom's volume forecasts, revised since the March 2011 Consultation, for the LLU and WLR charge control period.

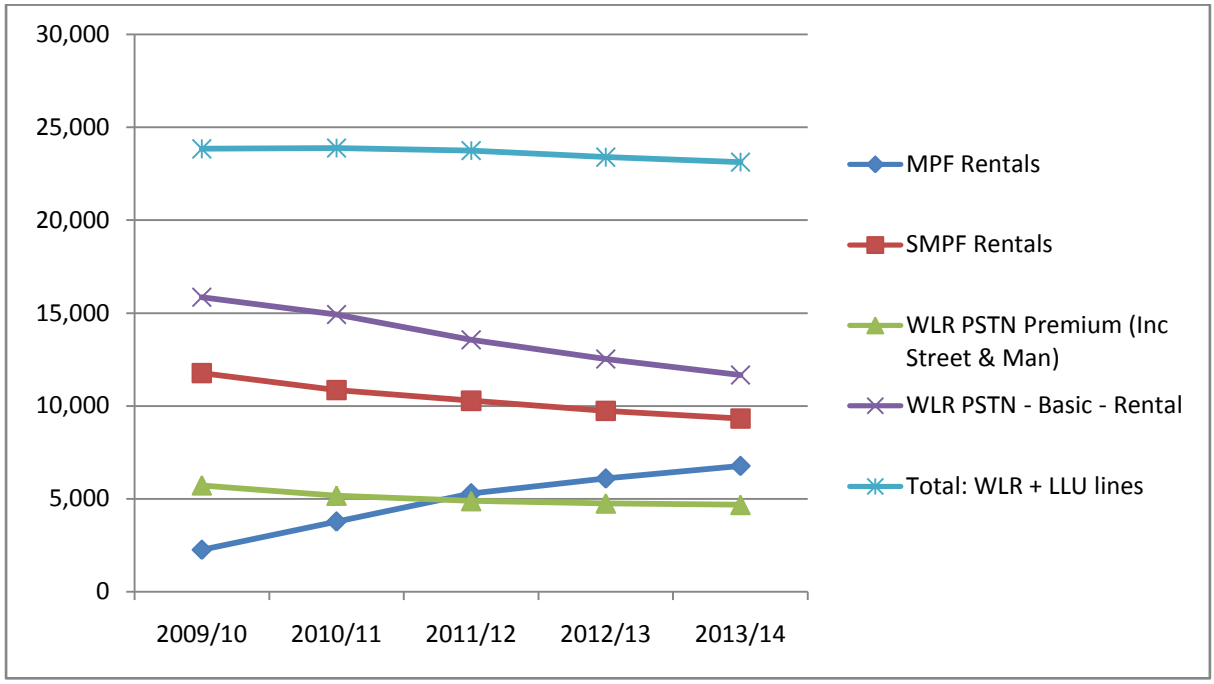
Figure A2.1: Ofcom LLU and WLR volume forecasts ('000s)

Family	Product Description	2009/10	2010/11	2011/12	2012/13	2013/14
MPF	**MPF Rentals**	**2,253**	**3,776**	**5,298**	**6,098**	**6,774**
MPF	MPF New Provide	66	456	540	560	550
MPF	MPF Single Migrations	939	1,355	1,340	1,200	1,140
MPF	MPF Mass Migrations	610	100	200	90	50
SMPF	**SMPF Rentals**	**11,760**	**10,845**	**10,272**	**9,733**	**9,316**
SMPF	SMPF New Provides	2,923	2,647	2,480	2,410	2,330
SMPF	SMPF Single Migrations	318	382	280	240	200
SMPF	SMPF Bulk Migrations	103	197	130	80	20
WLR	**WLR PSTN Premium (Inc Street & Man)**	**5,727**	**5,173**	**4,883**	**4,755**	**4,678**
WLR	**WLR PSTN - Basic - Rental**	**15,851**	**14,920**	**13,555**	**12,529**	**11,666**
WLR	WLR PSTN - Premium - New Connections	514	474	550	520	500
WLR	WLR PSTN - Basic - New Connections	1,045	1,107	790	750	700
WLR	WLR PSTN - Premium - Transfers/Takeovers	511	492	410	410	410
WLR	WLR PSTN - Basic - Transfers/Takeovers	3,906	2,380	2,520	2,520	2,520
LLU Other	MPF Cease	442	495	950	900	810
LLU Other	SMPF Ceases	1,988	1,686	1,340	1,240	1,120
LLU Other	MPF Jumper Removal	56	151	100	110	120
LLU Other	SMPF Jumper Removal	609	406	400	390	370
ISDN30	New POP	1	1	1	1	1
ISDN30	Initial Tie Cable Installs (inc 21CN)	26	40	30	10	10
ISDN30	ISDN 30 – Rental (Standard)	2,146	2,131	1,810	1,530	1,280
ISDN30	ISDN30 - Connections (Incl. Growth)	186	218	180	140	120
ISDN30	ISDN30 - Transfers	296	318	170	170	170
	Total: WLR + LLU lines	**23,831**	**23,869**	**23,736**	**23,383**	**23,118**

[119] March 2011 Consultation, Annex 6, para A6.25, page 43.

A2.12 Figure A2.2 below illustrates the trends of Core Rental Services graphically.

Figure A2.2: Ofcom LLU and WLR volume forecasts



Aggregate volumes

March 2011 Consultation proposals

A2.13 In Annex 6 of the March 2011 Consultation,[120] we noted that Openreach's total number of copper fixed lines (WLR and LLU), residential and business, in 2009/10 was 23.8 million. For the purpose of our cost modelling, we forecast a reduction in the total number of copper fixed lines to 22.7 million by 2013/14.

A2.14 In the absence of other factors, we said that[121] we might expect to see an increase in the take-up of MPF corresponding to a decrease in the take-up of WLR and, as such, we would not expect to see much movement in the total number of lines overall.

A2.15 However, fixed line telephony has been declining year-on-year since 2002.[122] Ofcom research indicates that in 2009 the number of copper fixed lines fell by 3.4% (or 1.1 million copper fixed lines), the largest annual decline since 2002. This fall was primarily driven by a growing number of households going mobile-only. In the March 2011 Consultation, we noted[123] that there were several potential reasons why a decline in fixed lines may occur:

- •an increase in the number of mobile-only households;
- a reduction in the number of business lines; and/or
- a decline in new household development.

[120] March 2011 Consultation, Annex 6, paragraph A6.8.
[121] March 2011 Consultation, Annex 6, paragraph A6.9.
[122] March 2011 Consultation, Annex 6, paragraph A6.10.
[123] March 2011 Consultation, Annex 6, paragraph A6.11.

A2.16 In the March 2011 Consultation, we also referenced a steady annual increase in the number of mobile-only households between 2005 and 2010.[124] In particular, we noted that in Q1 of 2010 6% of all households had a mobile broadband connection and no fixed-line connection, an increase of around 50% since Q1 2009, but we were cautious about the future, in particular as the take-up of mobile broadband more generally appears to have begun to level-off, reaching a peak of 15% in Q3 2009. In our view this could be explained by the slower speeds offered by mobile broadband compared to a fixed-line connection as well as a perceived lack of reliability but we also noted that there has been a recent slowdown in fixed-mobile substitution.[125]

A2.17 We also observed a decrease of 5.6% in 2009 in the number of analogue fixed lines used by businesses, the largest such annual decline since 2002. Three key factors were identified in the March 2011 Consultation; the economic downturn, an increase in business calls using mobile, and an increased take-up of IP based alternatives.[126]

A2.18 The increase in mobile-originated calls as well as those using IP-based systems, such as VoIP, which offer cheaper alternatives, were cited to support the view that fixed-line business call volumes could be expected to continue to drop even as the economy began to recover. Another relevant factor noted was a decline in the building of new households as a result of the economic downturn.[127]

November 2011 Consultation

A2.19 In the November 2011 Consultation, we drew on the volume information presented in the March 2011 Consultation and other more recent supporting volume estimates relating to total narrowband and local access line numbers as part of our consideration of whether there had been a material change in either the WLA market or the WFAEL market since Ofcom's market powers determinations in relation to those markets to conclude that there would be no significant decline in copper line numbers.[128]

A2.20 While we did not specifically seek comments on this volume information, in their response to the November 2011 Consultation, comments were provided by EE. We set out their comments and our response to them in paragraphs A2.25-.26 and A2. A2.27 through A2.51 respectively.

March 2011 Consultation and November 2011 Consultation responses

A2.21 In response to Ofcom's forecast in the March 2011 Consultation of the total number of fixed lines, TTG noted that the decline in the total number of fixed lines (WLR and MPF) forecast was "*too rapid*" and expressed doubt that the decline in 2011/12 would average around 300,000.[129]

[124] March 2011 Consultation, Annex 6, paragraph A6.12-A6.14.
[125] March 2011 Consultation, Annex 6, paragraph A6.13-A6.14.
[126] March 2011 Consultation, Annex 6, paragraph A6.15.
[127] March 2011 Consultation, Annex 6, paragraph A6.19.
[128] November 2011 Consultation, Section 4, figure 4.1, 4.3 and 4.4.
[129] TTG response to the March 2011 Consultation, para 229: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/TTG.PDF.

A2.22 TTG presented an alternative forecast of aggregate volumes[130] where the total number of lines (MPF and WLR) increased by around 100,000 in 2011/12, stayed flat in 2012/13 and then decreased by around 100,000 in 2013/14. This was based on TTG's own analysis of the probability of the trend in fixed-line volume loss continuing.

A2.23 EE provided detailed comments on Ofcom's forecast of the fixed line volumes, both in response to the March 2011 Consultation and the November 2011 Consultation. In EE's response to the March 2011 Consultation, EE disagreed with Ofcom's forecast that the total number of copper fixed lines would continue to decline, noting that the growth in mobile broadband (in terms of sales of dongles) had stalled and that the gap between the broadband speeds offered by mobile and fixed providers was widening, which would, EE argued, render mobile-only internet increasingly unattractive.[131] EE argued that consumers will continue to favour fixed broadband provision. In support, EE provided a report by Enders Analysis[132] which confirmed the continued growth in fixed broadband provision, though it suggested that the rate of change would diminish, as the residential market becomes saturated.

A2.24 EE also noted that, with increasing amounts of content being provided over the internet, which requires customers to have access to high speed broadband, broadband that can offer such speeds was an increasingly important product to consumers. Further, EE pointed to the growth of WiFi, which is based on fixed-line access, as a key data access channel for smartphones and other connected devices which are increasing in number. This, EE said, would also drive fixed broadband demand.

A2.25 In its response to the November 2011 Consultation, EE, noting the volumes used in Section 4, stressed that Ofcom's volume forecasts should be "*as accurate and up-to-date as it is possible for them to be*" to avoid an over- or under-recovery of costs by Openreach and any "*competitive distortion*" between MPF and WLR+SMPF based providers.[133] EE asked Ofcom to update the forecasts used in the March 2011 Consultation to "*assume that the 2011 fixed line volumes will increase rather than decrease; recognise that the historical trend on demand shifting from WLR to MPF does not reflect current reality; and as a corollary of the first two points, assume that SMPF connections will also grow to some extent*".[134]

A2.26 In addition, EE noted that "*[c]ontinued growth in overall fixed line volumes, combined with slowing growth of LLU (especially MPF) leads to the inevitable conclusion that WLR access will grow in both absolute and relative volumes during the period of the charge control*".[135]

Our response

A2.27 We have revised our volume forecasts to take account of new data from:

- Openreach on fixed-line volumes;

[130] TTG response to the March 2011 Consultation paragraph 230. http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/TTG.PDF.
[131] EE response to the March 2011 Consultation (20 July 2011), response to Question 7.1, page 27: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/ee.pdf.
[132] Enders Analysis report "UK fixed telecoms market", December 2011, pages 2 and 12. This report is confidential to Enders Analysis subscribers, and is quoted with permission of Enders Analysis.
[133] EE response to the November 2011 Consultation §2.3 and §2.4, pages 3, 4.
[134] EE response to the November 2011 Consultation §2.4, page 4.
[135] EE response to the November 2011 Consultation §4.2, page 13.

- Ofcom research on the number of mobile-only households; and
- Ofcom research on the number of cable-based telephony subscribers.

A2.28 We have also taken account of comments received from stakeholders in response to the March 2011 Consultation and the November 2011 Consultation.

A2.29 Ofcom's revised volume forecast shows the total number of fixed lines (LLU and WLR) staying almost flat during the charge control period, ending at 23.19 million lines in 2013/14, which is 713,000 fewer lines than in 2009/10 and 751,000 fewer lines than in 2010/11.[136]

A2.30 A comparison of the actual volumes of copper fixed-line rental products in 2010/11 with Ofcom's forecast for 2010/11 published in the March 2011 Consultation, illustrates that:

2.30.1 the total number of fixed lines rose slightly more than forecast (to 23.87 million rather than 23.65 million);

2.30.2 MPF rentals volume grew slightly slower than forecast (to 3.78 million rather than 3.81 million);

2.30.3 SMPF rentals volume fell slightly slower than forecast (to 10.85 million rather than 10.66 million);

2.30.4 WLR Basic volume fell slightly slower than forecast (to 14.92 million rather than to 14.77 million); and

2.30.5 WLR Premium volume also fell slightly slower than forecast (to 5.17 million rather than to 5.07 million).

A2.31 For each of the rental products referred to in paragraph A2.30, the difference between our forecast for the 2010/11 volumes (set out in the March 2011 Consultation) and the actual volume for 2010/11 was around 2% or lower.

A2.32 With respect to EE's views on LLU versus WLR growth (see paragraphs A2.25 and A2.26 above), we would note that the revised volume forecast is based on the most recent data of actual WLR and LLU volumes available to Ofcom as well as other relevant data (as outlined in paragraph A2.27 above). We note that contrary to EE's predictions, LLU volume growth has not slowed and MPF has continued to grow strongly whereas WLR volume has continued to decline in 2010/11.

A2.33 Ofcom's volume forecasts in this draft Statement incorporate the effect on Ofcom's volume forecast model of the differences between the actual volumes in 2010/11 and the forecast volumes for 2010/11.

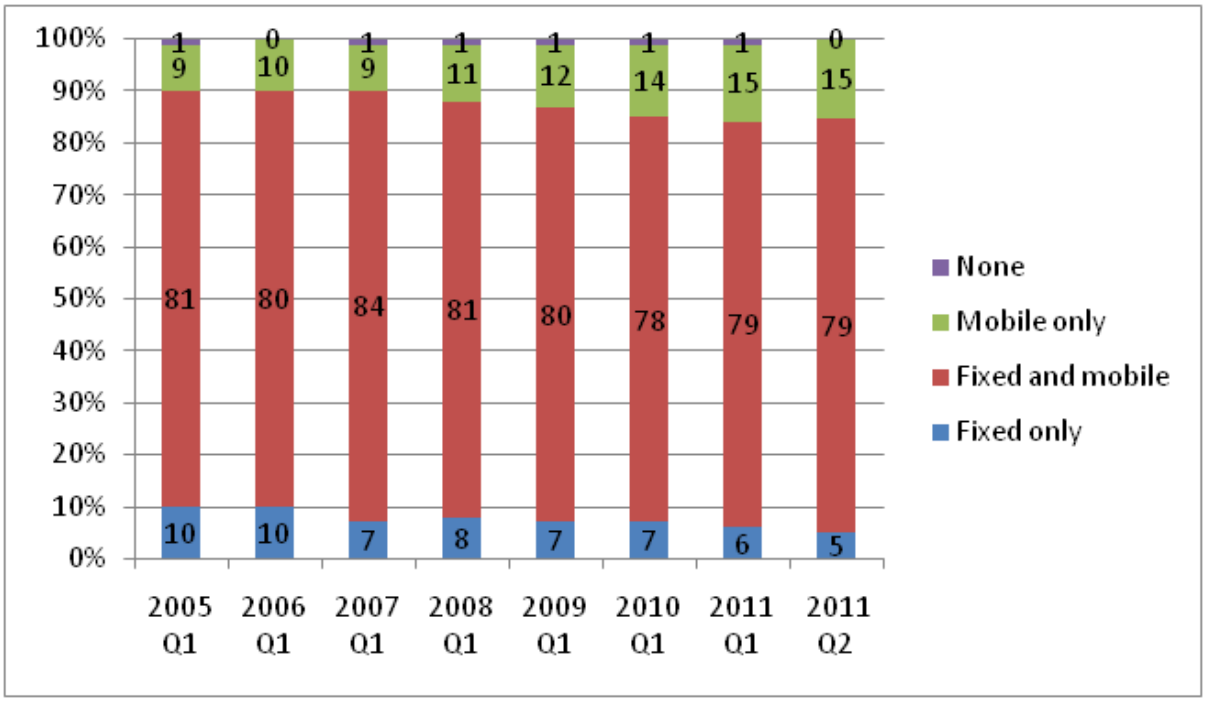
A2.34 Ofcom's volume forecasts in the March 2011 Consultation were based on an estimate that the number of mobile-only homes would grow from 14% in Q1 2010 to 16.9% in Q1 2014. However, as noted in the March 2011 Consultation the take up of mobile broadband more generally has begun to level-off, at 15% in Q3 2009.[137]

[136] By way of contrast, in the March 2011 Consultation we forecast that the total number of fixed lines (LLU and WLR) would be 22.7 million in 2013/14.
[137] March 2011 Consultation, Annex 6, paragraph A6.13.

A2.35 The most recent data available to Ofcom shows that the proportion of mobile-only homes increased by just 1% during 2010 and has remained stable at 15% in Q1 2011[138] and Q2 2011[139] see figure A2.3. In addition, Ofcom's Consumer Experience 2011 report also found that the "*requirement [in the UK] to pay for a telephone service in order to receive DSL broadband has constrained the growth of mobile-only households*".[140]

A2.36 We have no evidence to suggest that the position will change significantly in the next two years. Increases in mobile only households are likely to continue in the future, with changes in demographics (younger people are more likely to be mobile only at present[141] and therefore may be less likely to take up fixed lines in the future) and expected improvements in mobile broadband[142], but the pace of change has clearly slowed. Ofcom's current volume forecast assumes that the proportion of mobile-only homes will only increase slightly from the current 15% to 15.5% for the charge control period.

Figure A2.3: Household penetration of fixed and mobile telephony



Source: Ofcom's Consumer Experience 2011 report

A2.37 This result is different from other countries – notably the US, where mobile-only households account for over 30% of all households. This is due to a number of factors, some of which were raised by stakeholders, including:

- the growing gap in broadband speeds between fixed-line broadband and mobile broadband;

[138] Ofcom's Communications Market Report 2011, p. 304.
[139] Ofcom's Consumer Experience 2011 report, published 6 December 2011, p.11.
[140] Ofcom's Consumer Experience 2011 report, published 6 December 2011, p.11.
[141] Ofcom's Communications Market Report, August 2011, page 319.
[142] Mobile broadband speeds will improve in the future but this is not expected to be a material consideration within the next two years and in the meantime the gap between fixed and mobile broadband average speeds will widen.

- the increasing amount of audio/video content available for consumption online and evidence that consumers are increasingly consuming online audio/video content; and

- the popularity of WiFi as a data access channel for smartphones and other internet-connected devices will sustain demand for fixed lines.

A2.38 Despite the advantages of fixed line broadband over mobile broadband, we expect certain factors to constrain growth in analogue fixed lines during the charge control period. These are discussed in the following paragraphs.

A2.39 The number of fixed lines used by business fell to less than 10 million in 2010, a fall of 5.2% year-on-year.[143] Ofcom research indicates that business users are more likely to switch away from fixed voice to other methods of communication, including VoIP and mobiles than residential users.[144] While these numbers do not refer exclusively to analogue fixed lines, the drivers causing this decline are not unique to digital telephony and, therefore, we consider that this trend will affect analogue fixed lines similarly.

A2.40 As observed in the March 2011 Consultation,[145] the proportion of business calls that are mobile-originated has increased substantially between 2004 and 2009. Furthermore, businesses are increasingly taking advantage of IP-based systems, such as VoIP, which offer cheaper alternatives to fixed lines.

A2.41 Consequently, Ofcom considers that the reduction in use of fixed lines by business, including analogue fixed lines, will continue during the charge control period even if the economy starts to recover during this period.

A2.42 New household development is difficult to predict, as noted in the March 2011 Consultation,[146] and is related to the general economic situation. Since the March 2011 Consultation was published, the Bank of England has reduced its economic growth forecast for the UK[147] and reported "*very weak*" consumer spending, a "*subdued*" housing market, "*declining*" growth of manufacturing output and that the growth rate of business services turnover has "*also fallen over the past few months*".[148] Separately, the Office of National Statistics reported in November 2011 that UK unemployment rose by 129,000 in the three months up to September 2011 to 2.62 million.[149] The prevailing macroeconomic conditions suggests there is likely to be significant dampening of in demand from new households and new (first-time) fixed line subscribers is unlikely within the control period.

[143] Ofcom's Communications Market Report 2011, p. 278.
[144] Ofcom's Communications Market Report 2011, p. 278.
[145] March 2011 Consultation, Annex 6, paragraph A6.16-.18.
[146] March 2011 Consultation, Annex 6, paragraph A6.19-.20.
[147] The Guardian newspaper, "Bank of England slashes UK economic growth forecast", 16 November 2011, http://www.guardian.co.uk/business/2011/nov/16/bank-england-uk-economic-growth-forecast and Bank of England Inflation Report, 16 November 2011, http://www.bankofengland.co.uk/publications/inflationreport/ir11nov.pdf.
[148] Bank of England, Agents' summary of business conditions, November 2011, http://www.bankofengland.co.uk/publications/agentssummary/agsum11nov.pdf
[149] BBC News website, "UK unemployment increases to 2.62m", 16 November 2011, http://www.bbc.co.uk/news/business-15747103 and Office of National Statistics, Labour Market Statistics, 16 November 2011, http://www.ons.gov.uk/ons/rel/lms/labour-market-statistics/november-2011/index.html.

A2.43 We note, however, that the Government has recently announced funding and planning initiatives intended to counter current housing demand and supply issues. As set out in its strategy document "Laying the Foundations: A Housing Strategy for England",[150] the Government has proposed a range of initiatives including funding for new affordable homes, planning changes to encourage new construction and funding to encourage the re-use of empty homes.

A2.44 The Government projects that these initiatives could lead to a substantial increase in new affordable homes by 2015 (around 170,000), plus the revitalisation of empty houses and other new build.

A2.45 While we note these plans, it is difficult to forecast how these will impact on demand for copper lines over the next two years, i.e. to 2013/14, given the strategy's focus on delivery by 2015. It is difficult to predict when homes will be completed and occupied (and hence countable in our volumes). It is also difficult at this stage to determine what percentage of such developments will be supported by Copper based telecommunications services rather that fibre based services (i.e. NGA FTTP).

A2.46 We, therefore, consider that it would be not be appropriate to seek to incorporate estimates of increased demand from these initiatives into forecast of copper service volumes to 2013/14.

A2.47 Potential growth in the number of cable connections provided by VM taken up by subscribers also reduces the consumer base available for copper-based analogue fixed lines. However, the evidence available to Ofcom suggests that cable take-up has plateaued. VM's cable connections rose from 4.7 million to 4.8 million in the first quarter of 2010, but have remained, almost flat, at 4.8 million since then until the third quarter of 2011.[151] VM has embarked on an aggressive marketing campaign with respect to broadband speed, but it is difficult to determine whether this will lead to increased growth or simply ensure customer retention at a time of increased competition from NGA for bandwidth sensitive customers.

A2.48 Accordingly, for the purpose of this charge control period, Ofcom assumes that the number of WLR and LLU lines will not be impacted further to a significant degree by cable take-up.

A2.49 NGA is not a significant factor when determining the demand for copper fixed lines during this charge control period. NGA is provided by means of two alternative delivery/carrier technologies, FTTC and FTTP.

A2.50 For FTTP, a fibre connection reaches the subscriber's premise, thus no copper line is required. Demand for FTTP will, therefore, lead to a drop in demand for WLR and LLU lines. However, FTTP roll-out is currently negligible and its take-up is not expected to be significant for the duration of this charge control.

A2.51 FTTC is based on a fibre connection up to the cabinet, from which point a copper fixed line connection is used to reach the subscriber's premise. Therefore, FTTC makes use of an existing copper fixed line, whether WLR or MPF. Although FTTC is being rolled out at an increasing pace by BT, the take-up of FTTC is still relatively

[150] http://www.communities.gov.uk/documents/housing/pdf/2033676.pdf.
[151] 'VM Investor Centre', reports between first quarter 2010 and third quarter 2011, http://investors.virginmedia.com/content/default.aspx?newsareaid=36&clientid=3.

very low.[152] As FTTC provision will be based on copper lines, it will not in itself necessarily cause a change in WLR or MPF volumes, although it may be a catalyst for a longer term change in the competitive balance between existing WLR and MPF providers and hence impact on the balance between MPF and WLR volumes. However, we would note that it is difficult to predict how this will be manifest during the charge control period, if at all. FTTC will, however, impact on SMPF volumes. This is discussed in the paragraph A2.79.

Migration between WLR and LLU

March 2011 Consultation proposals

A2.52 In the March 2011 Consultation, we noted that our volume forecasts indicated a substantial shift in demand from WLR to MPF.[153] In particular, we forecast MPF volumes to rise from slightly less than 4 million in 2010/11 to slightly more than 6.5 million in 2013/14. In support of this forecast, we observed that the forecast includes 3.8 million MPF lines in 2010/11 and noted that the historical data shows that this estimate is reasonably close to the outturn as the actual number of MPF lines at the end of 2010 stood at slightly more than 4 million.

A2.53 Large increases in the number of MPF lines in 2008/09 and 2009/10 were attributed to the decision of some CPs, notably Sky, to begin to offer LLU-based services as part of their bundled packages, which has led to them migrating their customers from WLR+SMPF to MPF.[154] In the March 2011 Consultation we noted that we expected this trend to continue. Furthermore, in the March 2011 Consultation we noted that the rise in demand for MPF corresponds with a decrease in demand for WLR. For the purpose of our cost modelling, we assumed that the number of WLR lines will fall by just over 3.5 million by 2013/14, which fits the existing trend of a migration from WLR to MPF.[155]

A2.54 The forecast shift in demand from WLR to MPF also implied a decrease in SMPF volumes, although the model provided in the March 2011 Consultation assumed a reduction in the number of SMPF lines from 11.8 million in 2009/10 to 9.2 million in 2013/14, which was consistent with the historical trend.[156]

A2.55 Finally, in the March 2011 Consultation, we also considered volumes for other Openreach services which are not covered by the proposed charge controls (e.g. ISDN30, ethernet services, partial private circuits) to ensure that common costs are allocated robustly across all Openreach services so that LLU and WLR services do not over or under recover costs as a result of a disproportionate allocation of common costs. [157]

A2.56 In relation to the volume of NGA services, in the March 2011 Consultation, we noted the difficulty of forecasting the take-up of a very new service.[158] We noted that we had taken account of BT's roll-out plans for NGA as well as the independent views of Analysys Mason and IDAT. Ofcom's view of NGA volume was shared with

[152] Ofcom's volume forecasts refer to the take-up of products by consumers, not their roll-out by providers.
[153] March 2011 Consultation, Annex 6, paragraph A6.21-.22.
[154] March 2011 Consultation, Annex 6, paragraph A6.23.
[155] March 2011 Consultation, Annex 6, paragraph A6.24
[156] March 2011 Consultation, Annex 6, paragraph A6.25
[157] March 2011 Consultation, Annex 6, paragraph A6.27
[158] March 2011 Consultation, Annex 6, paragraph A6.28

stakeholders in the non-confidential version of the model published alongside the March 2011 Consultation.

November 2011 Consultation

A2.57 As we noted above, in the November 2011 Consultation reference was made to volume information presented in the March 2011 Consultation and other supporting volume estimates relating to total narrowband and local access line numbers.[159]

March 2011 Consultation and November 2011 Consultation responses

A2.58 In response to the March 2011 Consultation assessment of shifts in demand between WLR and MPF forecast, EE agreed that "*historically there has recently been an increase in MPF, at the expense of WLR+SMPF. However, this has largely been due, in our view, to the regulatory cost imbalance between the two services, making it significantly cheaper to offer an MPF based service rather than one using WLR +SMPF*".[160]

A2.59 EE also added: "*It is also simpler for MPF providers to acquire customers, due to the switching processes in place, in comparison to the MAC process that WLR+SMPF providers are required to use. The costs of switching a customer from WLR to MPF products is therefore lower (and has no potential for any save activity) compared to the costs of switching in the other direction. Forecasting this trend continuing is therefore to a great extent based on regulatory distortions and inequalities of treatment between MPF and WLR. EE strongly believes that these distortions should be removed*".[161]

A2.60 With regard to migration service volumes presented in the March 2011 Consultation, TTG's said that MPF ancillary volumes were "*too low*", particularly for MPF New Provide and MPF Single Migrations.[162] TTG also argued that the implied churn rate (the percentage of subscribers leaving the product class each year) for MPF, while expectedly "*much lower*" than those for SMPF and WLR, "*looks low given expectations of observers which is for churn rates to be around <<20%*". TTG said that the introduction of a new migration process for consumers[163] would lead to higher churn for MPF.

A2.61 With regard to SMPF churn volumes presented in the March 2011 Consultation, EE said that it expected this to be driven by customers switching to NGA and fibre-based products rather than to MPF.[164] The introduction of NGA, EE argued, would lead to MPF providers reducing investment in MPF infrastructure and instead supplying customers NGA + WLR.[165] EE noted that "*Ofcom's assumption of a trend of increasing MPF at the expense of WLR (which is resulting in lower MPF prices*

[159] November 2011 Consultation, section 4, figure 4.1, 4.3 and 4.4.
[160] EE's response to the March 2011 Consulation (20 July 2011): http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/ee.pdf .
[161] EE's response to the March 2011 Consulation (20 July 2011): http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/ee.pdf .
[162] TTG's response to the March 2011 Consulation (July 2011), para 230: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/TTG.PDF.
[163] Referring to Ofcom's strategic review of consumer switching, http://stakeholders.ofcom.org.uk/consultations/consumer-switching/.
[164] EE's response to the March 2011 Consulation (20 July 2011), page 28: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/ee.pdf
[165] FTTC NGA is currently offered by BT as an add-on product to WLR.

and higher WLR prices which simply reinforces this trend) is not reasonable, self-reinforcing and represents a regulatory distortion in itself".[166]

A2.62 EE provided further comments in relation to migration, in its response to Ofcom's November 2011 Consultation: "*Ofcom should [...] recognise that the historical trend on demand shifting from WLR to MPF also does not reflect current reality. In the same way that overall fixed line decline has been halted, the historical shift in demand from WLR to MPF is also significantly slowing and the assumption in the [March 2011] Consultation that the historical trend can be extrapolated into the current charge control period appears incorrect*".[167]

Our response

A2.63 Ofcom's revised volume forecast illustrates that a significant shift from WLR to MPF is occurring. The forecast that the number of MPF lines will rise to 6.81 million by 2013/14 is supported by the rapid growth in MPF rentals from 2.25 million lines in 2009/10 to 3.77 million lines in 2010/11. Our most recent evidence indicates that the number of MPF lines as at October 2011 was in excess of 4.5 million.

A2.64 EE's view expressed in its response to the November 2011 Consultation, that, *"the historical shift in demand from WLR to MPF is also significantly slowing"* is not yet borne out by the most recent data available to Ofcom. In fact, we observe that the growth in MPF lines cited above, from 2009/10 to 2010/11, was only 1% less than forecast by Ofcom in the March 2011 Consultation.

A2.65 The observed decrease in demand for WLR lines is close to that forecast in the March 2011 Consultation, with the actual number of WLR Basic lines in 2010/11 at 14.92 million, 1% more than forecast. While we still forecast this volume to decline – to 11.67 million by 2013/14, the decline itself is 200,000 less – or 1.7% less – than that previously forecast.[168]

A2.66 Demand for WLR Premium, which has a substantially smaller subscriber base than WLR Basic, fell slightly slower than forecast in the March 2011 Consultation to 5.17 million lines in 2010/11. This would appear to be the result of both changes in economic conditions and business taking advantage of the changes in the 2009 WLR Statement which opened WLR Basic to business users. As we would have expected, the rate of migration from WLR Premium to WLR Basic appears to have now largely stabilised, the key determinant of demand for the period of the charge control would be new business development. The demand for WLR Premium [is clearly sensitive to business conditions over the period of the charge control. As such, it is difficult to forecast, but in view of the expectation of low economic growth, we expect little absolute change in demand for WLR Premium over the period of the control, which we project to reach 4.70 million by 2013/14.

A2.67 The actual decline in the number of SMPF lines from 2009/10 to 2010/11 was 1.7% less than what was forecast in the March 2011 Consultation. Incorporating this correction into our model leads to a figure of 9.37 million SMPF lines by 2013/14. While in normal circumstances forecasting of migration and churn between WLR and LLU is challenging, in the current economic climate and with the challenge posed by NGA, the situation is particularly uncertain.

[166] EE's response to the March 2011 Consulation (20 July 2011), page 28: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/ee.pdf
[167] EE's response to the November 2011 Further Consultation (23 December 2011), §4.2, page 14.
[168] March 2011 Consultation, Annex 6, paragraph A6.21-.24.

A2.68 Aggregate churn between and within WLR and LLU observed in 2010/11 was slightly higher than that forecast in the March 2010 Consultation.[169] This is because we had, at the time of the March 2011 Consultation, assumed higher take-up of NGA over the period of the charge control. As discussed in paragraphs 2.47 to 2.48 above, we think this may now occur towards the end of the control period and as a consequence we consider that our forecast at that time remains relatively sound. Accordingly, our forecast for migration-driven ancillary products remains largely unchanged from those in the March 2011 Consultation. We note TTG's comment on improved migration procedures (i.e. consumer switching) which may encourage greater MPF churn, but these remain subject to further consultation by Ofcom[170] and it is unlikely that the impact will be substantial during the period of the charge control.

A2.69 It remains difficult to forecast the take-up of NGA services and the consequential impact on LLU and WLR volumes. However, recent evidence suggests that NGA take-up has been slower than that assumed in preparing our volume estimates for the March 2011 Consultation). However, the roll-out of NGA across BT's telephony network is accelerating (with BT announcing an advancement of its plans by one year[171]). Crucially, while this will mean two thirds of homes will have access to NGA by the end of 2014, it is difficult to predict the rate at which NGA take-up will occur. We have so far seen a relatively low take-up, but this can be expected to accelerate as interest grows in NGA among consumers and other CPs as its availability spreads.

A2.70 We note that up to now only BT Retail has actively promoted a GEA service. TTG began offering in a small scale such a service in 2011[172] but has not yet undertaken a full launch[173]. Sky in its September 2011 results presentation said that customer bandwidth demand remains low and suggested that it will only begin to offer such services when this demand becomes clear.[174] This suggests that retail supply will remain nascent during the charge control period.

A2.71 Due to these significant uncertainties, Ofcom is not revising its view of NGA take-up from the March 2011 Consultation. The impact of NGA will largely be on SMPF and perhaps some reduction in MPF (where NGA is based on WLR rather than MPF). However, this effect could be offset if MPF providers adopt NGA using FTTC. Our caution with respect to NGA volumes is bolstered by current retail competition.

A2.72 For the period of the LLU / WLR charge controls, Ofcom's considers that variations in NGA take-up will not meaningfully impact WLR and LLU product volumes.

A2.73 Similarly, Ofcom considers that future mobile standards, such as LTE, which promise significantly faster broadband speeds and reliability, will not roll-out in sufficient volumes during this charge control period to impact on the forecast demand for fixed line broadband.

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[169] March 2011 Consultation, Annex 6, figure 6.1.
[170] Ofcom's strategic review of consumer switching, http://stakeholders.ofcom.org.uk/consultations/consumer-switching/.
[171] http://www.ft.com/cms/s/0/3f2ed4fe-018f-11e1-8e59-00144feabdc0.html#axzz1hL0AcqzV.
[172] http://www.ispreview.co.uk/story/2011/01/14/uk-isp-talktalk-taking-40mbps-fttc-fibre-optic-broadband-boost-registrations.html.
[173] http://www.talktalkgroup.com/investors/~/media/Files/T/TalkTalk/pdfs/results/Interim%20Management%20Statement%20-08th%20feb.pdf.
[174] Sky September 2011 Results Conference call, Questions and Answers session, http://corporate.sky.com/page.aspx?pointerid=a0ec307496274142a410e823f905b751.

A2.74 As mentioned in the March 2011 Consultation, we considered volumes for other Openreach services which are not covered by the LLU / WLR charge controls (e.g. ISDN30, ethernet services, partial private circuits) to ensure that common costs are allocated robustly across all Openreach services so that LLU and WLR do not over or under recover costs as a result of a disproportionate allocation of common costs.[175]

A2.75 While we accept the points made by EE (see paragraphs A2.48 and A2.49 above) that "*regulatory cost imbalance[s]*" and "*regulatory distortions*" favouring demand for MPF-based services over WLR and SMPF may affect their relative volume forecasts, it is not clear the scale of any impact, if any exits.

A2.76 We note that there are various factors such as the relative retail service offering of providers (e.g. the strong growth of Sky is clearly influenced by its combination of TV with phone and broadband services) and the inherent total efficiency of services offered through MPF versus WLR+SMPF influence the relativity of demand between MPF and LLU.

A2.77 EE argues two types: those that arise from arguments about the differential in wholesale charges; and those that arise from issues relating to retail migration rules.

A2.78 As discussed in Section 7 on charge differential, we do not consider that existing charge differentials above represent an unintended distortion of relative charges but reflect intended cost attribution supporting the introduction of MPF, though we expect the quantum of the differentials will change over the course of this and subsequent charge controls.

A2.79 The potential introduction of a new migration process for consumers – as proposed by Ofcom following its review of consumer switching,[176] may change the competitive position of MPF- and WLR-based providers, but this is still subject to review. Given the timeframe for any changes to switching rules, we do not expect them to have a material impact on volumes.

A2.80 As noted in paragraph A2.60, TTG argued that Ofcom's March 2011 Consultation forecast of MPF ancillary volumes were "*too low*" and the implied MPF churn rate "*looks low*". TTG proposes that that improved migration procedures (i.e. consumer switching) which should encourage greater MPF churn.

A2.81 We accept that the consumer switching review[177] may lead to revised processes that improve consumer's switching experience, thereby enhancing competition. However, it is far from clear when and how this will impact on churn volumes.

A2.82 The consumer switching review is still subject to review, which means that the timing of any changes remain uncertain. In addition, the impact of the change on the balance of churn is not clear. While TTG argue that a new migration process that makes switching easier would enhance competition between MPF providers and migration to MPF, EE have argued that the net impact of it would be increased migration to WLR+SMPF and away from MPF. In the absence of evidence to suggest the impact of a process change not yet implemented, we cannot conclude

[175] March 2011 Consultation, Annex 6, paragraph 6.27.
[176] Ofcom's strategic review of consumer switching, http://stakeholders.ofcom.org.uk/consultations/consumer-switching/.
[177] Ofcom's strategic review of consumer switching, http://stakeholders.ofcom.org.uk/consultations/consumer-switching/.

that there is likely to be a substantial impact within the period of the charge control. and we would in any event be cautious in terms of projecting the nature of the impact.

A2.83 Further, it is not clear that assumptions of churn can simply be an extrapolation of the relationship of churn to line numbers in recent history. For example Sky's (a major MPF provider) October 2011 quarterly report shows that Sky's customer churn has declined from 2009 till 2011.[178] Although this figure refers in aggregate to Sky's full set of services (telephony, broadband, satellite TV, on-demand content), we would expect it to be reflective of Sky's voice and broadband service also as these service form a component of a significant proportion of their bundles.

A2.84 As discussed above, we also expect NGA to begin to have an impact on churn by the end of the period which would have the effect of dampening copper migration service volumes.

A2.85 In response to EE's comments (see paragraph A2.57 above), that SMPF churn will be driven by migration to NGA and fibre-based products, and that Ofcom's forecast of MPF gains at the expense of WLR is "*not reasonable*", Ofcom notes that MPF rental volume in 2010/11 increased significantly and steadily, and take up of NGA has, so far, been slower than was considered the case by both BT and Ofcom in March 2011, and cable volume has stayed flat at 4.8 million from Q1 2010 to Q3 2011.

Conclusion

A2.86 In conclusion, we have adopted a relatively conservative view of volumes with trends in demand primarily predicated on historical observation and with limited impact expected from NGA in the charge control period.

[178] BSkyB Quarter 1 Results, October 2011, slide 7 http://corporate.sky.com/documents/pdf/latest_results/q1_results_presentation_1112.htm.

Annex 3

Scope for Efficiency gains

Introduction

A3.1 In this Annex we set out our conclusions on an appropriate efficiency target to incentivise Openreach to deliver costs savings through efficiency gains over the period of the LLU / WLR charge control.

A3.2 In the March 2011 Consultation, we proposed that Openreach should be able to reduce its cash payments excluding implementation costs at a net rate of between 3.5% and 5.5% each year.[179] We invited stakeholders to comment on our approach to efficiency and provide evidence to support their views.

A3.3 Informed by these comments, this Annex sets out our view on an appropriate efficiency target for Openreach. We also include, in paragraph A3.79 a summary of how we have modelled the impact of the efficiency target on costs.

A3.4 We explained in March that efficiency can be defined with reference to the cost savings expected to be achieved (gross) without taking into account the cost incurred in achieving those efficiency gains. If the efficiency rate is defined such that it includes the offsetting costs of achieving those gains (e.g. the costs of staff leaving the business) it is referred to as a net efficiency rate.

A3.5 As set out below, we have concluded that Openreach should be able to reduce its cash payments by 5.0% per annum gross. As explained below, we consider that this is equivalent to a net rate of 4.5%.

Definition of Efficiency

A3.6 Efficiency provides a measure of potential cost reductions, independent of volume and inflation impacts. An efficiency target is included within a charge control to incentivise the regulated entity to bring its costs more closely in line with those that would be incurred in a competitive market.

A3.7 In setting an efficiency target consideration needs to be given to the overall regulatory framework, including the time period of operation and quality of service requirements. The regulatory framework should incentivise cost reductions by enabling the firm to benefit from efficiency savings beyond that assumed within the price cap imposed by the charge control. However the regulatory framework should also protect consumers by ensuring that the returns made by the regulated entity are not unreasonable. The efficiency target, as a key input to the overall regulatory framework, should be set to enable this balance to be achieved.

A3.8 In modelling the efficiency measure for the LLU / WLR charge control, we have defined it such that it:

- applies to cash costs. Cash costs are defined to be operating costs less depreciation plus capital expenditure;

[179] Ofcom March 2011 Consultation Annex 7, Paragraph A7.3.

- includes all types of efficiency savings, including reductions in task times, fault rates and real unit cost improvements;
- includes both "catch up" and "frontier shift". "Catch up" is the change in costs required to bring Openreach in line with an efficient operator. "Frontier shift" is the movement in efficiency expected by an efficient operator over time; and
    - is expressed in gross terms.

March 2011 Consultation proposals

A3.9 In the March 2011 Consultation, Ofcom proposed a net efficiency target of between 3.5% and 5.5%.[180] This was estimated to be equivalent to a gross efficiency target of between 4% and 6%. In determining this range, we did not rely on any one source because we considered that none of the sources available completely fulfilled the required criteria (as outlined in paragraph A3.8 above). The sources of data we used were both internal and external to Openreach. These are summarised in the Figure A3.1 below. The assumption used within our modelling was an efficiency rate of 4.5% net per annum.

Figure A3.1: Summary of March 2011 Consultation Data Sources[181]

	Openreach Historical Trend	Openreach Planning Documents	IBR	Cost Review (KPMG)	Statistical Analysis (NERA, Deloitte)	2009 LLU Appeal
Net or Gross	Gross	Gross	Gross	Gross	Gross	Net
Overall	Low: 4% High: 6%	~4%	5.0% Peer Ave 5.5% Best in Class	2.3-2.6%	~ 2%	3.7%
Notes	Lower bound reflects argument that "one-offs" cannot be replicated.	Ofcom estimate based on BT data.	Estimate based on Openreach interpretation of how data applies to its planning targets. Raw benchmark data is BT specific and excludes frontier shift.	Operating costs only. Excludes fault rates & task times.	Benchmark against US LECs. Accounting costs.	Primarily based on KPMG report with additional estimate for fault rate reduction.

Stakeholder Responses to the March 2011 Consultation

A3.10 Openreach argued that "*an appropriate efficiency target should be no greater than 3.5%*".[182] Openreach further argued that the range proposed in the March 2011 Consultation was too high when considered against the decisions of other UK

[180] March 2011 Consultation Annex 7, Paragraph A7.3.
[181] March 2011 Consultation Annex 7.
[182] Openreach March 2011 Consultation Response, Section 5.2, Paragraph 169.

regulators.[183] Openreach stated that the ramifications would be "*severe"* for themselves if the efficiency target was set too high.[184]

A3.11 Both Sky and TTG argued that an efficiency target at the top of or above the March 2011 Consultation range would be appropriate.[185] Their responses were informed by analysis undertaken by Frontier Economics commissioned by Sky and TTG to review the efficiency modelling and benchmarks set out in the March 2011 Consultation.

A3.12 Sky stated that the most appropriate indicators were those that captured all sources and both types (i.e. catch up and frontier shift) of efficiency.[186] In particular Sky highlighted Openreach's historic performance and the IBR as being the most reliable sources.[187] Sky further expressed their belief that BT (and therefore by implication Openreach) is inefficient, referring to BT's non-compulsory redundancy policies and BT's 2010 pay settlement with the CWU as evidence.[188]

A3.13 TTG stated that most weight should be given to the IBR, to Openreach's historical performance and the anecdotal evidence of Openreach's inefficiencies.[189]

A3.14 C&WW stated that they felt that BT's own figures should be the minimum assumption used and noted that these figures were above the bottom of Ofcom's range.[190]

Costs of Achieving Efficiency

A3.15 Both Sky and TTG also argued that Ofcom had overestimated the costs of implementing efficiency savings.[191] Sky suggested that this should be remedied by increasing either the net efficiency rate or the gross rate to allow for "*inefficient leavers' costs*".[192]

Modelling Efficiency

A3.16 Openreach, Sky and TTG all expressed concerns over how efficiency was modelled. Openreach said that the way the efficiency rate was applied to corporate overheads differed from how it was applied to other cost lines.[193] Frontier Economics (commissioned by Sky and TTG) stated that the modelling of efficiency by Ofcom was overly complex and suggested an alternative approach.[194]

[183] Openreach March 2011 Consultation Response, Section 5.2.7.
[184] Openreach March 2011 Consultation Response, Section 5.2.1, Paragraph 179.
[185] Sky March 2011 Consultation Response Section 2, Paragraph 30. TTG March 2011 Consultation Response July 2011, Paragraph 311.
[186] Sky March 2011 Consultation Response Section 2, Paragraph 35.
[187] Sky March 2011 Consultation Response Section 2, Paragraph 30.
[188] Sky March 2011 Consultation Response Section 2, Paragraph 51.
[189] TTG March 2011 Consultation Response, July 2011, Paragraph 311.
[190] C&WW March 2011 Consultation Response, Response to Question 7.3.
[191] TTG March 2011 Consultation Response, July 2011, Paragraph 318. Sky March 2011 Consultation Response Paragraphs 53 to 56.
[192] Sky March 2011 Consultation Response Paragraph 56.
[193] Openreach March 2011 Consultation Response, Section 5.2.8.
[194] Frontier Economics Report "*Analysis of the Implementation of Efficiency Savings*" October 2011.

Updated Information

A3.17 Following the March 2011 Consultation, we obtained updates from Openreach in relation to data Openreach had previously provided to us, including historical data for 2010/11 and evidence of Openreach's plans (i.e. the 2011/12 budget and MTP were updated following year end 2010/11).[195]

A3.18 We also received further information from Openreach on how Openreach had used the IBR to review their MTP.[196] We also received an updated version of the IBR dated 2011 from Openreach.

A3.19 In the following sections we review our original data sources in light of stakeholders' comments and, where applicable, updated information. We also set out our conclusions based on each data source.

Openreach Historical Trend

A3.20 In the March 2011 Consultation, we analysed Openreach's historical efficiencies and concluded that they implied an efficiency target of between 4% and 6% (gross).

- The upper bound was calculated by assuming that the level of savings made in 2009/10 and expected within 2010/11 could be replicated. These were calculated to be around 4% and 9% (gross) in 2009/10 and 2010/11 respectively; and
- The lower bound was based on the view that some of the efficiencies were "one-off" and could not be replicated.

A3.21 Following receipt of 2010/11 data, we now estimate that Openreach's 2010/11 efficiency to be [✂] lower than the previous estimate of 9%.[197] In considering the applicability of this outturn to a future efficiency target we have made the following further observations:

- Prior to 2010/11, we estimate that Openreach's efficiency outturned at around 4% (for the period 2007/8 to 2009/10);[198] and
- The change in value year on year to 2010/11 is predominantly driven by a step change in BT's Cumulo bill (and the corresponding cost allocation to Openreach).

A3.22 Openreach argues that because some efficiency savings made are "one off" they cannot be used to inform future efficiencies.[199] Openreach's argument would imply that the only efficiency savings that should be used as a benchmark are those that are ongoing in nature. We consider that whilst it may be true that specific "one off" efficiencies cannot be replicated, it is equally true that other "one off" efficiencies could reasonably be expected to be found and as such all efficiencies, both "one off" and ongoing should be included for consideration within the efficiency

[195] BT Group LLCC S135 Response 1 July 2011 Attachment "*Efficiency Slides for LLCC S135 120811*" Slide 4.
[196] Openreach 10th S135 Response, Question 14.
[197] BT Group LLCC S135 Response 1 July 2011 Attachment "*Efficiency Slides for LLCC S135 120811*" Slide 4.
[198] Openreach "*Comments on reports by Analysys Mason and Frontier Economics for LLU and WLR charge controls"* November 2011, Table 1.
[199] Openreach March 2011 Consultation Response, Section 5.2.4, paragraphs 202 to 204.

benchmark. Hence we believe that a cost being "one off" is not necessarily a basis for its exclusion.

A3.23 In arguing that "one-off" efficiency savings should not be included within the efficiency benchmark, one of the "one off" cost reductions within the 2010/11 outturn referred to by Openreach is Cumulo.[200]

A3.24 Although we consider that "one off" costs should generally be included within the efficiency benchmark, we have concluded that the 2010/11 change in BT's Cumulo bill should be excluded from our calculation of an appropriate benchmark of Openreach's efficiency. The step change in Cumulo liability has arisen due to the switch from one ratings assessment (the 2005 assessment) to another (the 2010 assessment). Furthermore, the 2010 assessment is due to remain in place until 2015 i.e. for the duration of the charge control period. Hence it is not envisaged that another step change will occur within this charge control period. Accordingly, we believe that the 2010 decrease in Cumulo costs is not an appropriate indicator of future cost efficiencies. If we were to exclude the change appropriate to Cumulo, we estimate that the 2010/11 figure of [✂] would reduce to 5%.

A3.25 We consider the cost reductions applicable to Cumulo separately, details of these can be found in Annex 4 of this draft Statement.

A3.26 In summary, Openreach's historical efficiency rates (2007/8 to 2009/10) have outturned at around 4%. We estimate the most recent outturn (2010/11) to be higher at 5% (following adjustments). Linear extrapolation of our outturn estimates result in a forecast for 2011/12 of 5%. We have chosen not to extrapolate the data beyond one year due to the limited number of observations (four data points) on which the projection is based. We conclude that the historical data implies an efficiency target range of between 4% and 5% (gross).

Openreach Planning Documents

A3.27 Ofcom has obtained updated financial forecasts of the level of efficiency assumed within Openreach's MTP.[201] The updated MTP shows budget efficiency savings of around [✂] for 2011/12, reducing to around [✂] for 2012/13 to 2014/15.

A3.28 [✂].

A3.29 Openreach has stated that the 2011/12 budget and MTP are challenging and include significant execution risk. [✂].[202]

A3.30 We believe that Openreach management's view of potential efficiency gains, as contained within their internal planning documents, provides a highly relevant benchmark. The data is Openreach specific, recent, and having being produced in the context of internal planning, rather than regulatory submissions, is unlikely to be influenced by downward bias. [✂]

A3.31 In summary, we consider that Openreach's internal planning targets, when adjusted for latest outturns, imply an efficiency target of [✂].

[200] BT Group LLCC S135 Response 1 July 2011 Attachment "*Efficiency Slides for LLCC S135 120811*".
[201] BT Group LLCC S135 Response 1 July 2011 Attachment "*Efficiency Slides for LLCC S135 120811*".
[202] Openreach 12th S135 Response Question 9.

Industry Benchmarking

A3.32 The IBR is a confidential report supplied to BT which benchmarks BT Group costs against those of a selection of comparable European operators. In the March 2011 Consultation, we estimated that Openreach would need to achieve average efficiency savings of 5% gross to bring it in line with "peer average", or 5.5% to bring it to "best in class" comparator operators.[203]

A3.33 Ofcom's estimates of an efficiency target from the IBR were based on Openreach's application of the benchmarking data in reviewing their MTP (the IBR/MTP analysis). Openreach used the IBR to sense check cost saving targets within its MTP.[204] The IBR is based on BT Group data, as opposed to Openreach, and, as it is a comparator of costs at a point in time, excludes frontier shift. However, our approach (i.e., looking at Openreach's application of the data rather than the raw data itself), meant that the resulting efficiency target was Openreach specific. It also meant that the estimate we were reviewing included an estimate of frontier shift as Openreach's calculations included assumption as to how the cost reductions would change year on year.

A3.34 Openreach have since expressed reservations over Ofcom's use of the Openreach IBR / MTP analysis, stating, with reference to the Openreach IBR / MTP analysis, that "*The Wyman report was only used as a cross-check at this early stage of the planning process and was not used subsequently and that the internal analysis carried out was not intended to set an efficiency target and there are also significant inconsistencies in the treatment of the data used*". [205]

A3.35 Openreach further argued that "best in class" was not a suitable benchmark.[206]

A3.36 Openreach commissioned E&Y to independently review how the IBR could be used to assess potential efficiency improvements. E&Y concluded that "*the [IBR] provides a wealth of information for the study participants, and assists in identifying areas where operations can be improved. However, we consider that the [IBR] has a number of limitations when considered as a basis for assessing efficiency improvements in this context, such that it does not – for indeed this is not its purpose – provide a direct and fit-for-purpose assessment of the efficiency of Openreach".* E&Y further stated that the IBR *"provides useful information on the scope of potential cost reductions"* and *"should be considered, alongside other evidence, when considering the annual efficiency improvements achievable by Openreach".* E&Y considered "peer average" as opposed to "best in class" to be the most appropriate measure to adopt as a comparator for Openreach.[207] E&Y reached this conclusion because the "best in class" metric is based on the best operator within each cost comparator and hence is unlikely to be achievable by one operator due to the trade-offs that exist between different levels of expenditure.

[203] Ofcom March 2011 Consultation, Paragraph A7.27.
[204] Openreach March 2011 Consultation Response, Paragraph 185.
[205] Openreach Slides "*Openreach Medium Term Planning Process – how the [IBR] was utilised*," Slide 9.
[206] Openreach March 2011 Consultation Response Section 5.2 Paragraph 171.
[207] E&Y Report "*Review of the [IBR] benchmarking report for assessing the scope for Openreach efficiency improvements*", July 2011.

A3.37 Sky and TTG supported the use of the IBR as an indicator of efficiency. However both Sky and TTG suggested that the results of the IBR would need to be adjusted upwards to account for frontier shift.[208]

Interpreting the Industry Benchmarking Data

A3.38 Following the March 2011 Consultation, Openreach has received the latest version of the IBR (2011), however, Openreach has not used this data to inform its latest MTP efficiency targets.[209]

A3.39 As explained above (see paragraph A3.33), the application by Openreach of the IBR to the planning process (i.e. budget and MTP) was the basis by which we interpreted the IBR. As this analysis was not available for the 2011 IBR, it was necessary to consider whether departing from our previous approach to a direct analysis of the IBR would provide us with a useful benchmark.

A3.40 If we were to adopt a direct analysis approach, we agree that the "peer average" metric would be the most appropriate metric to use as a proxy for an efficient operator. The "best in class" metric would not be a suitable comparator as it is unlikely that an operator could achieve best in class across all cost categories due to the way in which the metric is defined (i.e. the lowest cost two operators for each operational activity).

Peer Average within the IBR

A3.41 E&Y (commissioned by Openreach) analysed the data in both the 2009 IBR and 2011 IBR to estimate the gap between both BT Group's and Openreach's costs and those that would have been incurred had BT Group and Openreach been operating at the "peer average" level of efficiency.

A3.42 The IBR compares BT's costs to those of other European operators. The costs are normalised to enable the data to be compared. This is done on the basis of both the ratio of costs to revenue (revenue basis) and the ratio of costs to an appropriate volume (operational basis) for each cost line.

A3.43 The revenue basis will be influenced by differences in relative pricing between countries. The use of an operational driver removes this potential distortion but may not effectively provide for costs driven by more than one volumetric. Hence there are advantages and disadvantages to both approaches.

A3.44 E&Y used both sets (i.e. operational and revenue based) of normalised data to provide an estimated efficiency range for BT Group and Openreach. The latter was achieved by adjusting the costs by the percentage of BT Group's costs applicable to Openreach for each cost category. We would note that this implicitly assumes a consistent rate of efficiency between BT Group and Openreach for each cost category.

Ofcom analysis of E&Y review of 2009 IBR and 2011 IBR

A3.45 The E&Y results show an improvement in Openreach's costs relative to "peer average" between the 2009 and 2011 reports. E&Y interpret that the 2009 IBR suggests that Openreach would need to achieve between 1.9% and 2.6% annual

[208] Sky March 2011 Consultation Response, Paragraph 42. TTG response, Paragraph 22 and 255.
[209] Openreach 12th S135 Response, Question 9.

cost savings to bring its costs in line with "peer average".[210] E&Y's equivalent analysis of the 2011 IBR shows that Openreach's costs are either less than or approximately the same as those that would be generated if it were operating at the efficiency level of its peers.[211]

A3.46 The availability of both the 2009 IBR and 2011 IBR allowed us to investigate how robust the "peer average" metric is as a benchmark of appropriate efficiency levels. Our objective in setting an appropriate efficiency target is to establish a target that incentivises Openreach to bring its costs more closely in line with those incurred in a competitive market. Hence, to meet our requirements of an appropriate metric, we would expect the "peer average" costs to move in line with those incurred in a competitive market.

A3.47 The peer average costs equivalent to BT Group [✂]between the 2009 IBR and the 2011 IBR.[212]

A3.48 The [✂]growth in BT Group's "peer average" costs implicit within the IBR would suggest that the "peer average" metric was not providing a reasonable proxy for costs incurred by an operator within a competitive market

A3.49 As such we do not feel that the IBR can be used to provide us with an appropriate benchmark for use in estimating Openreach's efficiency for the purposes of the LLU / WLR charge control.

A3.50 Furthermore, as Openreach no longer use the IBR to review its MTP and have expressed reservations about using the review method to set efficiency targets[213] we do not feel it appropriate to adopt the approach taken in the March 2011 Consultation (i.e. interpreting the IBR in context of how Openreach applied it to its planning targets).

A3.51 In the March 2011 Consultation we used IBR data in the context of Openreach's application of the data to its planning targets. While noting that Openreach is no longer using the IBR, we also consider that the IBR provides evidence that BT Group has reduced its costs more rapidly than the benchmarked European peers and consequently can be interpreted as evidence of there being less potential efficiency savings. However we believe it would be inappropriate to place much weight on these results and to use the IBR as a direct source of an efficiency benchmark (by using the "peer average" metric) because the changes in "peer average" costs as applicable to BT appear to be inconsistent with movements within a competitive market. Similarly, the "best in class" metric does not appear to be appropriate for usage within our charge control.

Cost Review (KPMG)

A3.52 The KPMG report concluded that Openreach would need to deliver average efficiency gains of 2.3% to 2.6% gross per annum between 2010 and 2014 in

[210] Openreach March 2011 Consultation response, paragraph 188.
[211] Openreach 12th S135 Response, Question 9, E&Y November 2011 Final Report "*Review of 2011 [IBR] for the purposes of the efficiency assumptions for the Local Loop Unbundling, Wholesale Line Rental and ISDN30 charge controls*".
[212] [✂]Openreach 12th S135 Response, Question 9, E&Y November 2011 Final Report "*Review of 2011 [IBR] for the purposes of the efficiency assumptions for the Local Loop Unbundling, Wholesale Line Rental and ISDN30 charge controls*".
[213] Openreach Slides "*Openrech Medium Term Palnning Process – how the [IBR] was utilised*," Slide 9

relation to its operating costs to bring operating costs in line with an organisation operating in a competitive environment.[214] This excluded any additional efficiency improvements that might flow from reductions in either task time or fault rates.

A3.53 In the March 2011 Consultation, we estimated that a 2% reduction in fault rates would have the same effect as a general efficiency saving of around 0.5% on costs.[215]

A3.54 Accordingly, we consider that the KPMG report provides evidence of an efficiency estimate of above 3%. This estimate is based on the KPMG estimate, increased to include efficiency savings of around 0.5% to account for fault rate efficiencies. Since this estimate excludes some cost types such as task times, our efficiency target will accordingly be higher than this estimate.

Statistical Analysis

A3.55 In the March 2011 Consultation, we explained that we did not propose to update the econometric analysis of Openreach's efficiency conducted by NERA[216] as part of the 2009 Review.[217]

A3.56 The NERA study attempted to benchmark Openreach's costs against the US LECs. In the report, NERA highlights the difficulties in finding appropriate benchmark data saying "*the difficulty of defining a reliable basis for comparing Openreach with the LECs suggest that the results of this study must be regarded with some caution*".[218] Given these limitations, we did not update the NERA analysis for the March 2011 Consultation. However we noted within the March 2011 Consultation that the NERA study suggested that BT was operating at an efficient level. This was supported by a comparative study commissioned by BT and undertaken by Deloitte.[219]

A3.57 Frontier Economics (on behalf of Sky / TTG) concluded that the NERA study *"should not therefore be attached weight as a way to assess the future efficiency gains that Openreach can make, given the availability of other evidence*".[220] Frontier Economics highlighted that the NERA study was not conducted on a comparable basis to the Ofcom definition of efficiency and concluded that the results are not directly comparable. Frontier Economics also note that "*BT has achieved significantly greater efficiency gains since the NERA study was conducted, than was predicted in the study*".[221] Frontier Economics further stated that the Deloitte study was subject to similar weaknesses as those of the NERA study as it is based on a similar methodology.[222]

A3.58 In conclusion, there are limitations with both the NERA and Deloitte studies which suggest that little weight should be given to their results. The studies suggest that Openreach is relatively efficient (compared to US LECs). Given the limitations of the NERA and Deloitte studies, we have used this as evidence towards a lower efficiency target than would have been derived without this additional source of

[214] KPMG "*Efficiency Review of BT Openreach*" March 2010.
[215] Ofcom March 2011 Consultation Annex A7.22.
[216] NERA "*The Comparative Efficiency of BT Openreach*" 2008.
[217] Ofcom March 2011 Consultation Annex A7.13.
[218] NERA "*The Comparative Efficiency of BT Openreach*" 2008.
[219] Deloitte "*Further Analysis of the Efficiency of BT's Network Operations*" 2009.
[220] Frontier Economics "*Analysis of the Estimation of Efficiency Assumptions*" August 2011 page 8.
[221] Frontier Economics "*Analysis of the Estimation of Efficiency Assumptions*" August 2011 Page 8.
[222] Frontier Economics "*Analysis of the Estimation of Efficiency Assumptions*" August 2011 Page 7.

evidence, but have not directly taken into account the results of these statistical studies.

2009 LLU Appeal Decision

A3.59 Openreach stated that they would not expect a deviation from the CC's finding in the 2009 LLU Appeal of 3.7% net efficiency per annum. Openreach argued that since the outcome of the 2009 LLU Appeal was relevant for the period to 2012/13, i.e. two-thirds of the proposed charge control period, it should still apply.[223]

A3.60 We note that the LLU / WLR charge control is for the period 2012/13 to 2013/14. Hence the overlap between the LLU Appeal determination and the proposed control is just one year, 2012/13.

A3.61 The 2009 LLU Appeal determination covered years for which we now have historical data, 2009/10 and 2010/11. We note that within this period, Openreach's efficiency has exceeded the CC's assumption of efficiency (i.e.,3.7% net).

A3.62 As such, we consider that departure from the CC's determination in the 2009 LLU Appeal is appropriate as the period covered by the determination relates to only one year of the proposed LLU / WLR charge control and Openreach has exceeded the level of efficiency determined by the CC in the 2009 LLU Appeal.

Other Evidence

A3.63 Sky and TTG both provide additional information as evidence of BT Group's continued inefficiency. Sky and TTG refer to BT Group's redundancy policies and recent pay deals as evidence to this effect.[224]

A3.64 Frontier Economics (commissioned by Sky / TTG) also refer to public statements made by BT's management as evidence that there is scope for further efficiencies.[225]

A3.65 In response Openreach stated that Frontier Economics had misinterpreted BT's public statements. Openreach further argued that some of the efficiencies within BT's public statements as highlighted by Frontier were not "*true efficiencies"* but cost reductions resulting from volume decline.[226]

A3.66 In conclusion we observe that BT's public statements and evidence of employment practices suggest that there is scope for further efficiencies beyond those of an efficient operator. However, the precise level of efficiency implied by anecdotal evidence of this nature is difficult to estimate. Hence in reaching our decision on an appropriate efficiency target we have afforded it a lesser weighting than other more quantifiable evidence.

[223] Openreach March 2011 Consultation Response Paragraph14.
[224] Sky March 2011 Consultation Response, Paragraph 51. TTG March 2011 Consultation Response Paragraphs 291 and 297.
[225] Frontier Economics "*Analysis of the estimation of efficiency assumptions*" pages 13 - 17.
[226] Openreach "*Comments on reports by Analysys Mason and Frontier Economics for LLU and WLR charge controls"* November 2011 paragraphs 16-18.

Risks

A3.67 Before summarising our conclusions we consider it necessary to consider the risks associated with determining an efficiency level. The CC stated in the LLU Appeal that "*Efficiency targets should aim to preserve the incentive for management to exceed the target, whilst managing the risk that BT would retain the benefit if an efficiency target were surpassed due to it being insufficiently demanding*".[227] In setting an efficiency target within a charge control we are seeking to balance these two requirements.

A3.68 Shorter control periods reduce the scope for incumbent gain. Equally, however, shorter control periods reduce the level of risk regulators face in any underestimation of efficiency as efficiency outcomes will be captured within the next charge control.

A3.69 In reaching our conclusions we have given consideration to the duration of the control and the risks associated with imposing too challenging a target.

Conclusion

A3.70 We have decided to impose an efficiency target of 5% (gross) which reflects the potential for Openreach to reduce its costs towards that of an operator in a competitive market, but which also maintains incentives for Openreach to improve its efficiency levels.

A3.71 We conclude that the most reliable data sources are those based on Openreach specific data i.e. Openreach's historical performance and plans. We consider that this data is the most reliable as it is directly applicable to Openreach and because of the limitations of the other data.

A3.72 Further, in support of use of this data as appropriate benchmarks for our efficiency target we note that within the 2009 LLU Appeal, the CC "suppor*ted the use of both historic and forecast data particularly for the first year of the control. In the 2009 LLU Appeal the CC stated that "historical indicators of Openreach efficiency should be reliable for at least the first year of the price control, and represent useful indicators for the whole period under review".*[228] The CC also said *"The Openreach budget (for 2009/10) provides a relevant benchmark for the rate of efficiency savings for at least the first year of the control".*[229] *We note that the LLU / WLR charge control period we are consulting on will expire 31 March 2014. Hence it is reasonable to assume th*at a measure appropriate for the first year will also be applicable for the remainder of the charge control period.

A3.73 We conclude that 5% is the most representative value of the historical data. This represented both the linear trend of all the data and our estimate of the most recent historic value. This enabled us to narrow the range for our efficiency target from the consultation range to a range of between 5% [✂] gross. We believe that this is a reasonable range from which to select the efficiency target. We have therefore,

[227] 2009 LLU Appeal Determination Paragraph 2.7.
[228] 2009 LLU Appeal Determination Paragraph 2.185.
[229] 2009 LLU Appeal Determination Paragraph 2.192.

applied our judgement[230] to identify an appropriate efficiency target by looking to the remaining sources of evidence.

A3.74 The external data sources (KPMG report, IBR and the statistical analysis) were all subject to weaknesses. However we interpreted their results as pointing towards Openreach having made efficiency improvements and hence suggested a weighting towards the lower end of our range.

A3.75 However, the other sources of evidence (including BT's public statements and anecdotal evidence of BT's employment practices) suggested the opposite and hence would imply movement towards the top end of our range. We note that it would be difficult and inappropriate to attribute significant weight to these sources of evidence due to their subjective nature.

A3.76 On balance we believe it appropriate to attach more weight to the external data sources (KPMG, IBR and statistical analysis) than the anecdotal evidence. This is because the external data sources are independent, quantifiable and holistic i.e. consider Openreach in its entirety. The anecdotal evidence, whilst of relevance, is potentially subject to bias and utilises ad hoc cost comparisons

A3.77 In light of the evidence available, we consider that an appropriate efficiency target for the purpose of our charge control is 5%. The sources of data internal to Openreach led us to conclude that 5% [✂] was an appropriate range. The external sources, none of which we felt able to attribute significant weight, led to contradictory conclusions as to which end of the range we should adopt. On balance we concluded that more weight should be given to those sources of evidence which suggested a lower efficiency target.

A3.78 Further, we have sought an efficiency target that balances our objectives of reflecting Openreach's ability to reduce costs whilst maintaining incentives for efficiency improvements. This is a matter of judgement. The risk of not adopting a higher value, and so potentially allowing Openreach to gain from efficiency savings made beyond those assumed within our charge control, is lessened by the relatively short duration of the charge control. Hence we consider that adopting 5% as the gross efficiency target for Openreach to be appropriate.

Application of Efficiency Gains in our Cost Modelling

A3.79 For the purpose of our base case estimates in our March Consultation, we used a net efficiency assumption of 4.5% per annum.

A3.80 For the purpose of reflecting our efficiency assumption in our cost modelling in the March Consultation, we applied a gross efficiency assumption of 5.0% (i.e.' 0.5% higher than the net rate) and included the increased leaver payments that we estimated would be incurred to achieve this saving. The aggregate effect was similar to a net efficiency assumption of 4.5%.

A3.81 TTG commissioned Frontier Economics[231] to review the way we implemented our target efficiency assumption in our cost model. Frontier Economics concluded that

[230] In the LLU Appeal Determination at paragraph 2.8, the CC stated "*The rate of efficiency savings that a regulator sets as its target is usually based on a number of measures and indicators, each of which has strengths and weaknesses as a guide to the savings that may be made. Each indicator must to some extent be assessed in the light of the others*".

the precise implementation was unnecessarily complicated and suggested we adopt a simpler approach.

A3.82 We therefore considered modelling Openreach's costs on two bases. First, we included a gross efficiency rate of 5.0% and reflected the increase in employee leaver payments that were necessary to deliver that saving.

A3.83 Then, we fixed employee leaver payments at their 2009/10 level and included an efficiency assumption of 4.5%.

A3.84 These two approaches delivered similar outcomes, consistent with our objective of a 5.0% gross efficiency assumption and in line with our March 2011 Consultation base case estimate of 4.5% net.

[231] Frontier economics, '*Openreach's next price controls: Issues for consideration'*, commissioned by Sky and the Talk Talk Group.

Annex 4

Cost allocation

Introduction

A4.1 In the March 2011 Consultation we set out our approach to cost allocation. Since then we have received responses from stakeholders.

A4.2 We have considered stakeholders' views and performed further work. This annex sets out our final approach to cost allocation.

Overview of cost modelling

A4.3 In the March 2011 Consultation we explained that our cost modelling is performed in two stages:

- First, costs are forecast at an Openreach level (in the Cost Forecast model). These are calculated using data based on historically observed activity levels and inputs together with estimates of future level of demand. As part of this process, costs from BT Group are allocated to Openreach. These are referred to as 'Transfer Charges'. Asset values and depreciation are forecast separately.

- Then, these costs are allocated to individual products to derive unit cost estimates (in the Cost Allocation model). A two stage process to do this is used. Firstly, costs are allocated to activities (referred to as 'Base 1' allocation). These activities attempt to replicate BT's cost component categories used in the RFS. Secondly these costs are allocated to products (referred to as 'Base 2' allocation) using various product usage factors.

Consultation responses and further work performed

A4.4 In the March 2011 Consultation we set out the proposed allocation methodologies and costs that would to be used in our cost calculation.

A4.5 Since the March 2011 Consultation we have received responses from Stakeholders on a range of issues:

- in relation to transfer charges these have included corporate overheads, IT costs, allocations to Northern Ireland and Overseas divisions and allocations to unregulated products; and

- for Base 1 and 2 allocations respondents have brought up issues such as NGA, line length, fault rates, and single jumpering.

A4.6 We have considered each of the issues raised by stakeholders and performed additional work and obtained more data to inform our decisions. As explained in this annex, we have updated a number of our assumptions in light of this further information.

A4.7 This annex:

- summarises the proposed approach, as set out in the March 2011 Consultation (as updated in the November 2011 Consultation where relevant);

- outlines the responses from stakeholders;
- sets out the further work we have performed and additional information obtained from BT/Openreach; and
- states the final methodologies that we have used to allocate costs.

A4.8 Informed by stakeholder responses and the further work we have performed since the March 2011 Consultation, we have made some adjustments to our cost estimates. Some of these adjustments impact on the costs allocated to Openreach, while others impact on the costs allocated within Openreach to specific services.

A4.9 Figure A4.1 summarises the impact of these adjustments on the costs allocated to Openreach. As illustrated below, the effect of these adjustments has been to reduce our estimate of the costs allocated to Openreach in 2010/11 by £125m.

Figure A4.1: Summary of adjustments to cost calculation in 2010/11

Category	Description	£m
Transfer Charges		
IT Spend	Removal of IT costs allocated to Openreach	(100)
IT Spend	Removal of separately identified NGA costs from BT Innovate and Design (BTID)	(25)
Other operating Costs		
Northern Ireland	Reversal of proposed product management costs incurred in support of BTNI's core rental services	<1
Total		**(125)**

A4.10 As summarised in Figure 4.2, in light of stakeholder responses and our further work, we have also updated the bases for allocating some of the costs within Openreach:

Figure A4.2: Summary of adjustments to cost allocation methodologies

Category	Description	Example of impact on 2010/11
Base 1 allocation	Change of basis for allocating other operating income, from Direct Labour to Copper asset value	Final approach allocates less cost to WLR and MPF and more cost to SMPF
Base 2 allocation	Line length adjustment reinstated to reflect difference between average MPF and WLR lines	Final approach allocates more cost to WLR plus SMPF and less to MPF
	Allocation of LLU Service Management Centre Costs to better reflect reported faults	Final approach allocates more cost to MPF and less to SMPF
	evoTAMs costs now spread to WLR as well as SMPF (at a ratio of 0.6:1.0) reflecting the benefit to WLR of evoTAM testing	Final approach allocates more cost to WLR and less cost to SMPF
	Fault repair ratio adjusted to reflect the quicker fault repair response of WLR Premium, MPF and SMPF	Final approach allocated more cost to MPF and SMPF and less to WLR

A4.11 Some other cost allocation bases were challenged by Stakeholders but we have decided not to change the position since the March 2011 Consultation. These include those summarised in Figure A4.3 below.

Figure A4.3: Summary of non adjusted challenges to cost allocation methodologies

Category	Summary Response Point	Reason for no Change
Single Jumpering	Costs should be set based on single jumpering	See Annex 9
Anchor Pricing	Approach is not appropriate	See Section 3
Product Management	WLR should have more Product Cost allocated to it as it is a more complex product than MPF	Sale and Product Management costs are correctly captured
Non Core Allocations	BT is likely to have under allocated costs to non regulated copper related services	No material under allocation of costs
Overseas	Transfer costs that should go to Northern Ireland and Overseas are going to Openreach	No material under allocation of costs
Volume Driven allocation of Overheads	The apportionment of overheads into Openreach should be based on its relative volume size	No evidence to support change

A4.12 We discuss these adjustments in more detail below

Allocation of Transfer Charges from BT Group to Openreach

Summary

A4.13 BT Group levies charges to Openreach in respect of Openreach usage of Group or other line of business (LOB) resources. These are referred to as Transfer Charges.

A4.14 In the March 2011 Consultation we reproduced a schedule provided by BT setting out Transfer Charges incurred by Openreach in 2009/10 and BT's expectations of these charges in the period to 2013/14. We then set out our view of these Transfer Charges, noting that we intended to perform some further work in respect of IS spend.

A4.15 Since the March 2011 Consultation we have considered responses from stakeholders and also performed further work. We have obtained further information from BT and in some areas we have made further adjustments to our view of transfer charges.

A4.16 In this draft Statement we set out our final view of Transfer Charges allocated to Openreach which are used in the cost calculation.

Modelling of Transfer Charges

A4.17 Our approach to modelling Transfer Charges is set out in Section 6. We explained in the March 2011 Consultation that for the 2009/10 and 2010/11 we used BT's data in our modelling. For 2011/12 to 2013/14, we explained that some of the assumptions used by BT to forecast Transfer Charges may have overstated future cost levels. We therefore revised BT's estimates of Transfer Charges by using our own efficiency and inflation assumptions.

A4.18 We have adopted a similar approach to our final calculations. For 2011/12 to 2013/14, we have forecast Transfer Charges by applying our efficiency assumptions and inflation assumptions to the aggregate 2010/11 Transfer Charges. The exception to this approach is Cumulo Rates which was forecast separately as set out later in this annex. In summary, with the exception of Cumulo Rates we have taken the 2010/11 Openreach aggregate forecasts and adjusted them by applying our general efficiency target and underlying inflation rate. As explained later in this Annex we have also made a series of adjustments totalling £125m to specific cost categories and cost allocation bases.

A4.19 On this basis we have included transfer charges to Openreach of £950m in our cost modelling in 2010/11 and have projected that transfer charges will reduce to £876m by 2013/14.

A4.20 Figure 4.3 sets out our final estimate of Transfer Charges to be included in our estimate of Openreach's costs.

Figure A4.4: Openreach Transfer Charges (2009/10 to 2013/14) (inc. Reg and Ofcom adjustments)

	2009/10 £'m	2010/11 £'m	2011/12 £'m	2012/13 £'m	2013/14 £'m
Accommodation	182	137	134	132	129
Accommodation Cumulo Rates	178	101	99	96	92
Supply Chain & Mobile Comms	[✂]	[✂]	[✂]	[✂]	[✂]
BT Fleet	[✂]	[✂]	[✂]	[✂]	[✂]
Corporate Overheads	141	123	112	105	103
Insurance	[✂]	[✂]	[✂]	[✂]	[✂]
LUS	63	58	56	55	54
Telephone Directories	39	39	38	37	37
Other	[✂]	[✂]	[✂]	[✂]	[✂]
Managed Services	64	52	51	50	49
SLGs	15	8	8	8	7
IS	401	277	272	267	262
Total	**1,216**	**950**	**924**	**901**	**876**

Note: IT spend is shown net of capitalisation.

A4.21 In the March 2011 Consultation we also presented a table, based on information provided by BT, showing a calculation of the proportion of total costs incurred at a Group level that are transferred to Openreach (Figure 4.2 in the March 2011 Consultation). This table indicated that approximately 37% of such costs were allocated to Openreach.

A4.22 Several respondents noted that some of the percentages appeared to be overstated. For example Everything Everywhere, TTG, and Sky argued that the stated 43% of Group HQ that had been allocated to Openreach appeared high.

A4.23 We have obtained further information from BT relating to these estimates. We now understand that the percentages were calculated based on transfer charges (calculated after some BT adjustments) as a proportion of total costs (stated before these adjustments). Some of the percentages were therefore distorted.

A4.24 We have estimated the percentages with these distortions removed. On this basis the percentage of total costs allocated to Openreach in 2009/10 is closer to 30% (rather than 37%, as previously estimated in the March 2011 Consultation). The proportion of total corporate overheads allocated to Openreach is also around 30%.

A4.25 In their response, TTG argued that our modelling of the corporate overhead and IT spend transfer charges to Openreach should take account of possible changes in the relative size of Openreach.

A4.26 We reviewed several recent broker forecasts for BT which included revenue and EBITDA forecasts both for BT group as a whole and also for Openreach. All the forecasts reviewed projected Openreach's revenue CAGR (compound annual growth rate) as being higher than that of the group as a whole for the period 2011 to 2015. However, on an annual basis, the consensus of these brokers' revenue forecasts showed Openreach's revenue growth outperforming that of BT group as a whole in the financial years 2011/12 and 2012/13 and slightly underperforming BT's in the financial years 2013/14 and 2014/15. The consensus of these forecasts also showed a higher EBITDA CAGR through the period 2011-2015 for Openreach than that of the group as a whole. While we do not consider that this provides a compelling case for increasing the forecast transfer charges (which would be difficult to model with any accuracy), it does indicate that there is no case for reducing Openreach's share of costs.

Further Review

A4.27 In the March 2011 Consultation we considered in detail the five following categories of transfer charges which we estimated represented approximately just over 80% of the BT Group charges levied to Openreach:

- Accommodation;
- Cumulo rates;
- Corporate overheads;
- BT fleet; and
- IT Spend

A4.28 We consider these categories in more detail below. We set out stakeholders' responses and explain the further work we have performed. We then present our conclusions.

Accommodation

A4.29 BT's accommodation costs are predominantly the costs incurred to occupy, run and maintain its property portfolio of offices, exchanges, radio stations, data centres, and warehouses.

A4.30 Accommodation costs include property rentals, electricity, water and facilities management. Around 60% of these costs are paid to Telereal, BT's outsourced property manager, 30% relate to energy costs and 10% relate to Monterey in respect of outsourced facilities management.

A4.31 Our forecast in the March 2011 Consultation used an inflation rate of 3% per annum to estimate costs, based on the terms of the contract between BT and Telereal.

Allocation to Openreach

A4.32 There are two methodologies that have been used to allocate rent to Openreach:

- Direct costs are allocated on the basis of usage by Openreach; and
- Occupation of exchange equipment space calculated as a percentage of space utilised.

Stakeholder responses

A4.33 In its response, TTG asked why the accommodation charge is forecast to fall significantly between 2009/10 and 2010/11.

A4.34 BT has explained that the fall in 2010/11 is due to Openreach receiving a smaller proportion of the total Group transfer charge. The majority of this decrease is due to a more recent survey which has calculated a lower charge to Openreach in 2010/11. The remaining reduction is due to a number of factors, including a fall in energy prices and space handback.

A4.35 BT has previously argued that accommodation costs should not be subject to an efficiency assumption. BT explains that Openreach has limited opportunity to rationalise its use of accommodation. This is because Openreach predominantly occupies space in exchange buildings. BT has formal regulatory obligations such as universal service and the provision of co-mingling space in exchanges, the latter which is used for MPF service. Furthermore, closing exchanges and reducing infrastructure footprint is time consuming and complicated due to the need to rearrange and reconfigure the network. Rearrangement costs are significant and in general higher than the proceeds from any property sale. It can also be a lengthy process. BT has cited that it took nearly 4 years to leave the Moorgate exchange.

A4.36 BT has explained that vacating exchange buildings creates significant costs and service disruption for those CPs which are served from the closing exchange and, as a result, exchanges are only vacated if there is a clear operational need to do so.

Ofcom Calculation

A4.37 We have applied our general efficiency assumption to accommodation costs. As we set out in Annex 3, our approach to modelling efficiency has been to calculate a single efficiency number that is applied to all cash costs. Not subjecting Accommodation costs to efficiency would be inconsistent with this approach.

A4.38 In adopting this approach we recognise that some individual costs may be subject to an average efficiency target that is below the level that might be possible (such as accommodation), while others may be subject to an average rate in excess of the true scope for savings.

Conclusion: no change in allocation basis from March 2011 Consultation

A4.39 We have included £182m of BT Group accommodation costs in our estimate of Openreach's costs in 2009/10. We have estimated that these will fall to £137m in 10/11 and then to £129m by 2013/14.

A4.40 The figure A4.5 below set out the charges over the period.

Figure A4.5: Ofcom forecasts for charges for accommodation

£ m	09/10	10/11	11/12	12/13	13/14
Accommodation	182	137	134	132	129

Cumulo Rates

A4.41 We have updated our estimates of the amount of Cumulo applicable to the Charge Control. The updated calculations result in an allocation £2.89 per line for WLR and £2.90 for MPF in 2013/14. We consider both the bases of allocation of Group costs to Openreach and of Openreach costs to products together, below.

Background

A4.42 BT's Cumulo rate is the name given to the non-domestic (business) rates that BT Group pays on the rateable assets within its UK network. The rateable assets consist primarily of duct, fibre, copper and exchange buildings. BT's non-network properties, such as office buildings, are assessed separately and so are not included within the Cumulo.

A4.43 The Government's valuers calculate BT's Cumulo by assessing the Rateable Value ("RV") of BT's network assets (or "hereditament") in aggregate and applying to the RV a rate in the pound (or "rate poundage"). In broad terms, the rates bill is calculated by multiplying the RV by the rate poundage. The RV is an estimate of the annual rent payable by the occupier of the hereditament (the hypothetical tenant) to the hypothetical landlord assuming that the tenant bears responsibility for repairs and maintenance on all assets.

Rateable Value

A4.44 The ratings list documents the RV applicable to occupiers of rateable premises. The ratings list applicable to this Charge Control is that of 2010, which went live on 1 April 2010. The valuation of 1 April 2010 is £244.5m for England and £10.5m for Wales.[232] The Scottish RV is £23.4m.[233] Since Openreach excludes Northern Ireland, the Northern Ireland assessment is not relevant to this charge control. Hence the relevant RV for the Charge Control is £278m.

A4.45 Ratings lists are updated every 5 years. Hence BT's RV will remain set at the 2010 value until 2015, which is the date of the next revaluation; unless BT negotiates that a MCC has occurred (refer to paragraph A4.51).

A4.46 BT's RV is calculated via the "receipts and expenditure" methodology ("R&E methodology"). Detail of the R&E methodology can be found on the VOA website.[234] Broadly speaking the steps involved in the 2010 BT ratings assessment using the R&E methodology were to:-

- Forecast wholesale revenues less operating costs for all wholesale assets (those of both the hypothetical landlord and tenant) for the period 1 April 2008 to 31 March 2013.
- Subtract an allowance for a reasonably required (risk adjusted) return on the value of the tenants' assets and for depreciation of those assets. (Broadly speaking the tenant's assets applicable to BT correspond to its active infrastructure e.g. switches, linecards, computers.)

[232] VOA Central Ratings List for England 2010, Central Ratings List for Wales 2010.
[233] Openreach 10th S135 Q1 "*BT Cumulo Rates for Ofcom – August 2011*".
[234] http://www.voa.gov.uk/

A4.47 The calculation is complex and makes assumptions which are specific to rating practice which do not necessarily correspond to either regulatory assumptions or historic realities. For example, the forecast (including the forecast of history) assumes that the network is held in a constant physical state, that of 1 April 2010, across the period. In practice this means that the amount of NGA and LLU assumed within the RV is fixed at the level of 1 April 2010.

Rate Poundage

A4.48 The rate poundage for England and Scotland for 2010/11 (including the supplementary rate poundage to fund small business relief) is 41.4p. The rate poundage for Wales is 40.9p. In England and Wales rate poundages change annually by statute by the change in the RPI all items index as at the previous September. In Scotland the authorities have adopted the same rate as in England.

A4.49 BT's Cumulo bill is calculated by multiplying the RV by the rate poundage (refer to Section A4.43). Hence, absent changes in RV, BT's Cumulo bill would be expected to change annually in line with RPI (taken from the preceding September).

Material Change in Circumstances

A4.50 Changes in RV typically occur every 5 years on the generation of a new ratings list. (RVs from 1 April 2010 will be updated in the next ratings list applicable from 1 April 2015.) However changes in RV can also occur as a result of MCCs.

A4.51 MCCs are changes, typically physical, to the hereditament. If an MCC occurs between list dates (e.g. between 1 April 2010 and 1 April 2015) a rateable occupier can ask for a review of their RV. This may result in a revision to their RV. Over the past few years BT has been successful in having its RV reassessed downwards as a result of various physical changes to its network.

A4.52 It is expected that physical changes to BT's network will occur during the period 1 April 2010 and 1 April 2015 as a result of both LLU unbundling and growth in NGA. Hence changes in BT's RV are expected prior to 2015. We later discuss whether we believe that MCCs are relevant to this Charge Control. (refer to paragraph A4.90 for MCCs relating to NGA and paragraph A4.91 for MCCs relating to LLU.)

Transition Rules

A4.53 There is a further adjustment that can occur to the RV. This arises when there has been a significant change in RV (either up or down) and is an adjustment to reduce the impact of the change. Transition rules limit the percentage by which the rates bill can be increased or decreased following revaluation and applies for as many years as necessary until the full bill is reached. The adjustment only applies in England.

A4.54 The size of the decrease in BT's RV for England for 2010 has resulted in transition rules applying. Hence the full decrease in RV does not arise for several years. Annual changes in BT's Cumulo bill within the Charge Control (aside from any MCCs) will be driven by both RPI changes and changes in the fraction applied as a result of transitional relief.

Overview

A4.55 BT's Cumulo bill is the rates bill applicable to its network assets. It is based on an assessment of the theoretical rent payable on BT's network assets (the RV) which is calculated via Government valuers using the R&E method.

A4.56 BT's Cumulo rate is broadly calculated as the RV multiplied by the rate poundage. The applicable RV for the charge control is that of 1 April 2010. In the absence of MCCs, the Cumulo rate will change by RPI year on year. It will also be adjusted by transition rules which apply to the England RV.

March 2011 Consultation

A4.57 Within the March 2011 Consultation we outlined the method used to derive our forecast of Openreach's Cumulo costs. We took Openreach's estimate of actual Cumulo costs applicable to Openreach for 09/10 and 10/11 and forecast this forward by applying growth rates resulting from inflation and efficiency. The resulting costs are shown in Figure A4.6 below.

Figure A4.6: Ofcom Forecast of Transfer of Cumulo Rates to Openreach in March 2011 Consultation

£m	09/10 Outturn	10/11	11/12	12/13	13/14
Openreach Rates	178	101	100	97	95

A4.58 Having allocated a proportion of the BT Group bill to Openreach we then allocated Openreach's share across its complete product set, including NGA. The product allocation was undertaken in two steps.

- Costs were split by activity (Base 1 allocation).The allocation was based on the BT RFS's method of allocating Cumulo costs which is complex. In summary, BT's method utilises the relative profitability of each asset, together with the proportion of the asset which is applicable to the landlord to allocate Cumulo costs to assets.[235] The allocation of costs from asset to activities is determined by the activity's usage of the asset. Combined this provided the allocation of Cumulo costs to activities.

- Activity costs were allocated to products (Base 2 allocation) based on product utilisation.

Updated Information

A4.59 Following the March 2011 Consultation, BT's RV of 1 April 2010 has been finalised (refer to paragraph A4.44). The relevant RV for this Charge Control is aggregated from those of England, Scotland and Wales which total £278m.

A4.60 We obtained details from BT Property about the actual P&L entries for Cumulo rates within the 2010/11 BT Report and Accounts and then how the various entries were apportioned within the 2010/11 RFS . In light of these investigations we have

[235] For more details refer to http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/clarifications/BT_Cumulo_Rates.pdf.

decided not to change our 2010/11 estimate of Openreach's Cumulo apportionment of £101m.[2] This implies a percentage allocation of BT Group Cumulo costs of [✂] which is lower than the 83% referenced within the March 2011 Consultation.

Stakeholder responses

A4.61 Sky and TTG both disagree with the method of allocation of Cumulo costs that we have adopted.[236]

A4.62 TTG state that they believe that the Cumulo bill should be allocated to products on the basis of their net profit.[237] They argue that BT's RV is "*based on the net profit that BT derives from services that use/occupy the hereditament"* and hence should be allocated on this basis.[238] Sky similarly express their belief that "*net profits cause the size of BT's Cumulo rates bill."*[239]

A4.63 Both Sky and TTG commissioned Analysys Mason to investigate Ofcom's treatment of Cumulo rates within the charge control.[240] Their report concludes that *a "causal allocation basis would be profit not profit weighted NRC*".[241]

A4.64 Openreach responded to the Analysys Mason's report dated October 2011 (the October version of the Analysys Mason report shares the conclusion of the December report in that it concluded that profit was the appropriate allocation base for Cumulo). In response, Openreach stated that "*rateable assets, and not profits, cause cumulo rates"*.

A4.65 We believe that an appropriate Cumulo allocation should incorporate calculations specific to the asset base on which the charge is levied. If an allocation base was adopted which excluded the relevant asset base, the resulting allocation could result in products which made no use of the assets being allocated Cumulo costs. This would appear to be counter intuitive.

A4.66 Equally we believe that since the magnitude of BT Group's Cumulo bill is determined by the profit making potential of those assets, that a measure of profit should also be incorporated within the allocation.

A4.67 Openreach suggest that because Cumulo bills are applicable to rateable occupiers who do not make profit and because an alternative calculation methodology exists, (the Contractor's basis) which makes no reference to profit, that it is rateable assets and not profit that gives rise to Cumulo rates.[242] We accept that Cumulo bills arise which are not based on profits, however we believe that as BT Group's Cumulo bill is determined with some reference to profit then it is appropriate to maintain some link with profitability within the calculation.

A4.68 In summary, we have concluded that an allocation method that combines usage of the rateable assets with a measure of profitability to be the most desirable. We

[236] Sky March 2011 Consultation Response paragraph 64. TTG March 2011 Consultation Response paragraph 130.
[237] TTG March 2011 Consultation Response paragraph 133.
[238] TTG March 2011 Consultation Response paragraph 131.
[239] Sky March 2011 Consultation Response paragraph 67.
[240] Analysys Mason "*Cumulo Rates*" December 2011 (Re-issued version of reports dated October 2011 and August 2011)
[241] Analysys Mason "*Cumulo Rates"* December 2011, section 1.
[242] Openreach "*Comments on Reports by Analysys Mason and Frontier Economics for the LLU and WLR charge controls*" November 2011, paragraph 57 and 67.

note also that we would prefer an allocation basis that was transparent, stable and easy to calculate. We now go on to review the various methodologies proposed in this context.

Net Profit

A4.69 We do not believe that net profit would provide an appropriate allocation base. Cumulo is not a tax on net profit but a tax on rateable assets which is calculated, in BT's case, with reference to profitability of those assets. Hence adopting a calculation based on net profit could give rise to the counterintuitive behaviour of Cumulo costs being allocated to a product which made little or no use of the rateable asset base.

A4.70 Adopting a profit only allocation methodology would result in a base which makes no reference to assets (or in particular landlord's assets). Further, product profitability is often volatile due to life cycle impacts.

A4.71 In summary we do not believe that product profitability would provide us with an appropriate allocation methodology. However we acknowledge that profit of the landlord's assets is an important component within BT's Cumulo assessment.

Valuation Authorities' Profit Calculations

A4.72 In Analysys Mason's latest Cumulo report, dated December 2011, they provide an alternative calculation of WLR and LLU Cumulo rates per line based on their interpretation of how the VOA would have applied the R&E calculations. They state that "*simulating how the VOA would have applied the "profits bases" in its assessment of the tax, we have identified how the profits of individual groups and services cause the tax to arise".*[243]

A4.73 Openreach state with regard to the R&E calculations "*the calculations can be quite complex because of the need to comply with rating practice as established through legislation and case law".*[244] In fact Openreach go on to say that "*it is impossible to allocate costs to products based on the information from the R&E calculation used by the valuation authorities".*[245]

A4.74 The assumptions that Analysys Mason make in deriving their profit estimate appear to be based on generic information available from the VOA website. However the VOA's calculation of BT's liability is complex as Openreach have stated, and is not easily replicated. For example the VOA's calculation is based on an annualised view of data from 2008/9 to 2012/13, including a restatement of historical data. (Ratings calculations require the physical state of the network to be as of the valuation date, i.e. 1 April 2010, and to remain constant.) The Analysys Mason calculation uses regulatory outturn data from 2007/8, 2008/9 and 2009/10 to estimate a figure for 2010/11 and does not take into account the requirement that the physical state of the network should be fixed as of 1 April 2010.

A4.75 In summary, we believe that it is neither feasible nor appropriate, due to the level of complexity, to replicate the VOAs calculations. Hence any profit measure used within the allocation method must necessarily be a simplification and ideally one

[243] Analysys Mason "*Cumulo Rates*" December 2011, Section 1.
[244] Openreach "*Comments on Reports by Analysys Mason and Frontier Economics for the LLU and WLR charge controls*" November 2011, paragraph 68.
[245] Openreach "*Comments on Reports by Analysys Mason and Frontier Economics for the LLU and WLR charge controls*" November 2011, paragraph 78.

which takes into account the profit of the landlord's assets rather than the profit made overall.

Profit Weighted NRC

A4.76 The current method of allocating Cumulo costs within our modelling is taken from BT's RFS allocation method of "profit weighted NRC". In the "profit weighted NRC approach" the hereditament asset values (split into BT's access and wholesale businesses) are weighted by the returns (the ROCEs) generated within each business. This provides an approximation of the profit of each of the landlord's assets. This is the basis by which the Cumulo bill is allocated across the different asset types. The allocation from asset type to services then follows usage of the assets.

A4.77 TTG state that they believe "*this allocation basis to be incorrect".* They state that the methodology should be based on causality and state that the RV is derived from the profit that BT derives from services that use the hereditament. [246]

A4.78 Openreach state that "*BT considers that profit weighted NRCs are superior to other possible allocation methodologies".*[247] They state that it reflects the different cash flow generating potential of assets within different parts of the network and that it "*moves the allocation basis explicitly closer to a return on landlord's assets which is what the R&E calculation is trying to determine*".[248]

A4.79 We note that the current allocation methodology which combines profit weighted NRC with asset usage, has the following desirable properties:-

- it reflects the profitability of the landlord's assets;
- it takes account of usage of the network;
- it is relatively stable; and
- it is simpler than an attempt to replicate the VOAs calculations.

A4.80 In summary, we believe the allocation methodology we have adopted within our modelling which is based on that adopted by BT is consistent with the principles underpinning the valuation and as such adheres to the principles of cost causality. We have therefore adopted this allocation approach for 2010/11.

Allocations across the Forecast Period

A4.81 Within the March 2011 Consultation we explained that we had chosen to keep the allocation constant. Openreach responded that *"had a dynamic base been used it would not have resulted in a materially different outcome*."[249] TTG suggested that a "*simpler (and probably more reliable) method would be to assume that the MPF RV per line remains flat and so the MPF cumulo rates cost per line only increase with increasing poundage rates".*

[246] TTG Response to March 2011 Consultation, paragraph 130.
[247] Openreach "*Comments on Reports by Analysys Mason and Frontier Economics for the LLU and WLR charge controls*" November 2011, paragraph 78.
[248] Openreach "*Comments on Reports by Analysys Mason and Frontier Economics for the LLU and WLR charge controls*" November 2011, paragraph 77.
[249] BT March 2011 Consultation Response paragraph 496.

A4.82 We have investigated an alternative forecast allocation approach similar to that proposed by TTG and believe it to have advantages over our previous approach. We note also that the results are not significantly different than the approach we previously adopted.

A4.83 To forecast the Cumulo product allocations, we calculated the implicit Cumulo 2010/11 £/line for the principle LLU and WLR services (MPF and SMPF rental, WLR basic and premium rental) within the Charge Control Model. We then forecast these forward off line such that the annual changes in Cumulo £/line coincides with the changes in rate poundage and transition rules applicable to the RV. This results in a Cumulo £/line of £2.87 for WLR rental (premium and basic) and £2.88 for MPF rental.

A4.84 The alternative forecast method gave us a similar result to our previous modelling. To incorporate into the model we were able to simply overwrite our previous aggregate Openreach Cumulo forecast with that produced on the £/line basis. The results forecast on a £/line basis aligned with those produced by the model i.e. £2.87 and £2.88 for WLR and LLU respectively. The aggregate figures for Openreach are summarised in Figure A4.7 below.

Figure A4.7 Updated figures for Openreach Cumulo Allocation

£m	09/10 Outturn	10/11	11/12	12/13	13/14
Openreach Rates	178	101	99	96	92

Cumulo allocation to LLU and WLR

A4.85 TTG argue that the Cumulo rate per line for WLR should be higher than that of MPF on the basis that WLR gives rise to higher profits internally.[250] Sky makes a similar argument.[251]

A4.86 For the purpose of allocating Cumulo costs in 2013/14, we believe that the relevant measures of asset base and profit should be from 2013/14, i.e. at the end of the charge control period. The charge control is designed such that, by the end of the control period, prices should be aligned with costs including regulatory return. In 2013/14 we would expect LLU and WLR to be achieving the same level of return. We would also expect that the asset base for both services pertaining to the landlord to be broadly the same. Hence, as there is expected to be no difference in regulated return and little or no difference in usage of landlord's assets in 2013/14, we believe it reasonable for the Cumulo allocation to LLU and WLR to be similar.

A4.87 We note the difficulties we have experience in reaching a view point on product allocations of Cumulo costs. Openreach state that the "*courts have confirmed that the BT network rateable value cannot be deconstructed*".[252] The VOA was unable to offer advice on how different product allocations might be captured because the methodology for calculating the Cumulo liability is based on aggregated figures.

[250] TTG response to Ofcom March 2011 Consultation, paragraph 137.
[251] Sky response to Ofcom March 2011 Consultation, paragraph 69.
[252] Openreach "*Comments on Reports by Analysys Mason and Frontier Economics for the LLU and WLR charge controls*" November 2011, paragraph 73.

A4.88 In conclusion, we believe that our current approach, which reflects profitability at the end of the charge control together with expected usage of the landlord's assets to be a reasonable one.

Treatment of NGA

A4.89 NGA is included within our Cumulo assessment as of the level of 1 April 2010. This is the amount that is included within the VOA's RV calculations (the network's physical state is assumed to stay constant as of 1 April 2010). The VOA has confirmed this to be the case and that there was very little NGA infrastructure in place at that date.

A4.90 Consistent with our approach on anchor pricing we wish to exclude growth in NGA and maintain the NGA assumptions at the level assumed by the VOA. Hence we do not need to forecast MCCs relating to NGA for the purpose of our charge control.

Conclusion

A4.91 We have updated our modelling of Cumulo in response to Stakeholders' comments. The changes result in a slight reduction in Cumulo costs £/line for LLU and WLR.

A4.92 To produce our forecast we have started from our 2010/11 base position that £101m of Cumulo costs were allocated to Openreach.

A4.93 The following allocation from Openreach to product is based on our consultation methodology which in turn is based on the BT RFS allocation methodology of "profit weighted NRCs". We believe this methodology to be the most appropriate as it utilises assumptions regarding the landlord's assets and combines this with a measure of the relative profitability of the assets.

A4.94 To project the 2010/11 base forward we have maintained the same RV/line for WLR and LLU (adjusted for transition rules). MCCs have not been assumed as they are not applicable to this charge control. For example, to be consistent with our anchor pricing approach MCCs with regard to NGA have been excluded. MCCs with regard to LLU are similarly not applicable as any change in RV resulting from a LLU MCC is driven by loss of revenue downstream of Openreach.

A4.95 The resulting 2013/14 allocations of Cumulo to WLR and LLU do not differ significantly on a per line basis. We believe that this is appropriate as we would expect that by the end of our Charge Control both products to make the same regulated return on a similar amount of landlord's assets.

Corporate Overheads

A4.96 Corporate overheads include the cost of Group functions' own consumption of accommodation and BT Design charges, as well as general parent functions such as tax, treasury, legal and accounting.

A4.97 We explained in the March 2011 Consultation that corporate overheads incurred in 2009/10 can be separated into four categories. These categories are used to allocate the BT Group costs to LOB. Below we show the categories and the allocation bases:

Figure A4.8: allocation of BT Group corporate overheads to Openreach

	Allocation	09/10
Group HQ	FTE	[✂]%
Group CTO	FTE	[✂]%
Design Costs	Various	[✂]%
Other		n/a
Own use		n/a
Vacant Property	Usage	[✂]%
Total		[✂]%

- Group HQ functions: this includes tax, treasury, legal and reporting costs.
- Group Chief Technology Office (CTO): this sets the overall IT strategy for the business.
- Design Costs: this is overhead IT costs.
- Vacant Property: This is unutilised space at BT exchanges caused, the main driver being the smaller physical footprint of new technology. Is allocated in proportion to the occupied space.

A4.98 The overall allocation of corporate overheads therefore takes account of FTE and spend. We explained in the March 2011 Consultation that we did not consider that this was an unreasonable basis for allocating costs.

A4.99 Figure 4.8 shows that [✂]% of both BT Group HQ and CTO costs in 2009/10 were allocated to Openreach. These costs are allocated on an FTE basis. These allocations appear consistent with Openreach's share of total BT staff[253]. [✂]% of Design costs are allocated to Openreach. These costs are allocated using various different allocation methodologies.

Stakeholder Responses and Further Work

A4.100 In its response to the March 2011 Consultation, TTG questioned the allocation methodologies of certain categories within corporate overheads. TTG argued that it is not appropriate to allocate Group HQ and Group CTO on an FTE basis. TTG stated that this is a poor proxy for the underlying relationship driving costs and it may be more appropriate to allocate on the basis of revenue or operating costs.

A4.101 We have obtained further detail from BT to better understand the functions that are carried out at a BT Group level (which are then allocated to the LoB) and similar functions that are also performed in the Openreach division (which are directly incurred in Openreach).

A4.102 BT Group performs a range of functions including Finance, HR, Legal and Regulatory. These are allocated to Openreach via corporate overheads.

[253] Per BT's 2010/11 Annual Report Openreach staff numbers represented 31.5% of total BT Group at 31 March 2010 (30.8k staff out of a total of 97.8k staff).

A4.103 Details of the activities performed by BT Group and allocated to Openreach within the above Group HQ costs are set out in Figure A4.9 below.

Figure A4.9: Activities carried out by Openreach and BT Group

Openreach *(directly incurred in Openreach)*	**BT Group** *(allocated via transfer charges)*
Finance :	**Finance :**
Commercial finance (pricing, product development etc)	Group Treasury Group Tax
Financial Control (preparation of management accounts)	Group Regulatory Finance Group Investor Relations
Business planning (quarterly forecast and strategic planning)	Group consolidation and statutory reporting
Finance for the Service and Operations teams within Openreach	
Human Resources :	**Human Resources :**
Recruitment Divisional resource strategy	Group-wide employment policy for UK based staff
Employee performance management & reward	Group-wide reward Group resource strategy
Legal & Regulatory :	**Legal & Regulatory:**
Contractual disputes	Intellectual Property
Creation of product T&Cs and contracts	BT Property
Handling of competition & regulatory investigations, complaints and disputes specifically for Openreach	Handling of competition & regulatory investigations, complaints and disputes specifically for BT Group and support on Line of Business specific activities
Other :	**Other :**
Line of business specific activities such as Operations, Service, Product Developments, Sales Management etc	Chairman's Office Group Secretariat Chief Technology Office Group consumption of property
Openreach Strategy	Group Strategy
Openreach Compliance/Business Integrity	Group Regulatory Compliance
Openreach Security	Group Security
	Group Procurement

A4.104 The Group HQ costs forecast for 2009/10 and 2010/11 are as set out in Figure A4.10, below:

Figure A4.10: Breakdown of BT Group HQ costs

	09/10	**10/11**
Finance	[✂]	[✂]
Human Resources	[✂]	[✂]
Legal & regulatory	[✂]	[✂]
Other	[✂]	[✂]
Total	[✂]	[✂]

A4.105 While it seems reasonable to assume that, for example, HR costs are driven to some extent by the number of employees, the case for an obvious single driver for any of the other costs is less clear.

A4.106 As explained above, we have used FTE for all Group HQ costs. This would be consistent with a view that HQ costs relate to the management of the employees of the business. It is the same basis as was reviewed by KPMG in its review of allocation bases for the 2009 LLU charge control, when they concluded that allocation of Group HQ costs based on FTE was reasonable.

A4.107 We have also checked this allocation basis back to BT's DAM. In respect of Corporate Costs, which, the DAM explains, relate to head office type expenses, the DAM states that "the purpose of these head office activities is generally seen as being two-fold: management of employees with the company [and] management of the assets of the company to create a return. The base to apportion these costs must reflect these activities if it is to reflect cost causality" [DAM p209]. The DAM also explains that the costs are allocated in BT's accounting system by taking account salary expenses and the net book value of fixed assets revalued for CCA for the whole of BT. The return on assets percentage (i.e. the regulated rate of return) is then applied to the asset value.

A4.108 We note that allocation on the basis of FTE does not follow this methodology. We note that allocation based on FTE is likely to result in a higher allocation to Openreach than an allocation based on salary but lower than one based solely on assets. On this basis, an allocation based on FTE would appear to provide a reasonable proxy for the underlying relationship driving costs that allocates a share of costs that sits within a range of reasonable allocation bases, some of which would drive more cost to Openreach and some which would drive less.

A4.109 Further, while it might be possible in theory to identify specific elements of the four main cost categories for which allocation on the basis of revenue might provide a better proxy for the relationship than FTE (and potentially allocate a smaller share of that particular cost to Openreach) there are other elements for which an allocation based on, say, assets (which would allocate a larger share to Openreach) might provide a more suitable proxy (such as legal costs relating to property) and others (such as regulatory costs) which might be expected to relate more to Openreach than some other parts of the Group.

A4.110 In light of the above, we consider that FTE continues to provide a reasonable, practicable and proportionate basis for allocating all of Group HQ costs.

A4.111 Similarly, while other allocation bases might be possible, it seems reasonable that Group CTO costs can be allocated on the basis of the employees who benefit from the technology.

A4.112 TTG also questioned whether any corporate overheads have (or should have) been allocated to overseas subsidiaries. We deal with this point in a separate section on allocations to overseas subsidiaries later in this Annex.

Conclusion

A4.113 Following our further work we have concluded that the methodologies to allocate corporate overheads we set out in the March 2011 Consultation remain appropriate. We have therefore decided not to make any adjustments to our methodologies.

A4.114 In 2009/10 £141m of BT Group corporate overheads are allocated to Openreach in 2009/10. We have estimated that these charges will fall to £103m in 2013/14.

A4.115 BT has provided the split of corporate overheads in 2009/10 and 2010/11 (when Group CTO and Design are reclassified into IT Spend). We have used the proportions in 2010/11 and applied these in future years to show how the split may be over the period to 2013/14. This is shown in Figure A4.11 below:

Figure A4.11: Ofcom estimate of the allocation of BT Group corporate overheads to Openreach

£ m	Allocation	09/10	10/11	11/12	12/13	13/14
Group HQ	**FTE**	[✂]	[✂]	[✂]	[✂]	[✂]
Group CTO	**FTE**	[✂]				
Design Costs	**FTE**	[✂]				
Vacant Property	**Spend**	[✂]	[✂]	[✂]	[✂]	[✂]
Other	**FTE**		[✂]	[✂]	[✂]	[✂]
Own Use	**FTE**		[✂]	[✂]	[✂]	[✂]
Total		141	122	112	105	103

BT Fleet

Description

A4.116 BT Fleet charges are levied in respect of the use of vehicles by Openreach Field Service and Service Management Centre staff. There are several components to Fleet costs:

- Acquisition and retirement costs and insurance. These are allocated to Openreach on a direct basis, based on actual usage.
- Fuel costs: These are charged to Openreach based on an analysis of fuel usage associated with individual vehicles.
- Maintenance, spare parts and other overheads: These are charged to Openreach on a proportionate basis.

A4.117 We explained in the March 2011 Consultation that we considered that these allocation methodologies were reasonable.

Stakeholder responses

A4.118 In response to the March 2011 Consultation, TTG asked why Fleet costs are forecast to fall significantly in 2013/14. In our modelling the number of engineers is linked to the number of vans. As the number of engineers is forecast to fall this drives the forecast reduction in vans, and therefore fleet costs. On re-examining the Cost Forecast Model we found we had double counted the efficiency on fleet costs as we had applied efficiency to the cost per FTE as well is it being applied to KMH

which already led to lower FTE number. This has been rectified in our final Cost Forecast model.

A4.119 TTG also asked BT to quantify the level of parking fines incurred by Openreach. BT has estimated this to be [✂] in 2009/10. This figure is not, however, classified in fleet costs. It is a cost directly incurred by Openreach within Other Operating Charges. It is included in our cost calculation. This treatment appears sensible.

Conclusion: no change in allocation basis from March 2011 Consultation

A4.120 In 2009/10 £[✂]m of BT Group Fleet charges are allocated to Openreach. We have estimated that these charges will be reduced by £[✂]m by 2013/14. Figure A4.12 below sets out our estimate of the charges over the period.

Figure A4.12: Ofcom estimate of fleet costs allocated to Openreach

£ m	09/10	10/11	11/12	12/13	13/14
Fleet	[✂]	[✂]	[✂]	[✂]	[✂]

IT Spend

Summary

A4.121 In the March 2011 Consultation, we presented the methodologies used to allocate IT Spend and our estimates of costs allocated to Openreach. We stated that we would obtain further information before concluding whether our estimates were appropriate.

A4.122 We have now considered stakeholders' responses and obtained further evidence from BT. As set out below, following our further work we have we have decided to reduce the allocation of costs to Openreach in 2009/10 by £125m in total.

Description

A4.123 In the March 2011 Consultation we presented the three following categories of IT Spend: Net development, Application Systems and Maintenance, and Computing. Since the March 2011 Consultation BT has reclassified its IT sub categories. This has no effect on the total BT Group charge. The new categories broadly map onto the old categories. To facilitate our review of the data obtained from BT, we have adopted this new classification. We now therefore show the following split:

- BT Design and Innovate (BTID) – Development and Consulting Projects: BTID provides research, development and consulting services for BT by developing technological ideas and solutions for the business. Research, development and consulting projects are typically commissioned by an Organisational Unit (OUC). This category is allocated on the basis of the specific project spend of IT projects. This category broadly maps onto the Net Development category which we cited in our consultation.

- Service Introduction & Performance (SI&P): This unit is responsible for end to end testing of development work packages produced by BTID, essentially making sure the computing code does what it should. Much of this testing is

done by subcontractors, in particular Tech Mahindra. This category is allocated on the basis of the specific project spend of IT projects. This category broadly maps onto the Application Systems[254] and Maintenance category which we cited in our consultation.

- Service Assurance: This unit within BT Operate is responsible for the data operations centres, desktops, internal networks and security operations within BT. Service Assurance delivers and maintains IT infrastructure and services for BT's own use, and for external customers to customer specified service level agreements. The unit is a cost recovery centre, and recovers its costs by transfer charging other LoB for the services it provides. This category is allocated on a spend basis. This category broadly maps onto the Computing category which we cited in the March 2011 Consultation.

A4.124 For these three categories BT has provided the percentage of BT Group costs allocated to Openreach in 2009/10. These are set out below.

Figure A4.13: Allocation of BT Group IT costs to Openreach (post Ofcom adjustment in 2010/11)

	Current Allocation	09/10	10/11
BTID	Spend	[✂]	[✂]
S I&P	Spend	[✂]	[✂]
Service Assurance	FTE/Spent	[✂]	[✂]
Total		[✂]	[✂]

Stakeholder Responses and Additional Work

A4.125 In its response to the March 2011 Consultation, TTG asserted that, "The computing cost estimates and allocations seem riddled with anomalies". TTG specifically questioned the allocation methodology of SI&P and Service Assurance. TTG stated that the methodologies used were a poor proxy for the underlying relationship driving costs.

A4.126 We explained in March 2011 Consultation that we would obtain further information before concluding whether our estimates were appropriate.

A4.127 We have since obtained more evidence from BT and have reviewed the allocation methodologies of all IT Spend categories. BT confirmed that £78m of BTID costs and £10m of Service Assurance costs were one off costs for Openreach an were unlikely to reoccur in the future. We have therefore removed these costs from our cost calculation, as explained below.

A4.128 As noted above, BTID is allocated to Openreach according project spend. BT is able to track which line of business incurs these project costs. This methodology is consistent with the DAM and the principle of cost causality. We therefore consider this allocation methodology to be appropriate.

[254] At the time of the March 2011 Consultation, computing costs were allocated on FTE

A4.129 To test the allocation we obtained a detailed breakdown of BTID project spend. We have analysed the project spend and obtained further explanations from Openreach. Based on this analysis, we have made the following reductions to our estimate of the costs allocated to Openreach:

- £78m to remove BTIT costs allocated to Openreach as unlikely to occur post 2010/11;
- £10m of Service Assurance costs allocated to Openreach as unlikely to occur post 2010/11; and
- £12m resulting from the change of allocation base for Service I&P from FTE basis to Project Spend basis.

A4.130 Additionally, we have removed £25m of costs from our previous estimate of costs to be allocated to Openreach, which from our investigation relates to NGA in 2010/11.

A4.131 Openreach argued that the total BTID spend represented a reasonable budget and over time spend on various projects (such as NGA) could fluctuate. However as Openreach did not provide more detailed BTID budgets past 2010/11 we were unable to confirm that the money would be spend on specific, non-NGA, projects.

A4.132 In line with our anchor pricing approach we therefore excluded the full £25m cost.

A4.133 The S&IP category broadly maps onto the previous Application Systems and Maintenance costs. TTG argued that the FTE basis is not appropriate for allocating these costs.

A4.134 As BT is now able to track which line of business incurs these project cost, costs are allocated on the basis of project spend. We therefore consider that an allocation methodology based on spend to be appropriate.

A4.135 As noted above, this change of methodology resulted in a £12m reduction in the IT costs allocated to Openreach in 2010/11.

A4.136 Service Assurance costs are allocated on a FTE basis. TTG argued that this is not an appropriate basis.

A4.137 The functions within this category relate to the operation of data centres, desktops, IT helpdesk, internal networks and security. These services are used by Openreach engineers and we therefore consider this allocation methodology to be appropriate in the absence of a method to track project spend. This methodology is consistent with the DAM.

A4.138 As noted above, we have identified a further £10m of Service Assurance costs allocated to Openreach. We have removed these from the Cost Forecast model.

Summary of Adjustments

A4.139 Overall the adjustments that we have made have reduced costs allocated to Openreach by £125m. We set these out in Figure A4.14 below.

Figure A4.14: Detail of adjustments to IT Spend in 2009/10

Category	Description	£m
BTID	Removal of IT costs allocated to Openreach	(78)
BTID	Removal of NGA costs (see above)	(25)
Service I&P	Change of allocation base for Service I&P from FTE basis to Project Spend basis	(12)
Service Assurance	Removal of IT costs allocated to Openreach	(10)
Total		**(125)**

Conclusion: IT costs allocated to Openreach should be reduced below proposed level

A4.140 In Figure A4.15 below we set out our final view of Openreach's IT spend costs, after adjustments. In 2010/11 £277m is allocated to Openreach in relation to IT Spend. By 2013/14 we estimate that IT spend will fall to around [✂].

Figure A4.15: Ofcom estimates of IT spend allocated to Openreach

£ m	Allocation	09/10	10/11	11/12	12/13	13/14
BTID	Spend	[✂]	[✂]	[✂]	[✂]	[✂]
SI&P	Spend	[✂]	[✂]	[✂]	[✂]	[✂]
Service Assurance	FTE	[✂]	[✂]	[✂]	[✂]	[✂]
Total		401	277	272	266	262

A4.141 TTG questioned whether any IT Spend has been allocated to overseas subsidiaries. We deal with this point in a separate section on allocations to overseas subsidiaries later in this Annex.

Other issues relating to transfer charges

A4.142 As noted in this section Stakeholders have raised points in relation to the allocation of costs to Northern Ireland and Overseas subsidiaries.

A4.143 We observe that some points relate purely to transfer charges, and some also relate to costs directly incurred in Openreach

Allocation to Northern Ireland

A4.144 Openreach does not operate in Northern Ireland. Its activities are undertaken by BT Northern Ireland (BTNI), a separate operating division. BTNI is accounted for within BT Retail and not Openreach within its Management accounts and in the data used to populate our Cost Forecast model.

A4.145 We have considered Transfer Charges allocated from BT Group to Openreach and also direct costs incurred by Openreach.

A4.146 As we have explained in this section BT Group incurs transfer charges which are then allocated to line of business, which include Openreach and BT Retail. As BTNI is accounted for in BT Retail, BTNI will receive an allocation of transfer charges via the allocation to BT Retail.

A4.147 We therefore consider it is not appropriate to reallocate any of Openreach's share of BT Group transfer charges to BTNI.

A4.148 In relation to direct costs we explained in the March 2011 Consultation that Openreach incurs costs which could potentially be allocated to other operating divisions. We identified Product Management costs as one where costs are incurred in support of BTNI's Core Rental Services.

A4.149 BT explained that BTNI revenue represents only 5% of the total Core Rental Services for Openreach, and Product Management costs represent a very small proportion of the overall costs for Core Rental Services. BT therefore does not consider it appropriate to allocate any of Openreach's costs back to other operating divisions.

A4.150 We accept that the impact on costs is small. However, in the LLU appeal[255], we considered it appropriate to reflect an allocation of these costs to BTNI. We have therefore allocated less than £1m of costs away from Openreach.

Allocations to overseas subsidiaries

A4.151 In response to the March 2011 Consultation TTG and Sky questioned whether some element of BT Group costs should be allocated to overseas subsidiaries, thereby reducing the level of costs allocated to Openreach. In particular TTG and Sky have stated that elements of Corporate Overheads and IT Spend should be allocated to overseas subsidiaries.

A4.152 We have investigated this area further and some BT Group costs are allocated overseas and others are not. Those which are allocated overseas represent categories where the overseas businesses use some element of BT Group's resource. Those which are not allocated overseas are categories where the overseas businesses have their own resource to perform the particular function.

A4.153 We have concluded that this methodology for allocating Corporate Overheads and IT Spend is reasonable.

A4.154 Figures 8.14 below sets out the basis of our view. For each sub-category of Corporate Overheads and other overheads, we set out whether an allocation overseas has been made.

[255] See paragraph 2.614

Figure A4.16: Corporate Overheads and IT Spend: allocation overseas

Category	Methodology	Allocation Overseas
Corporate Overheads		
Group HQ	Global FTE	Yes
Group CTO	FTE/Return on assets	No
Design	FTE/Return on assets	No
Vacant Property	Usage	No
Other - Security	Spend	Yes
Other	Global FTE	Yes
Insurance	Spend	Yes
Managed Services	Spend	No

A4.155 The figure above shows Group HQ, Own Use are allocated on a Global FTE basis which does incorporate an allocation overseas. Insurance and Security costs are allocated overseas. This reflects the fact that overseas divisions do use an element of these functions. It is therefore appropriate that a proportion of these costs are allocated overseas.

A4.156 Group CTO, vacant property and other costs have been allocated on a UK FTE basis and therefore no allocation overseas has been made. BT has explained that overseas divisions do not use these functions. It is therefore appropriate that overseas divisions do not incur these costs.

Allocation to Other (Non-Regulated) Services

A4.157 In the March 2011 Consultation we considered whether appropriate to make an adjustment to allocate costs away from the regulated services to non-regulated services, as we had done in the 2009 LLU charge control. In 2009, we found a number of non regulated services that were allocated little or no cost and adjusted our unit cost calculations to reflect an estimate of the effect of allocating costs away from the Core Rental Services to the non-regulated services.

A4.158 In the March 2011 Consultation, we provisionally concluded that a similar adjustment was not necessary. This view was informed to some extent by Openreach's previous decision to update some allocation bases in response to the issues highlighted in the 2009 LLU Charge Control.

A4.159 TTG asked us to investigate whether to allocate certain costs away from Openreach's regulated services to other non-regulated services, as we had done in the 2009 LLU Charge Control.

A4.160 For the purpose of this review, we performed a similar review and identified all non-regulated services within the relevant markets with annual revenue greater than £10m. These services are Time Related Charges (TRC), Managed Services (Redcare), SFI and LLU Other.

A4.161 When we looked at these costs in 2009 LLU Charge Control, we considered that a margin of around 20% would be reasonable, based on the average margin made

across Openreach. A similar test based on 2009/10 financial data indicates that the average margin had gone up to around [✂]%

A4.162 It does not follow that small differences between the estimated margins and this first order test of a reasonable allocation basis would justify an adjustment to the overall allocation basis. However, we observe that, based on our cost modelling the average EBIT margin of these services was approximately 20%. On this basis, it appears that these non-regulated services pick up a reasonable allocation of costs and that it is not necessary to reallocate any costs away from the services within the scope of this review.

London 2012 Olympics

A4.163 In its response to the March 2011 Consultation, TTG stated that via its sponsorship of the London 2012 Olympics, Openreach may be providing infrastructure projects and other services to the Olympic sites and events below or at no cost. TTG has argued that this work should be recharged from Openreach to BT Global Services.

A4.164 Costs relating to the provision of services to the Olympic sites are not included in our Cost Forecast model. In our Cost Forecast model we excluded [✂] of non volume driven Capex between 2009/10 and 2012/13 which we felt was not justified. This included Capex on Olympic infrastructure projects and was excluded from the Cost Forecast model used in the March 2011 Consultation.

A4.165 BT has explained that the forecast contribution by Openreach to the BT's sponsorship in cash terms (included within Group Transfers under 'Other') is around 15% of total BT spend, equivalent to [✂], less than 0.5% of Transfer charges.

A4.166 BT has argued that, as Openreach has an Olympics role in its own right as "Official Telecommunications Infrastructure Partner" to the Olympic Games and this is a reasonable contribution. In return, Openreach's involvement provides non-financial benefits such improved staff morale through staff participation linked to the games.

A4.167 Given the relatively small net cost, and potential for benefits for Openreach, we have not adjusted our Cost Forecast model to remove this item.

BT Transition Centre (BTTC)

A4.168 BT individuals can be redeployed from one Line of Business (LoB) to another. A situation may occur when an individual has left one LoB however has yet to begin a role in the other LoB or has yet to be made redundant. During this period the individual is considered to be within the BTTC.

A4.169 In its response TTG stated that the costs of BTTC should be excluded from our Cost Forecast model.

A4.170 The costs of the BTTC relate to salary, national insurance, benefits and overtime allowance, bonus and pension costs. These costs continue to be incurred in the LoB original line of business in which the individual was based prior to being moved into the BTTC. BT has confirmed that the costs for Openreach employees within the BTTC in 09/10 were £0.4m.

A4.171 Within our Cost Forecast model, this cost are implicitly included with non volume driven pay. We did not make an adjustment as there was minimal impact on prices.

Service Level Agreement/Service Level Guarantee (SLA/SLG)

A4.172 In April 2011, we asked the Office of Telecommunications Adjudicator (OTA2) to review the SLA and SLG arrangements for WLR, MPF and ISDN2 provisions which require an engineering appointment. In this process, CPs have requested that a target lead time for appointments be introduced and backed by SLG payments.

A4.173 In its response BT has stated that any change in the SLA/SLG regimes, which results in Openreach incurring higher costs must be reflected in a commensurate change in the cost base.

A4.174 In principle we agree that BT should be remunerated for costs incurred as a result of any change to the regime.

A4.175 We note that as well as additional costs to BT there may also be a benefit to BT. This benefit may be as a result of improved forecasting from CPs that BT will receive. Any remuneration to BT must attempt to quantify this benefit to BT, and must therefore remunerate net costs.

A4.176 We note that remuneration should be set at an efficient level, as agreed by industry.

A4.177 At this stage we are not in a position to incorporate these costs as it is not possible to establish the efficient level of net costs. However, we would expect to incorporate remuneration of these net costs in time for the next charge control.

A4.178 In its response TTG suggested the level of SLG costs in 2010/11 were too high.

A4.179 The actual level of cost in the Cost Forecast model is [✂] in 2009/10. In 2009/10 they fall to be £8m in 2010/11 and the fall to £7m by 2013/14.

A4.180 The amendment to the regime that we have detailed above may increase actual SLG costs compared to those we have modelled.

A4.181 Against a background of the level of SLG costs in 2009/10 and the fact that actual SLG costs may rise as a result of a change to the regime we consider that the forecast costs that we have modelled are not to be excessive.

Branding on Openreach Vans

A4.182 Openreach vans carry a small BT Group logo. TTG has argued that this represents a marketing benefit to the retail customer facing parts of BT, particularly BT Retail and BT Global Services. In their response to the March 2011 Consultation TTG estimate that this advertising may be worth up to £30m per year and this should be charged as a cost away from Openreach to BT Retail and Global Services. As a result TTG argue that Openreach should receive payments from other LoBs to recognise this.

A4.183 It is not clear that the inclusion of the logo does represent advertising of the BT Group. In any event we do not consider that TTG's estimate of a £30m benefit to be credible and is likely to be significantly overstated. Specifically, TTG appear to have based their calculation on the annual cost of £4,000 to fully cover a London taxi with a company's advertisement. We do not consider that this calculation provides much insight into the value to BT of including a relatively small logo (with no advertising message) on the side of vans, many of which will be based in rural areas with much less visibility than a London taxi.

A4.184 Further, to the extent that there might be some benefit to the BT Group, it is not clear whether BT Group or Openreach benefits most from the inclusion of the logo. It is possible that Openreach may benefit more as Openreach engineers may be more accepted by end users when they visit homes and offices. As the vans need to be painted (with or without a logo), there is unlikely to be any cost associated with the inclusion of the logo. When a similar point was raised by TTG in its appeal of our 2009 decision, the CC concluded that we had not erred in relation to this issue. It stated: "*Ofcom's approach is to allocate costs and not to assess the value of benefits conferred on different parts of the group through their inter-association. We do not therefore find it necessary to conclude as to the value derived either from Openreach or the rest of the BT Group from their association. In our view, it would be wrong to make an adjustment for this one externality in isolation. It may be one of many such externalities. We therefore find no error on the part of Ofcom in not allowing a reduction in costs allocated to Openreach to take account of the use of the BT Group logo on Openreach vans.*"[256]

A4.185 In its response TTG invited Ofcom to make "*an assessment of these other externalities (that Openreach allegedly enjoys) to see if indeed (a) they exist and (b) they outweigh the substantial benefit that rest of BT enjoys from free advertising on Openreach vans*".[257]

A4.186 For the reasons given above, we do not consider it likely that the inclusion of the logo confers a significant net benefit for BT Group or cost to Openreach. We have therefore made no adjustment.

Phonebook Cost Recovery

A4.187 BT Retail incurs costs of producing and delivering phonebooks to all households and businesses in the UK. These costs are then allocated to Openreach and then allocated in their entirety to the WLR cost stack.

A4.188 In its response to the March 2011 Consultation, Everything Everywhere has argued that these Phonebook Costs should be removed from the WLR cost stack.

A4.189 Following further investigation we have confirmed that these phonebooks are provided under the terms of the WLR service contract between BT and CPs. It is therefore appropriate that these costs are allocated solely in the WLR cost stack.

Energy Costs

A4.190 Energy costs are a component of accommodation costs. We have investigated how energy costs are projected in the future, with particular reference to forward looking contracts.

A4.191 BT has explained that it has not disaggregated inflation assumptions to isolate any particular cost trends for the energy proportion of accommodation costs. Therefore, we have projected them with general inflation and efficiency assumptions.

[256] LLU Determination 31 Aug 10, 2.612 (page 2-138)
[257] TTG response (para 217, page 56)

Allocation of Openreach costs to products

A4.192 As explained above, costs are allocated to products in two stages. First, costs are allocated to activities (referred to as 'Base 1' allocation). These costs are then allocated to products (referred to as 'Base 2' allocation).

A4.193 We explain our approach to the two stages in more detail, below.

Base 1 Allocations

A4.194 In this section we provide a breakdown of the unit cost stacks by cost category, and an explanation of how these costs have been allocated to activities.

Breakdown of unit costs by cost category

A4.195 Cost data taken from the Cost Forecast model is allocated to activities using Base 1 allocation methodologies.

A4.196 We show in Figure A4.17 below the unit cost stacks by principal cost categories for the rental of WLR, MPF, and SMPF in 2009/10 and 2013/14.

Figure A4.17: Unit cost stacks by principal cost categories (2009/10 and 2013/14)

	WLR	MPF	SMPF	WLR	MPF	SMPF
		2009/10			2013/14	
	£	£	£	£	£	£
Line Cards - PSTN	10.10	-	-	10.86	-	-
Accommodation	4.34	6.66	2.28	3.11	4.67	1.58
Accommodation Cumulo Rates	5.34	5.37	0.07	2.89	2.90	0.04
Net Development	3.37	4.53	0.51	1.53	1.68	0.16
Computing	3.03	4.07	0.46	2.70	2.98	0.29
Group HQ	3.18	3.52	0.31	1.98	2.13	0.24
Current Pay: Direct	5.84	6.99	1.51	4.93	5.88	1.38
OOI Repayments Works	(2.92)	(2.89)	-	(0.67)	(0.66)	-
Current Pay: Direct (Non Vol)	6.81	7.18	0.58	5.16	5.43	0.59
Depn + HG : Dropwire	2.90	2.90	-	6.08	6.08	-
Depn + HG: D Side	5.93	5.87	-	9.74	9.65	-
Depn + HG: Duct	4.55	4.50	-	1.91	1.89	-
Depn + HG: E Side Copper	1.28	1.27	-	2.11	2.09	-
Depn : Line Testing Equipment	0.16	6.04	0.16	0.29	2.91	0.29
Others	16.36	17.53	3.14	13.64	12.37	3.30
Total Opex	**70.27**	**73.54**	**9.03**	**66.25**	**59.98**	**7.86**
ROCE@10.1% /8.8%	30.07	32.69	0.32	26.40	26.87	0.56
Total cost	**100.34**	**106.23**	**9.35**	**92.65**	**86.85**	**8.42**

A4.197 In the March 2011 Consultation, we selected the top activities by size as they appear in the activity cost stacks for products and provided a description of the cost category and explained how it has been allocated to activities.

Basis of allocation of costs to activities

A4.198 The identified methodologies are broadly based on one of the four following categories: labour driven, specific, blended, and depreciation. The labour methodology is a Dynamic allocation base, whilst all the others are static. A Dynamic Allocation base is one where the % of cost allocated to that activity varies according to the amount of labour hours that is used by that activity each year. Labour hours in turn are volume driven. A Static allocation base on the other hand is one where the proportion of costs allocated to that activity is fixed at the same proportion for the activities over the forecast period. There is no link to changing volumes. This is consistent with our anchor pricing approach.

i) Labour

A4.199 The allocation of labour costs is based on forecast hours spent on work related activities. Forecast hours are generated from the Cost Forecast model based on actual Openreach base data. The forecasts take account of product volumes and task times. These methodologies are dynamic over time and are either volume or non-volume related.

A4.200 We use the following methodologies:

- Operations Volume Pay: This allocates pay to activities on the basis of forecast hours spent by Openreach staff on engineering activities, excluding the building of assets.

- Dynamic Operations Base: This allocates pay to activities on the basis of forecast hours spent by Openreach staff on engineering activities, including the building of assets.

- Dynamic Direct Pay: This allocates pay to activities on the basis of forecast hours spent by Openreach staff on engineering activities (including the building of assets) and forecast hours spent by support staff at the Service Management Centre.

ii) Specific

A4.201 Certain costs are allocated to activities using a basis which is directly relevant to the cost category.

A4.202 For example the allocation of accommodation cost allocation is based on the percentage of floor space each activity occupies. The allocation of Cumulo rates is based on a Net Replacement Cost (NRC) basis, weighted by profit.

iii) Blended

A4.203 Some costs are allocated on a blended basis which mixes labour allocation methodologies with other specific methodologies.

A4.204 Net Development costs, for example, use the Net Development Base methodology. This methodology includes some cost, allocated to it on the basis of forecast hours spent on work related activities and other costs allocated to it directly on the basis of identified spend.

iv) Depreciation

A4.205 Depreciation costs are allocated to the assets to which they relate. For example Dropwire depreciation is fully allocated to "Use of Dropwire."

Stakeholder responses

A4.206 We received no specific responses to the March 2011 Consultation on Base 1 allocation methodologies.

Allocation Matrix

A4.207 The following figure shows the percentages of costs allocated to activities for the main cost categories, using the various allocation methodologies. Activities are shown along the top and allocation methodologies are shown along the left hand side. This has been updated to reflect changes in Dynamic labour allocations which have changed marginally as the result of changes in assumptions such as efficiency which have altered activity KMHs.

Figure A4.18: Allocation Matrix: Activities and Methodologies

Allocation Methodology	Rental of BTW Line Cards	Use of E-side Copper and Duct	Repair of E-side Copper	Use of D-side Copper and Duct	Repair of D-side Copper	MDF Hardware Jumpering	Use of Dropwire and NTE	TAMS	Use of MDF	Line Test Equipment
Labour (Dynamic)										
Dynamic Operations Volume Base KMH 2009/10			7.58 %		19.64 %	22.09 %				
Dynamic Operations Volume Base KMH 2010/11			6.66 %		17.25 %	23.59 %				
Dynamic Operations Volume Base KMH 2011/12			6.49 %		16.82 %	22.73 %				
Dynamic Operations Volume Base KMH 2012/13			6.48 %		16.78 %	20.50 %				
Dynamic Operations Volume Base KMH 2013/14			6.82 %		17.67 %	19.94 %				
Dynamic Operations Base KMH 2009/10		0.00 %	3.42 %	22.32 %	8.87 %	9.97 %	16.52 %		0.03 %	0.32 %
Dynamic Operations Base KMH 2010/11		0.10 %	3.11 %	18.33 %	8.07 %	11.03 %	17.32 %		0.05 %	0.44 %
Dynamic Operations Base KMH 2011/12		0.10 %	3.04 %	17.92 %	7.88 %	10.65 %	16.30 %		0.03 %	0.33 %
Dynamic Operations Base KMH 2012/13		0.10 %	2.92 %	15.63 %	7.56 %	9.24 %	15.29 %		0.02 %	0.19 %
Dynamic Operations Base KMH 2013/14		0.10 %	3.02 %	15.87 %	7.84 %	8.84 %	15.44 %		0.02 %	0.19 %
Dynamic Direct Pay 2009/10			3.42 %	22.32 %	8.87 %	9.97 %	15.10 %		0.03 %	0.32 %
Dynamic Direct Pay 2010/11		0.00 %	3.11 %	18.33 %	8.07 %	11.03 %	15.78 %		0.05 %	0.44 %
Dynamic Direct Pay 2011/12		0.10 %	3.04 %	17.92 %	7.88 %	10.65 %	14.90 %		0.03 %	0.33 %
Dynamic Direct Pay 2012/13		0.10 %	2.92 %	15.63 %	7.56 %	9.24 %	14.01 %		0.02 %	0.19 %
Dynamic Direct Pay 2013/14		0.10 %	3.02 %	15.87 %	7.84 %	8.84 %	14.12 %		0.02 %	0.19 %
Specific (Static)										
CE Accommodation		10.07%	1.74%	5.90%	4.80%	4.43%	6.15%	0.0%	46.0%	0.02%
Cumulo Rates		2.2%	0.0%	65.7%	0.1%	0.1%	6.1%	0.0%	1.5%	0.0%
Line Cards (A006)	100.0%									
Blended (Static)										
Net Development Base	0.0%	2.8%	2.5%	10.9%	6.5%	7.4%	10.8%	0.0%	0.0%	0.0%
Depreciation (Static)										
Dropwire							100.0%			
Copper Distribution-side				100.0%						
Copper Exchange-side		88.3%								
Line Testing Equipment								71.9%		28.1%

A4.208 Note: The percentages highlighted in blue are cited in our commentary. Allocation of costs to Openreach

A4.209 This section relates to costs which have been recharged by BT Group to Openreach. Here we show how these costs are allocated to activities. Please note that a more detailed description of each of the cost categories is provided in the previous section on Transfer Charges.

Accommodation

A4.210 We explained in the March 2011 Consultation that these costs are allocated to activities using a blended basis of the Accommodation methodology and the Dynamic Direct Pay methodology. The Accommodation methodology allocates costs based on the floor space each activity occupies.

Cumulo Rates

A4.211 As explained above, we have updated our estimates of the amount of Cumulo applicable to the Charge Control. The updated calculations result in an allocation £2.89 per line for WLR and £2.90 for MPF in 2013/14. We explained the basis of allocation of Openreach costs to products, earlier in this section together with our explanation of the basis of allocation of Group Cumulo costs to Openreach.

Group HQ

A4.212 As noted above, these costs are a subset of Corporate Overheads, detailed in the Transfer Charges section above.

A4.213 We explained in March 2011 Consultation that these costs are allocated to activities using the “Dynamic Direct Pay” pay methodology linked to product volumes. TTG and Sky had no specific comments on the Base 1 allocation of Group HQ costs. Their comments were around the original allocation of those costs into Openreach, with concerns that overseas subsidiaries and Northern Ireland were not receiving a fair share.

Current Pay: Direct

A4.214 This represents the productive time costs of Openreach operational staff. These costs are driven by volumes.

A4.215 We explained in March 2011 Consultation that direct pay costs are allocated to activities using the methodology Operations Volume Pay. This methodology is dynamic over the period. Stakeholders made no comments on the calculation and allocation of Direct pay costs.

Current Pay: Direct (non-Volume)

A4.216 This represents costs of Openreach operational staff for time spent away from engineering activities. This includes time spent on training and planning.

A4.217 We explained in the March 2011 Consultation that these costs are allocated to activities using the Dynamic Operations Base methodology. This methodology is

dynamic over the period. TTG made a specific comment on costs relating to staff in the BTTC which is dealt with above.

Net Development / BTID

A4.218 These costs represent the costs spent on internal IT development, now known as BTID, as discussed above.

A4.219 Allocation to these activities is based on the 'Net Development Base' methodology. This basis categorises costs into four types of IT projects and then uses a specific methodology for each category. These specific methodologies take account of pay, capitalised pay, NGA and SMC cost drivers in the base year. The four categories and specific allocation methodologies are:

- Business as usual operational systems (Operations Total Pay allocation methodology),
- NEJ Piper (Operations Capitalised Pay allocation methodology),
- Equivalent Management Platform (SMC Pay Base allocation methodology); and
- NGA (directly allocated to NGA).

A4.220 The outputs of these four methodologies are then blended to produce percentages allocated to activities. TTG's general comment that Computing allocations contained errors is dealt with above.

Computing

A4.221 These costs relate to the running and support of computer hardware and laptops, along with PC support help desks. As explained above, this category of costs has been reclassified as Service Assurance

A4.222 This cost category is also allocated using the Net Development Base methodology (see Net Development above)

Depreciation: Dropwire

A4.223 This represents the depreciation charge related to Dropwire assets. It is fully allocated to the Use of Dropwire and NTE activity. The Dropwire adjustment is discussed in Section 6. Stakeholders made no comment on Dropwire.

Depreciation: Distribution-side Copper Cable

A4.224 This represents the depreciation charge solely related to Distribution-side Copper cable asset. It is fully allocated to the Use of Distribution Copper and Duct activity.

Depreciation: Exchange-side Copper Cable

A4.225 This represents the depreciation charge predominantly related to Exchange-side Copper cable asset. In all respects (other than the Line Length adjustment) it is treated the same as D side Copper cable.

Depreciation: Line Testing Equipment

A4.226 Stakeholders made comments in response to the March 2011 Consultation, in connection with the allocation of elements of Line Test Equipment, namely TAMs and evo TAMs and the cost allocation adjustments for pricing purposes. These responses are discussed in section 6.

COS Line Cards

A4.227 Line cards are the electronic equipment that telephone lines connect to in the local exchange. They represent an important input for WLR but are not required for the provision of MPF. We deal with our approach to line cards in Section 6.

A4.228 This cost is solely allocated to Rental of BTW Line Cards Activity. Stakeholders made no specific comments on the allocation of linecard costs.

Other Operating Income (OOI) and Repayment Works

A4.229 OOI is sundry income, for example, the net proceeds for the from the sale of copper cabling for scrap. Repayment works is income that BT receives for rechargeable work. For example when BT provides copper or fibre lines into new housing developments then BT may be able to recharge a proportion of the cost to the housing developer. This income represents a credit to labour costs.

A4.230 As noted in Section 4, Openreach received other operating income of £[✂]m in the form of income from the sale of scrap copper in 2010/11. Whilst investigating whether to make an adjustment to include this income we re-considered the basis on which OOI was allocated, considering the biggest recurring element of income was from scrap copper sales.

A4.231 The Base 1 allocation used in the March 2011 Consultation was to allocate it using the Dynamic Operations Base methodology, which allocated current sales of copper against Engineers time spend repair and building assets for Fibre and NGA products as well as Copper ones. Whilst this appears reasonable for Repayment works, it appears to be at odds with the principle of cost causality for OOI. A more appropriate methodology would be to allocate against copper costs so the users of Copper based products received the benefit of the sale of copper assets. We therefore changed the basis of allocation to Copper depreciation.

Sales and Product Management Costs

A4.232 This category includes the costs of acquiring and retaining customers together with product development. As the Sales and Customer Experience and Commercial Portfolio and policy teams are built around product portfolios, being MPF, WLR and PSTN. The Base 1 allocations are based on the FTEs in those product teams. Just over half the costs are directly allocated into the relevant products, for Core Rental Services the percentages are as follows:

Figure A 4.19: Base 1 cost allocation to CRS activities

	Base 1 Allocation %
A090 – S&P Management – WLR Basic and Premium rentals connections and transfers	2.48
A086 – MPF Rentals and Connections	2.96
A085 – SMPF rentals and connections	3.77

A4.233 The activity costs above are allocated to products by sales price. CRS pick up a further allocation of the 18% of S&P costs which are not allocated to product teams. These costs are allocated to all products on an unweighted basis.

A4.234 In its response to the March 2011 consultation TTG expected "*WLR to have higher costs since the product is more complex than MPF*". However, further investigation has indicated that MPF has more diverse requirements than WLR, in particular its greater use of ancillary services. As the allocation figures in Figure 4.18 include ancillary costs, the higher allocation to MPF and SMPF appear reasonable

Base 2 Allocations

A4.235 In this section we provide a breakdown of the unit cost stacks by activity, and an explanation of how these costs have been allocated to products

Breakdown of Cost Stacks by Activity

A4.236 Costs are allocated from activities to products by using product usage factors.

A4.237 A usage factor is the relative weighting of the amount of an activity used by a product. For example the usage factor for 'Rental of BTW Line Cards" is 1.0 for WLR and 0 for MPF. This reflects the fact that a line card is used for the provision of a WLR line but not for an MPF line.

A4.238 We show in Figure A4.20 below unit cost stacks by principal activities for the rental of WLR, MPF and SMPF in 2009/10 and 2013/14.

Figure A4.20: Unit cost stacks by principal activities (2009/10 and 2013/14)

	WLR	MPF	SMPF	WLR	MPF	SMPF
		2009/10			2013/14	
	£	£	£	£	£	£
Rental of BTW Line Cards (PSTN)	10.10			10.86		
Use of Exchange-side Copper and Duct	2.99	2.96		3.33	3.29	
Repair of Exchange-side Copper	2.91	3.19	0.46	2.27	2.50	0.36
Use of Distribution Copper and Duct	22.37	22.15		20.03	19.83	
Repair of Distribution-side Copper	7.60	8.35	1.20	5.95	6.54	0.94
Repair of Dropwire & NTE	3.92	4.02	0.08	2.89	2.96	0.06
Use of Dropwire and NTE (PSTN)	12.27	12.27		13.48	13.48	
Test Access Management System		6.14			2.94	
Use of Main Distribution Frame	2.90	5.81	2.90	1.59	3.18	1.59
Repairs on Main Distribution Frame	1.65	3.72	1.24	1.26	2.84	0.95
Others	3.57	4.92	3.14	4.60	2.42	3.96
Total Opex	70.27	73.54	9.03	66.25	59.98	7.86
ROCE@10.1 / 8.8 % (£)	30.07	27.14	0.32	26.40	26.87	0.56
Total Cost	100.34	100.68	9.35	92.65	86.85	8.42

A4.239 We explain the most significant activities below and show the usage factors used to allocate activities to products. We also show how the usage factor is calculated.

A4.240 Part of our review has also included considering whether the allocation methodology is consistent with the allocation basis used in the RFS as set out in BT's DAM.

Basis of allocation of Activity costs to products

Rental of BTW Line Cards (WLR)

A4.241 BT currently uses TDM technology. This means PSTN/WLR line cards can only recognise voice traffic. The costs are therefore directly attributable to WLR services and only WLR picks up any costs relating to line cards.

A4.242 Figure A4.22 below shows the usage factors applied for allocation to products. It shows that line card costs are only allocated to WLR.

Figure A4.22: Usage factors applied for allocation to products

	Usage Factor
WLR	1.00
MPF	-
SMPF	-

Use of Distribution-side Copper and Duct

A4.243 Distribution-side copper and duct covers the cost of the copper line between the cabinet and the distribution point. The costs of this activity include the depreciation for D-Side copper cable and duct assets together with any overheads directly associated with these assets (primarily Cumulo rates). The overheads associated with these labour and stores costs include cost of using vans, HR costs and downtime (training, end of day travel, annual leave etc).

A4.244 In our Cost Allocation model, volumes are first converted into the number of copper pairs used by the product and then weighted by an average cost per pair for that circuit type. The number of pairs used is calculated for each product by examining the number of ends. The use of DACs allow 'pair gain' on some WLR analogue lines. 'Pair gain' is where a WLR voice only line between the Dropwire and the exchange can be shared by two end users. This reduces the average amount of copper and duct per WLR customer compared to an MPF customer and slightly lowers the usage factor.

A4.245 Figure A4.21 below shows the base data that has been used to generate these usage factors.

Figure A4.21: Updated base data to generate usage factors.

	No. of ends per circuit	Relative cost of lines	No. of pairs per circuit	% on copper	Adjustment for Line Length	Channels per circuit	Usage Factor
WLR	1.0	720.42	0.994	100%	1.00	1.0	715.78
MPF	1.0	720.42	1.00	100%	0.984	1.0	708.90
SMPF	-	-	-	-		-	-

A4.246 Further detail behind the calculations in the figure above is provided below:

- No of ends per circuit: This represents the number of copper pair ends. For all products except SMPF there is one end.
- Relative Costs of Line: This represents the average cost per line. It is calculated by dividing the total average cost per circuit by total volumes. Volume data has been sourced by BT's Openreach business intelligent system. Average cost data has been extracted from Piper.
- Number of pairs per circuit: The numbers of pairs per circuits vary between the relevant products. The WLR pair usage contains the use of pair gain equipment (DACS) where more than one circuit is carried over a copper pair. Although the use of DACS is diminishing (<1%) it is a factor that is considered when reviewing the overall pair usage of WLR (0.99).
- Percentage of circuits on copper: All Circuits are delivered 100% over copper pairs.

- Adjustment for Line Length: Our conclusion on the Line Length adjustment is incorporated into the usage factor.

- Channels per circuit: WLR and MPF have a factor of 1 because they use the whole circuit on a 1:1 basis.

A4.247 Following the March 2011 Consultation we have incorporated an adjustment to the usage factor to account for Line Length differentials, for the reasons set out below.

Line length

March 2011 Consultation proposals

A4.248 In the March 2011 Consultation, at paragraph A8.134 – A8.137, we explained that when the price of MPF was set in November 2005 we excluded 16% of the D-side copper costs to reflect the fact that, at that time, the length of lines used to support broadband were shorter than the average length of all lines used to provide fixed telephony services (the average line length). We went on to explain that this line length adjustment was reduced to 6% when we set the MPF price in 2009. Finally, for the purpose of this charge control, we set out our provisional view that there is no longer any meaningful difference between the average MPF line length and the average line length and on this basis we proposed to no longer have a line length adjustment.

March 2011 Consultation reponses

A4.249 Sky and TTG both question the validity of removing the line length adjustment at this time and point to data and information that they believe demonstrates that there remains a meaningful difference between the average MPF line length and the average line length.

A4.250 Both Sky and TTG make reference to specific information sources individually and TTG goes on to make its own estimate that MPF lines are 43% shorter than WLR lines. However, the central source of information for both Sky and TTG is the Analysys Mason report on Line length and line costs which was commissioned by Sky and TTG. This report concluded that there is a 33% to 35% length difference between the typical MPF and WLR rental products.

A4.251 BT (Openreach) has provided a report which comments on the Analysys Mason report. In this report BT claims that the average physical line length is significantly below [✂] the c.3.4km as assumed by Analysys Mason. BT therefore argues that Analysys Mason's central assumption is significantly in error and if corrected then the difference between the average MPF line length and the average line length is likely to lie in the range 0.4% to 1.6% depending on the precise assumptions used.

Conclusion

A4.252 Analysys Mason uses two information sources to conclude that the average line length (for all lines) in BT's network is between 3.34km and 3.47km.[258] This gives an average line length of about 3.4km.

[258] 'Assessment of the theoretical limits of copper in the last mile', final report by Sagentia for Ofcom published 16 July 2008 and 'Higher bit-rate broadband over DSL using frequencies above 1MHz' presentation by John Cook (BT) on 4 November 2004.

A4.253 Based on Ofcom's March 2011 report on broadband speeds, Analysys Mason also concludes that the average line length for lines that are used to provide broadband is 2.23km.

A4.254 Based on the assumption that MPF lines are always used to support broadband whereas WLR uses all lines, Analysys Mason concludes from these two data points that there is a significant difference in the average line length between a typical MPF line and a typical WLR line.

A4.255 However, in its analysis, Analysys Mason has confused two different characterisations of line 'length', namely physical line length and 'equivalent electrical line length'.

A4.256 Physical line length is very simple. It is the measured length of the line from the serving exchange to the consumer premise.

A4.257 'Equivalent electrical line length' is a more complex, as it is not really a measure of length at all, but rather it is a measure of electrical loss. Electrical loss is actually more important than physical length in determining the performance (speed) of DSL. A higher electrical loss results in a lower DSL performance.

A4.258 Whilst there is a correlation between electrical loss and physical length the two do not necessarily track each other in tandem. This is because in BT's access network there is a mixture of lines constructed from different materials (i.e. copper and aluminium), with different gauge wires being used in different parts of the network. This means that two lines that have the same physical length could have very different electrical properties. For example, a line that is constructed using thinner gauge wire will have a higher electrical loss than a line of the same physical length but which is constructed using thicker gauge wire.

A4.259 However as mentioned above electrical loss is more important than physical length in determining the performance of DSL, thus when modelling the performance of the network it is appropriate to focus on electrical loss not the physical length. Having determined the electrical loss of each line in the network it is common to present this in the form of 'equivalent line length assuming the line is constructed from copper wire with a diameter of 0.5mm'. It should be noted that this is a presentation of electrical loss it does not necessarily have any direct relationship with real world physical line length.

A4.260 The two information sources used by Analysys Mason when determining the average line length (for all lines), of about 3.4km, both quote equivalent line length not physical line length. For example, at paragraph 2.2.1 of the Sagentia report it states: *"…the attenuation values [electrical loss] have been converted into equivalent length. …*". Equally the histograms on slides 3 and 4 of the John Cook presentation, showing the length distributions clearly have the units '*equivalent 0.5mm length (km)*'.

A4.261 Analysys Mason's assessment of the average line length is therefore incorrect, as the information it has used does not have any direct relationship with real world physical line length.

A4.262 In addition, Analysys Mason's assessment of the average line length for lines that are used to provide broadband is also likely to be subject to a wide margin of uncertainty. This is because Analysys Mason has determined this average line length by using actual broadband speed information. However, there are many

factors, in addition to line length (e.g., factors that influence that equivalent electrical line length such as those discussed above), that ultimately determine the actual achieved speed. BT in its report which comments on the Analysys Mason report explains this at paragraphs 21 to 22 and BT's explanation, in this regard, is in line with our understanding of the situation.

A4.263 Analysys Mason has therefore used an incorrect measure for the average line length (for all lines) and has made a questionable assessment of the average line length for lines that are used to provide broadband. It has then made a direct comparison of these two things, but they cannot be directly compared as they each have a different unit of measurement.[259]

Assessing any structural differences in physical line length between MPF and WLR

A4.264 There are two potential things that could lead to a structural difference in the average physical line length between MPF lines and WLR lines. These are geography and the ability to support broadband.

A4.265 Geography: MPF lines are predominantly used by LLU operators and such operators have not rolled out their networks in all parts of the UK – total LLU coverage currently stands at about 90%. It is therefore possible that the average line length in areas covered by LLU operators is different to the UK average line length.

A4.266 Ability to support broadband: MPF lines are almost always used to support a broadband service. However, some lines in BT's network are too long to support broadband, but are able to support a basic telephone service (WLR). It must therefore be the case that the average length of an MPF line will be shorter than the overall average line length.

A4.267 In order to assess/quantify these potential structural differences we have requested additional information from BT.

Geography

A4.268 We asked BT to provide us with its assessment of the average (arithmetic mean) physical line length for all of its lines (in the UK).

A4.269 We also asked BT to provide us with its assessment of the average (arithmetic mean) physical line length for all of its lines in areas covered by LLU operators.

A4.270 By comparing these two values we are able to conclude that the average physical line length in areas covered by LLU operators is [0.62%] shorter than the UK average physical line length.[260]

[259] We would also note that Analysys Mason's assessment that the average line length (for all lines) is about 3.4km and that the average line length for lines that are used to provide broadband is 2.23km cannot be consistent. This is because about 99% of lines are able to support a broadband service and if this group of lines had an average length of 2.23km, then the 1% of lines that are not able to support broadband would need to have an average length of nearly 120km in order to achieve an overall average line length (for all lines) of 3.4km.

[260] The line length data provided to us by BT differs very slightly to the data presented by BT in its report which comments on the Analysys Mason report. On questioning this BT has explained that the data provided to us is more up-to-date, as it reflects more recent LLU rollout information, and it has been cleansed to remove records with zero line length.

Ability to support broadband

A4.271 Within the areas covered by LLU operators we then asked BT to provide us with its assessment of the average (arithmetic mean) physical line length for all lines that, in BT's view, can support a broadband speed of:

i. 128kbit/s or more (assumed to be lines shorted than c.7.0km);
ii. 256kbit/s or more (assumed to be lines shorted than c.6.0km); and
iii. 512kbit/s or more (assumed to be lines shorted than c.5.0km).

A4.272 Based on this information we are able to conclude that the average physical line length in areas covered by LLU operators and able to support a basic broadband service is 1.26%, 2.01% and 4.03% shorter than the UK average physical line length for broadband speeds of 128kbps, 256kbps and 512kbps respectively.

A4.273 The minimum broadband speed that an LLU operator is prepared to provide is therefore critical to the assessment of any structural difference in length between the average LLU (MPF) line and the UK average line. This therefore raises the question about what minimum broadband speed an LLU operator is prepared to provide.

A4.274 As part of our work on infrastructure reporting we collected data on the synchronisation speed (maximum line speed) for all ADSL modems in the UK.[261] The raw data upon which this report is based shows that all operators, LLU operators and BT, are providing broadband services with speeds of less than 100kbps.

A4.275 Given this we believe that when determining the average length of lines that are able to support a basic broadband service it is reasonable to use the threshold of 128kbps. On this basis we conclude that the average physical line length in areas covered by LLU operators and able to support a basic broadband service (of 128kbit/s) is 1.26% shorter than the UK average physical line length.

MPF v non-MPF line lengths

A4.276 As noted above MPF lines are almost always used to support a broadband service and therefore MPF lines must typically be 1.26% shorter than the average line length. Given that MPF lines are typically 1.26% shorter than the average line length it stands to reason that non-MPF lines must typically be longer than the average line length. Given the relative volumes of MPF lines to non-MPF lines we are able to calculate the difference in line length between the average non-MPF line and the average MPF line and this is 1.6%.

Line length adjustment

A4.277 As explained in the March 2011 consultation document, and as summarised above, in 2005 we included a line length adjustment of 16% (for D-side copper). In 2009 this adjustment factor was reduced to 6% to reflect market developments. In the March 2011 consultation document we proposed to remove this adjustment factor altogether based on our assessment that the downward trend in the adjustment would mean that there would be no meaningful difference by the end of the charge control period.

[261] http://stakeholders.ofcom.org.uk/binaries/research/broadband-research/Fixed_Broadband_June_2011.pdf

A4.278 However, BT in response to its own assessment of the value of measuring the differential did not undertake its own analysis in 2011. We have therefore had to make our own assessment of the structural differences that are likely to exist in the average physical line length of non-MPF and MPF lines and found this difference to be 1.6%. [262] This difference is significantly smaller than the adjustment factor used in 2009 and therefore could potentially be considered to be no longer meaningful. However, in light of our assessment and given the responses to the consultation we now believe that a line length adjustment of 1.6% should be applied to both the D-side and E-side copper costs.

A4.279 We do however note that in setting these charges we making a number of relatively small adjustments, and in many cases the precise value of these adjustments is driven by factors such as CP's strategic choices and relative demands between different wholesale products. We will therefore carry out an overarching assessment of our approach in future price setting projects.

Repair of Distribution-side Copper and Duct

A4.280 This category represents the cost of repairs to the copper line between the cabinet and the DP. The costs of this activity include the engineering pay costs and the associated overheads.

A4.281 In our model, repair costs are driven and allocated by the frequency of actual faults and labour operations time spent repairing those faults. In the 2009 review costs were generated and allocated on the basis of expected faults which roughly equated to an MPF line generating the same number of faults as a WLR plus SMPF line.

A4.282 As set out in the March 2011 Consultation, actual fault information was provided by Openreach for monthly faults for the period May 2009 to January 2011, which we used to determine the usage factors at that time.

Responses to March 2011 Consultation

A4.283 Openreach stated that that if the product allocation ratios took account of actual fault rate incidence then the allocation rates should also take into account the different levels of service care for products.[263]

A4.284 Openreach suggested that the cost differential between MPF/WLR Premium and WLR Basic for repair service delivery is 20%, based on the SLA that guarantees an engineer attends a MPF/WLR Premium fault a day earlier than WLR Basic fault. We agree that differential service levels should be accounted for within the product allocation ratio. The 20% differential appeared to be based on contractual requirements in the form of SLA's. In practice, the actual cost differential might not be 20% as Openreach may have been over delivering on WLR Basic SLAs. We therefore requested more data.

A4.285 In response Openreach provided us with the results of Discrete Event Simulation undertaken at the Leeds exchange which supported the 20% differential. Whilst the analysis was useful, we were unable to fully test its robustness or assess its applicability as a national benchmark.

[262] This difference applies to the whole line and therefore would apply to both the D-side and E-side copper.
[263] Openreach response paragraphs 498-503.

A4.286 Openreach provided data that showed 'Early Life Failure' (ELF) for MPF lines is 45% higher than for WLR (based on data between January and September 2011). They argued that as it was based on the average per new line, the explanation provided by TTG could not be correct. Openreach's explanation was that the difference was driven by Broadband users lower propensity to accept fault on the line which led to higher report reporting and hence repairs.

A4.287 TTG commented that fault repair costs for MPF were excessive when compared to WLR as the MPF base year fault rate (in 2009/10) is distorted by the higher proportion of 'young' (newly installed) lines used by MPF, which have a higher propensity to fault than older lines[264].

A4.288 TTG provided no data to support their assertion that the proportion of 'Young' lines is greater for MPF than WLR lines. TTG provided only anecdotal evidence that 'Young' lines fault more than old ones. However logic suggests that as there were proportionally more MPF than WLR connections in 2009/10 (see Annex 2), the MPF proportion of young lines would be higher. It is also reasonable to assume newly installed lines are more likely to fault than older established ones as anecdotally, fault rates rise with increased provisioning activity[265].

Ofcom review

A4.289 The central issue is whether, and how, we should adjust allocation of repair resource between charge controlled products that are on Care Level 1 (WLR Basic) compared to those on Care Level 2 (MPF, SMPF) to reflect the difference in care level provided as part of the standard product.

A4.290 We have reviewed the data provided to us by Openreach. We have also reviewed data provided to us by the OTA on Openreach's actual repair performance for WLR and LLU.

A4.291 Openreach argues that its modelling shows that, if all faults are fixed at Care Level 2, 20% more resources would be needed than if they were fixed at Care Level 1 to maintain on-time repair at 98.3%. Alternatively, if resources are not increased, on-time repair would fall to 88.8%. From this, Openreach concludes that an additional usage factor of 1.2 should be applied to repair resource levels for products on Care Level 2.

A4.292 We accept that, in principle, providing services to a higher care level may require more resources. We would also expect that, for a given level of care, resources required would increase as the percentage of faults fixed on time increases. Openreach's model demonstrates this effect with an upward resource curve. As the on-time repair rate increases from 88.8% to 98.3%, the required resources increase more rapidly.

A4.293 We are cautious about accepting that the results of Openreach's modelling can be taken as representative of the current delivery of repair services, for two reasons:

- The modelling exercise demonstrates the effect of moving all services from Care Level 1 to Care Level 2. We are considering with the case where there is a mix of services delivered at the two care levels.

[264] TTG response paragraphs 163-177.
[265] S135 response of 12th October 2011

- The modelling exercise demonstrates the additional resource needed to support an increase in on-time repair at Care Level 2 from 88.8% to 98.3%. Actual data shows that these levels are not achieved in practice. It shows that on-time fault resolution has been between 80% and 90% for each of WLR, MPF and SMPF in the past year, with the data for September 2011 showing all three to be at approximately 80%. Because the impact on resource of increasing on-time repair is not linear, it is not clear that the data provided about the effect of achieving a very high success rate of 98.3% can necessarily be assumed to be representative of the current allocation of resources, which achieves a lower on-time repair rate.

A4.294 We think that the modelling data presents an extreme case of the impact on resources because of these two points and therefore it would not be appropriate to make the adjustment suggested by Openreach.

A4.295 We also asked Openreach whether it could provide evidence outside of the model that would demonstrate the differences in resource allocation to WLR and MPF or validate the model estimates[266].

A4.296 Openreach responded that it was not able to provide data on resource allocation to product type that it would help to validate in any way the results of the Workforce Dynamic Simulator ("WDS") model. It noted that it does not allocate resource in that manner. Rather it has a common resource pool to meet demand for jobs across different products and/or care levels.

A4.297 We consider, therefore, that we are not in a position given the evidence base available to determine the validity of Openreach's proposed allocation basis or to suggest how this might be modified.

A4.298 Nonetheless, we do think there is merit in the argument that providing services to a higher care level may require more resources. In this regard, in the last WLR charge control, we set a differential between the Basic and Premium services to account for this.

A4.299 We have therefore concluded that, in order to finalise this charge control, we should use the same differential as set in the last control between WLR Basic and WLR Premium and that we will consider whether we should undertake further work in this area in the future to gain a more detailed understanding of resource demands of the different care levels.

A4.300 In the 2009 WLR Statement we set the Residential and Business service differentials for the 2009 WLR Charge Control at 5.7% The adjustment was based on an incremental savings assessment i.e. the savings in costs attributed to WLR basic if we removed WLR premium specific costs from the WLR basic cost stack. This is set out in paragraphs 7.76-7.83 of the 2009 WLR Statement.

A4.301 Openreach has explained that the two main cost elements are jeopardy management costs and faster contractual repair costs.

- Jeopardy Management is the labour activity carried out to improve provision and repair performance. BT Jeopardy management is focussed on more complex jobs, where an engineering visit is required.

[266] 13th S135 Request to Openreach.

WLR Premium new provides usually require an engineering visit and WLR Premium repairs are 'more likely' to require a visit. Openreach in 2009 consider a 70:30 split of Jeopardy Management activity between WLR Premium and WLR Basic appropriate[267].

- Faster contractual repair is the cost of serving WLR Business customers in priority to WLR Residential customers even where it causes inefficiency – e.g. an Engineer's route would be scheduled to attend WLR Business customer in priority to Residential customers even where it might impose additional travelling distances. Openreach in 2009 provided evidence which shows removing the need to carry out faster contractual repairs would reduce the current aggregate repair cost on residential lines by 3.2%. [268]

A4.302 We consider that these costs elements remain valid but agree that the analysis provided in this review by Openreach suggests they are at best a lower bound estimate of the costs. We would encourage Openreach to consider for future reviews how they might provide evidence to validate the results of their operational model.

A4.303 With respect to TTG's arguments, both TTG and Openreach's responses support the fact that there are higher levels of observed MPF faults vs. WLR. TTG's argument as to why costs should move from MPF to WLR would be valid if the situation in 2009/10 was not representative of future trends, either because of the mix of new lines or end users differing propensities to report faults.

A4.304 As set out in the volume annex, MPF connections are forecast to rise compared to WLR connections over the forecast period, it is unlikely the proportion of 'Young' MPF lines would fall significantly vs. WLR during the Charge Control. We conclude that the base year MPF fault rate is not distorted and make no adjustment for 'Young Lines'

Conclusion

A4.305 From the information provided by Openreach and our own assumptions we calculated the following usage factors:

Figure A4.23: Usage factors calculations

	Actual fault rate	Service Level Usage	% on copper	Channels per circuit	Usage Factor
WLR Basic	1.00	1.000	100%	1.0	**1.00**
WLR Premium	1.00	1.057	100%	1.0	**1.06**
MPF	1.04	1.057	100%	1.0	**1.10**
SMPF	0.15	1.057	100%	1.0	**0.16**

[267] 2009 WLR Consultation paragraph A5.10
[268] 2009 WLR Consultation paragraph A5.12

A4.306 Further detail behind the calculations in the figure is provided below:

i) Relative Fault Rate: For the 2009 LLU Charge Control the usage factor for WLR was 1.0, MPF was 1.30, and SMPF was 0.3. This was based on the number of expected faults in the network.

Prior to the March 2011 Consultation we have asked BT to provide data on the level of actual faults across the network. Information on fault rates by product was supplied by Openreach to Ofcom for the period October 2009 to January 2011. This data supports a usage factor of 1.0 for WLR, 1.04 for MPF, and 0.15 for SMPF. We have concluded that actual faults are a more appropriate basis to base the usage factors on and we have used these in deriving our final costs.

ii) Service level usage. As described above WLR Premium, MPF and SMPF include a 5.7% uplift on the usage factor to account for higher levels of service on fault repair.

iii) Percentage of circuits on copper: All circuits are delivered 100% over copper pairs .

iv) Channels per circuit: WLR and MPF have a factor of 1 because they use the whole circuit on a 1:1 basis.

Use of Exchange Side copper and duct

A4.307 This represents the cost of using a copper line between the BT exchange and the cabinet. This part of the network is also known as E-side. The costs of this activity include the depreciation of assets for exchange side copper cable (and associated duct) together with any overheads.

A4.308 Figure A4.24 below shows the usage factors applied for allocation to products. They are built up in the same way as the D side Copper and Duct usage factors with the notable exception that we have not made an adjustment for Line length. This is because the Line Length differential does not apply to E side copper.

Figure A4.24: Usage factors applied for allocation to products

	Usage Factor
WLR	715.78
MPF	708.90
SMPF	-

Repair of Exchange side copper and duct

A4.309 This represents the cost of repairs to the copper line between the cabinet and the exchange. The costs of this activity include engineering pay costs and stores costs that are incurred in repairing the exchange side.

A4.310 The methodology applied is identical to that of Repair of D-side as shown in summary below:

Figure A4.25: Usage factor calculations

	Usage Factor
WLR basic	1.00
WLR Premium	1.06
MPF	1.10
SMPF	0.16

Use of Dropwire and (PSTN) Network Terminating Equipment (NTE)

A4.311 The use of DP and NTE covers the cost of the copper pair from the distribution point to and including the PSTN NTE located at the end user premise. The costs of this activity include the depreciation of the asset with any overheads.

A4.312 Aggregate costs are adjusted by a Dropwire Adjustment which we discuss in section 4. Costs are allocated by volume, with no weighting applied. Figure A4.26 below shows the usage factors applied for products.

Figure A4.26: Usage factor calculations

	Usage Factor
WLR	**1.00**
MPF	**1.00**
SMPF	**-**

A4.313 WLR and MPF use a single NTE and Dropwire for dedicated connectivity, and the usage factors are therefore 1. As set out in the March 2011 Consultation we previously allocated 15% more of the Dropwire Adjustment to MPF but proposed to equalise the treatment for reasons explained in Section 4. We received no responses on this point and so have the kept the same usage factor for WLR and MPF

Test Access Management System (TAMS)

A4.314 Test Access Management Systems are used to provide remote access facilities on unbundled broadband circuits for line testing towards the customer and into the network. They are installed between the Main Distribution Frame (MDF) and the Digital Subscriber Line Access Multiplexer (DSLAM). Costs are comprised mainly of equipment depreciation.

A4.315 Costs are allocated by volume, with no weighting applied. Figure A4.27 below shows the usage factors applied allocation to products.

Figure A4.27: Usage factor calculations

	Usage Factor
WLR	-
MPF	**1.00**
SMPF	-

A4.316 TAMS can only be used on fully unbundled lines. As explained at in section 6, whilst our cost treatment reflects this usage, for pricing purposes we will continue to recover TAMs from all DSL lines.

EvoTAMS

A4.317 EvoTAMS are used to test lines DSL lines which have not been unbundled at 21CN enabled exchanged. They are primarily used to test broadband frequencies on SMPF lines, but can be used to test as voice frequencies on WLR DSL lines. Costs are comprised mainly of equipment depreciation.

A4.318 In the allocation basis set out in the March 2011 Consultation, these costs were charged solely to SMPF. We asked the question in the March 2011 Consultation as to whether this basis remained appropriate.

A4.319 Following the responses to the March 2011 Consultation and on considering the evidence that evoTAMs are used to test voice frequencies on WLR lines, we consider it appropriate that WLR lines pick up a share of the cost. There is however a proportion of voice only WLR lines that are not capable of being tested by evoTAMs. The volume data in Annex 2 suggests that around 40% of WLR lines are voice only. We therefore have estimated a WLR usage factor of 0.60 to be applied to all WLR lines. These usage factors are summarised below. Figure 4.24: Usage factor calculations

Figure A4.28 Usage factor calculations

	Usage Factor in March 2011 Consultation	Final Usage Factor
WLR (Basic and Premium)	-	0.6
SMPF	1.0	1.0

Use of Main Distribution Frame (MDF)

A4.320 MDFs are those distribution frames providing direct interface with external circuit terminations (customer or other exchanges). This activity covers the cost of provision, extension, upgrade, replacement, re-arrangement and recovery of MDFs. The main types of cost are depreciation and, overheads associated with the

capitalised pay and with space occupied by the frames (e.g. accommodation and power and lighting).

A4.321 Costs are allocated based on volumes weighted by the number of jumpers on the frame required to support each circuit.

A4.322 For the purpose of this allocation, we have assumed that MPF uses two jumpers, while SMPF and WLR use one. This is consistent with the current method of providing these services, as illustrated in the following diagrams.

Figure A4.29: Wiring arrangement for WLR

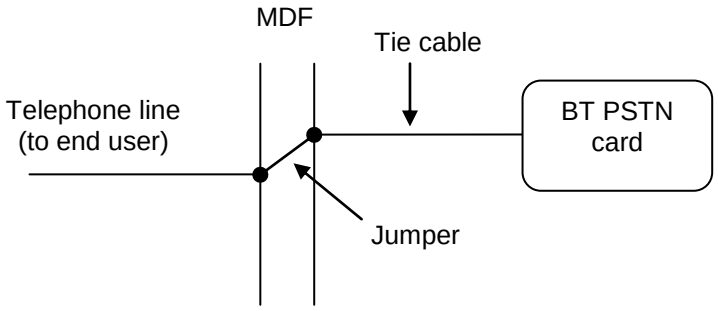


Figure A4.30: Wiring arrangement for WLR+SMPF

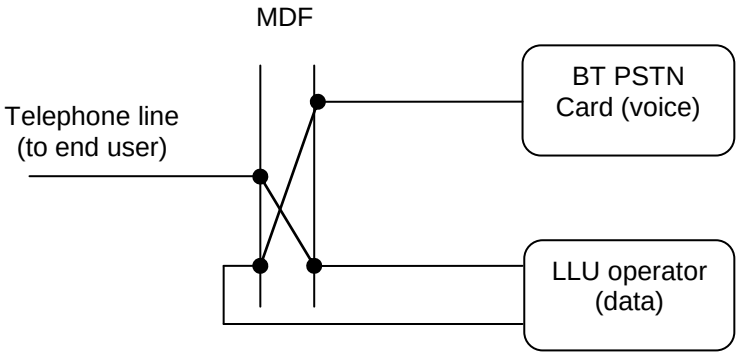
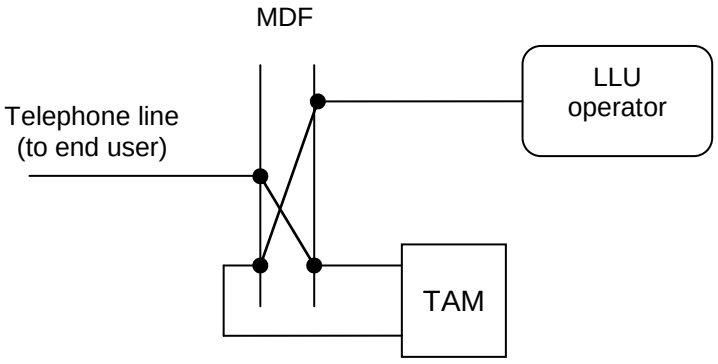


Figure A4.31: Current wiring arrangement for MPF



A4.323 Figure A4.32 below shows the usage factors applied for allocation to products. These differ from those used in 2009, when a usage factor of 1 was used for MPF. This now appears inconsistent with the wiring arrangements, as described above.

Figure A4.32: Usage factor calculations

	Usage Factor
WLR	1.00
MPF	2.00
SMPF	1.00

A4.324 As explained in Section 3, TTG argued that we should estimate costs as if single jumpering arrangement was in place. For the reasons given in Section 3 we do not consider that this approach would be appropriate and therefore consider that the usage factors proposed in the March 2011 Consultation remain appropriate.

Repairs on Main Distribution Frame

A4.325 The main type of cost is the engineering pay costs and associated overheads with this activity. Volumes weighted by the number of jumpers on the frame required to support each circuit. The usage factors are based on actual exchange faults provided by BT for the period October 2009 to January 2011. The figure below shows the usage factors applied for allocation to products.

Figure A4.33: usage factor calculations

	Usage Factor
WLR basic	1.00
WLR Premium	1.06
MPF	2.25
SMPF	0.75

A4.326 In response to the March 2011 Consultation, TTG asked a question on maintenance migration. In particular it asked where BT includes the cost of migration from old PSTN switches to new PSTN switches or MSANS. Following discussions with BT we understand that the costs of these maintenance migrations are small, and that these are included in the rental charge.

SMC LLU Assurance Costs

A4.327 Service Centre Management Costs represent the costs of running the front line operations that handle provisioning and assurance orders from CP's. The LLU assurance activity includes the cost of handling and processing reported faults from CPs. The methodology used in the March 2011 Consultation is set out below. Global Crossing in their Consultation response commented that "the technical and back office element associated with shared facilities is likely to be different than for the MPF variant and these cost elements may vary over time". TTG in discussion commented that the usage factors for SMC assurance were inconsistent with those for fault provisioning; the allocation of engineering costs for fixing faults were contradicted the allocation of back office costs of organising the engineering repairs.

A4.328 In light of these responses, we have reviewed the allocation of LLU assurance centre costs. Under our previous allocation basis, each SMPF line attached a larger proportion of the assurance centre costs than the MPF lines. As some respondents observed, this appeared inconsistent with the ratio of faults that underpinned the usage factors for engineering repairs; based on observed faults, it might be expected that more faults would be expected to be reported per MPF line (with a usage factor of 1) than for SMPF (usage factor of 0.15).

A4.329 We therefore obtained further data from BT. This data indicated for every reported fault relating to SMPF there were 5.6 faults reported for MPF. Given that this data appeared to be broadly consistent with the ratio of observed faults we have reallocated LLU assurance costs using usage factors of 5.6 for MPF and 1.0 for SMPF.

Figure A4.34: usage factor calculations

	Usage Factor in March 2011 Consultation	Final Usage Factor
MPF	3.38	5.6
SMPF	6.53	1.0

Annex 5

Review of Unit Costs

Introduction

A5.1 As explained in more detail in section 6, in our cost modelling, costs are forecast within various categories (such as pay costs, accommodation costs and various categories of depreciation). They are then allocated to "activities", representing the building blocks required to deliver the various services. These "activities" are similar to the "Cost Components" used in BT's Regulatory Financial Statements. Activity costs therefore include both operating costs and depreciation. The costs of these activities are then allocated to the individual services.

A5.2 This Annex summarises the unit cost estimates for the Rental Services, broken down by activity type.

Core Rental Services activity costs

A5.3 Based on the approach and assumptions set out in this draft Statement, our final estimates of the cost stacks, including depreciation and ROCE, for the core rental services are as follows:

A5.4 The unit cost estimates for MPF can be broken down by activity, as follows:

MPF Cost stack by Activity	2009/10	2010/11	2011/12	2012/13	2013/14
	£	£	£	£	£
Use of E-side Copper	2.96	2.28	2.48	3.08	3.29
Repair of E-side Copper	3.19	2.66	2.60	2.52	2.50
Use of D-Side Copper	22.15	12.62	14.77	18.48	19.83
Repair of D-Side	8.35	6.97	6.81	6.59	6.54
Repair of Dropwire & NTE	4.02	3.03	3.00	2.94	2.96
Use of Dropwire	12.27	11.50	12.72	13.07	13.48
Use of TAMS	6.14	4.41	3.94	3.37	2.94
Use of MDF	5.81	4.37	4.29	3.47	3.18
Repairs on MDF	3.72	3.18	3.00	2.87	2.84
Service Centres - LLU	3.77	2.20	1.72	1.54	1.44
Computing - LLU	0.64	0.62	0.65	0.67	0.65
Sales & product Mgt	0.50	0.39	0.35	0.34	0.33
Operating Cost (£)	**73.54**	**54.24**	**56.31**	**58.93**	**59.98**
ROCE@8.8 % (£)	**32.69**	**27.14**	**27.47**	**27.42**	**26.87**
Total cost	**106.23**	**81.37**	**83.78**	**86.35**	**86.85**

A5.5 The unit cost estimates for WLR can be broken down by activity, as follows:

PSTN Basic cost stack by Activity	2009/10	2010/11	2011/12	2012/13	2013/14
	£	£	£	£	£
Line Cards	10.10	10.16	10.65	10.88	10.86
Use of E-side Copper	2.99	2.30	2.51	3.11	3.33
Repair of E-side Copper	2.91	2.42	2.37	2.29	2.27
Use of D-side Copper	22.37	12.75	14.92	18.65	20.03
Repair of D-side Copper	7.60	6.34	6.19	5.99	5.95
Repair of Dropwire & NTE	3.92	2.96	2.92	2.87	2.89
Use of DACS	0.00	0.00	0.00	0.00	0.00
Use of Dropwire and NTE	12.27	11.50	12.72	13.07	13.48
Use of MDF	2.90	2.19	2.15	1.73	1.59
Repairs on MDF	1.65	1.41	1.33	1.28	1.26
Line Test Equipment	0.24	0.31	0.36	0.34	0.35
Service Centres - WLR	1.17	0.94	0.95	0.98	1.02
Directory Entries	1.80	1.93	2.06	2.16	2.23
Sales and Product Mgt	0.27	0.27	0.27	0.27	0.27
Use of Evo TAMs	0.08	0.23	0.43	0.64	0.74
Operating Cost (£)	**70.27**	**55.70**	**59.81**	**64.26**	**66.25**
ROCE@8.6 % (£)	**30.07**	**25.70**	**26.41**	**26.70**	**26.40**
Total cost	**100.34**	**81.40**	**86.22**	**90.95**	**92.65**

A5.6 The unit cost estimates for SMPF can be broken down by activity, as follows:

SMPF cost stack by Activity	2009/10	2010/11	2011/12	2012/13	2013/14
	£	£	£	£	£
Repair of E-side Copper	0.46	0.38	0.38	0.36	0.36
Repair of D-side Copper	1.20	1.00	0.98	0.95	0.94
Repair of Dropwire & NTE	0.08	0.06	0.06	0.06	0.06
Use of MDF	2.90	2.19	2.15	1.73	1.59
Repairs on MDF	1.24	1.06	1.00	0.96	0.95
Line Test Equipment	0.24	0.31	0.36	0.34	0.35
DSL Maintenance	1.15	1.12	1.22	1.18	1.19
Service Centres - LLU	0.67	0.39	0.31	0.28	0.26
Computing – LLU	0.64	0.62	0.65	0.67	0.65
Sales and Product Mgt	0.29	0.28	0.28	0.29	0.29
Use of Evo TAMs	0.14	0.38	0.71	1.06	1.23
Operating Cost (£)	**9.03**	**7.80**	**8.09**	**7.88**	**7.86**
ROCE@8.6 % (£)	**0.32**	**0.38**	**0.52**	**0.58**	**0.56**
Total cost	**9.35**	**8.18**	**8.61**	**8.46**	**8.42**

A5.7 As explained in section 6, we made a small number of adjustments to these cost estimates for the purposes of determining prices.

A5.8 We provide some further information on some of the key activities below.

Summary of key activities

Line cards

A5.9 Of the core rental services, only WLR requires a line card.

Use of Exchange-side Copper and Duct

A5.10 Exchange-side copper and duct relates to the cost of using a copper line between the exchange and the cabinet. It relates mainly to CCA depreciation of the underlying assets.

Repair of Exchange-side Copper and Duct

A5.11 Exchange-side copper and duct relates to the cost of repairing the copper line between the BT exchange and the cabinet. MPF picks up more cost that WLR but less cost that WLR plus SMPF due to differences in the frequency of Network faults actually repaired.

Use of Distribution-side Copper and Duct

A5.12 Distribution-side copper and duct covers the cost of using a copper line between the cabinet and the distribution point.

Repair of Distribution-side Copper

A5.13 Distribution -side copper and duct relates to the cost of repairing the copper line between the cabinet and the distribution point.

Repair of Dropwire & NTE

A5.14 The cost is for the repair of the Copper pair between the Distribution Point and the phone socket located within end users premises.

Use of Dropwire and NTE (PSTN)

A5.15 The cost relates principally to the depreciation of the Dropwire asset (the Copper pair between the Distribution Point and the phone socket located within end users premises).

Test Access Management System

A5.16 Test Access Management Systems (TAMs) are used to provide remote access test facilities on broadband circuits both towards the end user and into the network. They are installed between the Main Distribution Frame (MDF) and the Digital Subscriber Line Access Multiplexer (DSLAM). Costs are comprised principally of asset depreciation with associated overhead. TAMs can only be used on MPF lines.

Use of Main Distribution Frame

A5.17 This activity covers the cost of the Main Distribution Frames (MDFs). MDFs are the frames providing a direct interface with external circuits' terminations (customer or other exchanges). The main cost is asset depreciation and overheads relating to the space occupied by the frames.

Repairs on Main Distribution Frame

A5.18 The main type of repair cost is the engineering pay costs and associated overheads with this activity.

Line test equipment and evoTAMs

A5.19 Line test equipment costs are mainly the depreciation of equipment that supports line testing of PSTN lines and ISDN circuits. EvoTAMs are the new generation of line test equipment. Unlike legacy equipment they can be used to test broadband frequencies on a line.

Service Centres - Assurance for LLU and Assurance for WLR PSTN/ISDN

A5.20 The costs from the service centre teams are allocated to product groups based on analysis of KMH. The KMH allocated to LLU Assurance is for the ongoing service of LLU products, predominately faults handling. Provisioning costs are separately identified. A separately identified and recorded activity exists for PSTN/ISDN products

Computing LLU

A5.21 Computing costs for LLU are depreciation costs for IS assets, allocated between WLR and LLU on an estimated basis of how the assets were built up.

Directory entries

A5.22 The costs of providing a Phonebook entry for WLR end users consist entirely of the Openreach payment to BT Retail for phonebook cost recovery.

A5.23 Although BT delivers phonebooks to all households and businesses regardless of how the service is provided to the end user (including those who take no Openreach service), only WLR includes a contractual commitment for Openreach to provide a phonebook to each end user. Therefore, we have allocated the full cost of producing and delivering telephone directories to the WLR service.

DSL Maintenance

A5.24 This is for the cost of the maintenance of the wiring between the DP and the NTE, carried when Openreach carries out a “Broadband Health” investigating poor Broadband at the end user premises. 85% of the cost of this is separately charged as SFI to the CP requesting the investigation, the balance is considered to be DSL maintenance. This DSL maintenance amount is not based on an analysis of hours of Engineering visits but an estimate that is used in the RFS.

Annex 6

Review of Assets

A6.1 The key assumptions on assets are as follows;

Parameter	Assumption
Capital Expenditure	Volume driven Capex based on Ofcom Forecasts (BT actual Copper and Duct capex for 2010/11). Programme driven Capex provided by Openreach
Depreciation	Based on RFS
Holding Gains	Forecast RPI
RAV Adjustment	RAV model used
Duct Valuation	Approach to duct asset valuation as set out in Annex 1 input into RAV model
Copper Valuation	Actual holding gain based on RAV model

Projecting Capital Expenditure

A6.2 For the purposes of forecasting Openreach's costs we have projected Openreach's future capital expenditure in the Cost Forecast model as follows;

A6.3 We obtained from Openreach the following data;

- The amount of actual and forecast labour time spent on non-volume driven operational capital programmes (termed Complex KMH), for example on Fault Rate Reduction;
- As set out in section 6, Openreach provided Ofcom with the product volume to Operational activity usage factors and the 2009/10 capitalisation ratios for each Operational activity (including Complex KMH). We assumed these ratios to be fixed going forward to 2013/14.
- The mapping of Capitalised Operational activity (including Complex KMH) to Capex Programmes

A6.4 Applying this information to our KMH forecasts, built up from our volume assumption and Openreach forecast Complex KMH we forecast Operational Capex KMH, then converted these KMHs into costs using FTE assumptions and then allocated the costs to Capex programmes using the mapping provided by Openreach.

A6.5 The next stage was to convert labour Capex into Capex programme costs. To do this we compared the labour element of the 2009/10 and 2010/11 Capex programmes with the total Capex programme costs provided by Openreach which were consistent with the RFS. In all cases, as expected, Openreach incur additional costs to labour. Dividing total costs by labour costs produced a 'gross up' factor. The 'gross up' factors for 2009/10 and 2010/11 were compared and discussed with

Openreach. For our modelling we concluded that the 2010/11 'gross up'[269] factors were appropriate to apply to our forecast labour Capex Programme costs through to 2013/14. The resultant Total Capex driven by Operations is set out in Figure A6.1 below

A6.6 In addition Openreach, provided its forecast Programme Capex not driven by Operations, set out in Figure A6.1 below for the forecast years.

Figure A6.1. Total Capex driven 2011/12 to 2013/14

	2011/12 £'m	2012/13 £'m	2013/14 £'m
Dropwire	131	126	118
Other volume driven copper	120	63	60
Network Health and resilience	137	136	131
Local Loop Unbundling	60	21	20
Other	24	24	24
Fibre	[✂]	[✂]	[✂]
Total Capex driven by ops – Ofcom Forecast	[✂]	[✂]	[✂]
IT Capex	[✂]	[✂]	[✂]
EvoTAMs	[✂]	[✂]	[✂]
Total Capex not driven by ops – Openreach Forecast	175	119	101
Total Programme Capex	[✂]	[✂]	[✂]

A6.7 The next step in the modelling was to convert the Programme Capex costs into Fixed Asset categories in order to forecast asset and depreciation costs. To do this BT supplied the allocation mapping used in the 2009/10 RFS to allocate Programme Capex to Classes of Work (COW- such as LDC - D side Copper) and the subsequent mapping of these COWs to Fixed Asset categories. The resultant Fixed Asset figures are output into the Cost Allocation model. In respect of Copper and duct, the information is also an output to the RAV model.

A6.8 Finally for the Cost Forecast model, Openreach supplied RFS data on the asset life of each COW and the forecast depreciation charge and retirement schedule for legacy assets. Incremental depreciation on Capex calculated in the model was combined with the legacy depreciation and the aggregated depreciation charge output to the CA model (this information is not required for the RAV model).

Projecting Depreciation

A6.9 During the period, overall depreciation (HCA plus CCA inc holding gain) increases from £712m to £754m. This net £42m increase can be broken down as follows.

[269] We did not alter our gross up factors for actual Copper and duct Capex in 2010/11.

Figure A6.2. Net depreciation breakdown.

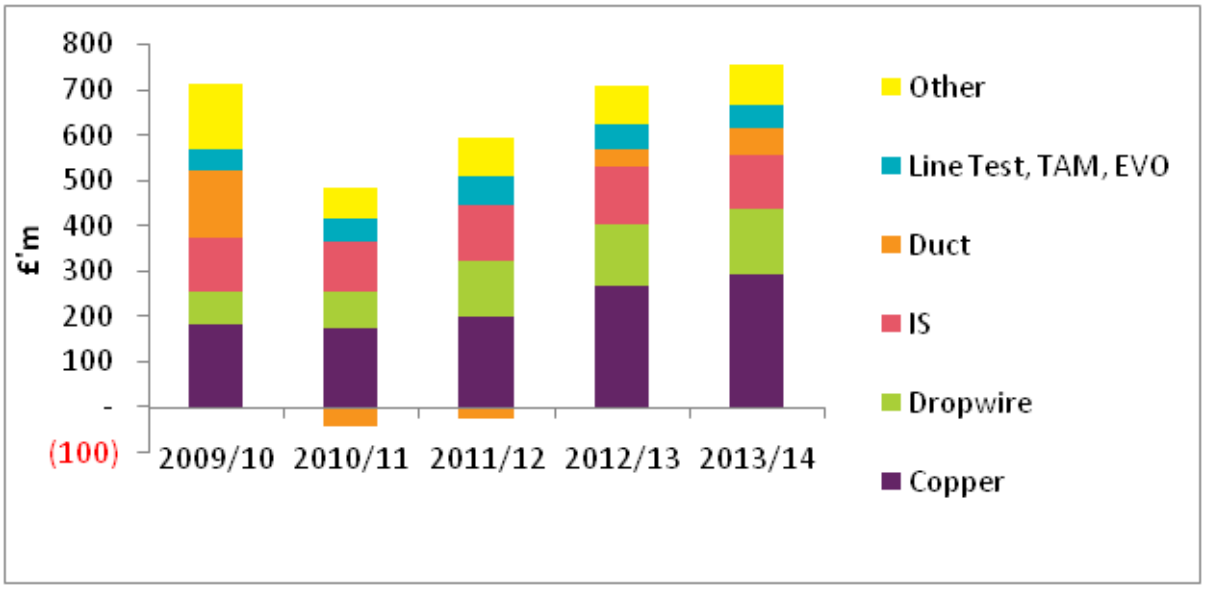


Figure A6.3. Net depreciation explanation

Asset Class	Δm	Reason
Copper	106	The increased Copper prices up to 2010/11 and the forecast RPI from 11/12 lead to increased depreciation which partly offset by a reduction in the CCA value of copper from the 10/11 write down of copper assets (due to operational changes reducing the time for engineering tasks incorporated in capitalised labour costs).
Dropwire	74	Dropwire depreciation increases for the same reason as Copper. In addition, the change of Accounting policy in 2001 for Dropwire, which meant writing the asset off over ten years results in depreciation in the period to 2011/12 increasing by 10th per annum until the asset base reaches a steady state.
Line Test (inc TAM and EVO Tam) and Frames	3	Increased depreciation from rolling out new evoTAM line testing equipment is offset by fall in Frame depreciation as the asset base is nearly fully depreciated by 13/14.
Duct	(89)	The overall fall in depreciation is caused by the in year holding gains in 10/11 and 11/12.
Other	(52)	The 2009/10 figure is distorted by a £50m holding loss in relation to fibre assets.
	42	

Projected changes to asset values (Holding Gains)

A6.10 Under a CCA approach to setting prices, assets are valued by reference to the cost of replacing the asset at today's prices – their current cost - rather than their original, or historic, cost. If prices go up, the asset value is higher than it otherwise would have been. As a result, the annual depreciation charge would increase as it is based on a higher asset value. However, over the lifetime of the asset, this increase in the annual depreciation charge – which would cause costs to increase - is offset exactly by the holding gain (the gain made by holding the asset while it increases in value).

A6.11 Asset inflation also affects the calculation of the mean capital employed and increasing asset prices causes the assessment of the reasonable return on those assets to increase.

A6.12 It is therefore necessary to predict how asset values might change during the control period.

A6.13 We have used forecast RPI to apply to all assets subject to CCA adjustments in the Cost Allocation model and in the RAV model. For RAV assets this applies to all elements (Labour and non Labour)

Calculating the RAV adjustment

A6.14 As discussed in more detail in Annex 1, in respect of Copper and Duct, we used the RAV model to calculate these asset costs.

A6.15 The RAV model is used to calculate the asset values and depreciation charges (including holding gains) which are input into the Cost Allocation model. The RAV model calculates these for both pre and post 1997 assets. The RAV model outputs (that apply to Openreach) replace the CCA values calculated with the Cost Allocation model.

A6.16 The RAV model has a record of assets and when they were acquired as well as the historic (actual) holding gains and asset lives. It forecasts both the pre and post 1997 CCA and RAV asset valuations using input Capex from the Cost Forecast model and the RPI assumptions above to calculate holding gains.

A6.17 In respect of the post 1997 value of Duct further adjustment in the RAV model was required, aligning CCA valuation with capital expenditure on duct indexed by RPI.

Resultant CRS Asset base

A6.18 The CRS asset base is set out below in Figure A6.4.

Figure A6.4. CRS Asset Base

	2010/11	2011/12	2012/13	2013/14
	£m	£m	£m	£m
Computing	203	180	148	132
Dropwire	919	887	837	782
D Side Copper	2,675	2,611	2,590	2,500
Duct	2,709	2,807	2,872	2,898
E Side Copper	579	565	561	541
Line Testing Equipment and Frames	176	216	218	196
Fixed Asset Other	21	20	19	19
	7,282	**7,286**	**7,245**	**7,068**

A6.19 The main movements are as follows:

- D and E side copper. Falls from in 2010/11 as a result of the fall in the RAV adjustment and higher supplementary depreciation holding gains from earlier increased copper prices.
- Dropwire. Falls over the period as the Dropwire adjustment unwinds and asset gets older.
- Line Testing Equipment and Frames. On the one hand for EvoTAMs high levels of investment in these new assets up to 2012/13 per Openreach's investment programme leads to a build up of the asset base. Partly offsetting this rise are Frames costs. The asset value approaches zero as they become fully depreciated with little new Capex.

Annex 7

Regulatory Asset Value

Introduction

A7.1 We explain in Annex 1 the reasons for our proposal to continue with the RAV approach and our proposed approach to the valuation of duct.

A7.2 The purpose of this annex is to explain how we have modelled the effects of the RAV approach for asset valuations

Review of RAV calculations

A7.3 For this price control, we have used a model originally built by BT to generate the indexed HCA value of the pre-1997 assets and the CCA valuation of the post 1997 assets. The RAV model, on a total BT basis, sets out, on a historic basis, the value of assets, additions, disposals, depreciation. It also has a record of the actual current cost adjustments made, namely the holding gains. The model calculates the asset and depreciation cost on a forward looking basis. The outputs of the model are historical and forecast CCA and RAV values for the copper and duct asset base, as well as depreciation charge and holding gains. These outputs are multiplied by the relevant percentage appropriate to the Access network to produce inputs into the Cost Allocation model.

A7.4 At the time of the March 2011 Consultation, we reviewed the key inputs and calculations and, with the exception of the valuation of Duct and found no material error. Our view is that the RAV model continues to provide a reasonable basis for determining the RAV adjustments, subject to the appropriate choice of assumptions. We set out below where we have modified the assumptions made in the March 2011 Consultation and the impact of those modifications. The RAV model used to determine our Charge Controls will be published in due course.

Review of RAV assumptions

A7.5 We have updated our RAV model with data from the 2010/11 RFS[270] including BT's actual 10/11 Capex.

A7.6 We also re-examined all the other the key forward looking assumptions. As set out in Annex 1[271] we concluded that the most appropriate method to calculate holding gain on post 1997 Duct was to use forecast RPI which we implemented in our RAV model. This rate differed slightly from the long term RPI used in the Mach 2011 Consultation. We also used forecast RPI for post 1997 Copper assets, for both the balance sheet valuation and the in year holding gain. This was a change from the March 2011 Consultation when the in-year Copper Holding gain was forecast using a long term RPI of 2.5%.

A7.7 Other key assumptions such as asset lives and retirement schedules have remained the same. We set out the changes made to the RAV model since the March 2011 Consultation in Figure A7.1 below.

[270] AFI20
[271] Para A1.169

Figure A7.1 Changes in the RAV model since March 2011 Consultation

Copper	**RAV balance 2013/14 (£m)**	**Reason for movement**
March 2011 Consultation	3,247	
	65	Updated Capex
	63	Updated RPI - from 3% in 11/12 and 12/13 to 4.9% in 11/12 and 3.4% in 12/13. 13/14 unchanged.
	44	Copper price variance up from 5.20% to 6.4% in 10/11.
	7	2001 copper balance correction
	(258)	Other holding gains adjusted - £367m holding loss in 10/11 due to copper write off.
Final RAV	3,168	
Duct		
March 2011 Consultation	3,718	
	104	Methodology change for post 97 duct RAV - indexed HCA Capex rather than CCA
	84	Updated RPI - from 3% in 11/12 and 12/13 to 4.9% in 11/12 and 3.4% in 12/13. 13/14 unchanged.
	25	Updated RPI - from 4.4% to 5.3% in 10/11 (No effect on copper because actual price variance from BT RAV model used)
	20	Updated Capex
Final RAV	3,951	

A7.8 The figure below is an extract from the RAV model. It shows how the total RAV adjustment is built up based on the difference between the Copper and Duct pre 1997 asset valuations. This adjustment is applied against Copper and Duct Asset and depreciation costs in the CA model which are then allocated to activities (such as D side copper) which are allocated to products based on the usage of those activities

Figure A7.2 Extracts from the Final RAV model

	2009/10	**2010/11**	**2011/12**	**2012/13**	**2013/14**
Access Net Balance Sheet Value (closing)					
CCA	9,458	8,632	8,349	7,836	7,275
RAV	7,212	7,158	7,312	7,245	7,119
Difference = RAV - CCA	**-2,246**	**-1,474**	**-1,037**	**-590**	**-156**
Access Net Balance Sheet Value (mean)					
CCA	8,340	9,045	8,490	8,092	7,555
RAV	6,893	7,185	7,235	7,278	7,182
Difference = RAV - CCA	-1,447	-1,860	-1,255	-814	-373

Smoothed Cost Stack Adjustments						
CCA	Depreciation	630	686	683	680	663
	THG	-367	-479	-416	-275	-227
	ROCE	842	778	730	696	650
	Total	**1105**	**984**	**997**	**1101**	**1086**
RAV	Depreciation	480	516	532	555	566
	THG	-303	-381	-355	-247	-215
	ROCE	696	618	622	626	618
	Total	**872**	**753**	**800**	**934**	**969**
Difference = RAV - CCA	Depreciation	-150	-170	-151	-125	-96
	THG	64	99	61	28	11
	ROCE	-146	-160	-108	-70	-32
	Total	**-233**	**-231**	**-198**	**-167**	**-117**
Assumed ROCE		10.10%	8.60%	8.60%	8.60%	8.60%
Copper CCA	Pre 97	247	171	-68	-296	-503
	Post 97	3,466	3,314	3,404	3,344	3,233
		3,713	**3,485**	**3,336**	**3,048**	**2,731**
Allocated to access	96%	3,564	3,346	3,202	2,926	2,621
Duct CCA	Pre 97	3,545	2,971	2,670	2,329	1,985
	Post 97	2,939	2,845	2,992	3,072	3,134
		6,484	**5,816**	**5,661**	**5,401**	**5,119**
Allocated to access	91%	5894	5287	5146	4910	4653
CCA Access assets		**9,458**	**8,632**	**8,349**	**7,836**	**7,275**
Copper RAV	Pre 97	266	208	154	104	67
	Post 97	3,466	3,314	3,404	3,344	3,233
		3,732	**3,522**	**3,558**	**3,448**	**3,300**
Allocated to access	96%	3,583	3,381	3,415	3,310	3,168
Duct RAV	Pre 97	1,714	1,701	1,675	1,621	1,559
	Post 97	2,279	2,454	2,611	2,708	2,788
		3,992	**4,156**	**4,286**	**4,329**	**4,347**
Allocated to access	91%	3,629	3,778	3,896	3,935	3,951
RAV Access assets		**7,212**	**7,158**	**7,312**	**7,245**	**7,119**

Annex 8

Cost of Capital

Introduction

A8.1 In this Annex we set out our conclusions for the estimate of the cost of capital to be used in the LLU and WLR charge controls.

A8.2 In our March 2011 Consultation[272], we explained our methodology and proposed an estimate of the cost of capital. We set out our proposed range in Figure A8.1. The proposed cost of capital estimate was also published in the WBA Consultation in January 2011[273].

Figure A8.1 – January Consultation pre-tax nominal cost of capital estimates

Pre-tax nominal WACC	Openreach	BT Group	Rest of BT
May 2009	10.1%	10.6%	11.0%
Jan 2011 (mid-point)	8.6%	8.9%	9.3%
Jan 2011 (range)	7.9% - 9.4%	8.2% - 9.7%	8.5% - 10.0%

A8.3 In the March 2011 Consultation, we invited stakeholders to comment on our approach to estimating the cost of capital and provide evidence to support their views. In reaching our decision on the appropriate cost of capital in the WBA Statement (published in July 2011), we took account of the specific responses on the cost of capital (and subsequent new data) submitted in relation to both the March 2011 Consultation and the WBA Consultation. Our analysis of responses relating to the cost of capital, including those made in response to the March 2011 Consultation, and our conclusions on the individual parameters are set out in detail in Section 6 of the WBA Statement[274]. We do not seek to repeat those responses here.

A8.4 Our final estimates of the cost of capital (as set out in the WBA statement[275]) for BT Group, Openreach and the Rest of BT are shown in Figure A8.2.

[272] Annex 12, March 2011 Consultation.
[273] Section 6 WBA Consultation:
http://stakeholders.ofcom.org.uk/binaries/consultations/823069/summary/condoc.pdf,.
[274] http://stakeholders.ofcom.org.uk/binaries/consultations/823069/statement/statement.pdf
[275] Table 6.3, ibid.

Figure A8.2 - BT Cost of capital July 2011

	Openreach	BT Group	Rest of BT
Real risk-free rate	1.4%	1.4%	1.4%
Inflation	3%	3%	3%
Nominal risk-free rate	4.4%	4.4%	4.4%
Equity beta	0.67 – 0.94	0.77 – 1.04	0.87 – 1.14
Asset beta	0.41 – 0.55	0.46 – 0.59	0.51 – 0.65
ERP	5%	5%	5%
Gearing	50%	50%	50%
Debt premium	2%	2 – 2.5%	2.5%
Debt beta	0.15	0.15	0.15
Tax rate	24%	24%	24%
Pre-tax real WACC	**5.6%**	**6.1%**	**6.5%**
Pre-tax nominal WACC	**8.8%**	**9.2%**	**9.7%**

A8.5 In the WBA Statement, we stated our intention to apply the rates set out in Figure A8.2 above in subsequent relevant charge controls, providing the estimates remain relevant:

> *"The cost of capital estimates for BT which are cited below have been calculated for the purposes of the WBA charge control which will apply to 2013/14. However, we intend to apply these rates to other relevant charge controls. In the case of the forthcoming WLR/LLU charge controls, for example, we note that the charge control statement is likely to be published towards the end of 2011.*
>
> *We intend to apply the cost of capital estimates shown below to the relevant charge controls. However, we will review the evidence on the individual parameters at the time of the publication of these charge controls to ensure that the estimates remain relevant. If the evidence suggests that these cost of capital estimates are no longer appropriate, we will update the estimates. However, in deciding whether an update is necessary, we will have regard to the importance of maintaining a consistent approach.[276]"*

A8.6 This statement reflected two important considerations.

8.6.1 First, that we consider that consistency is important in order to provide investors with a reasonable expectation that they can recover their

[276] Paragraph 6.7-8, ibid.

investment and make a reasonable rate of return. We believe that this creates a regulatory environment which encourages efficient investment.

8.6.2 Second, having regard to the desirability of a consistent approach, any decision would need to be appropriate in the context of any future charge control review and that it would be inappropriate for us to fetter our discretion as to future charge control reviews.

A8.7 In light of this, we have as part of this review considered whether our decision on cost of capital calculated for the purposes of the WBA charge control remains appropriate. We have undertaken this assessment by reviewing the most recent evidence on the individual parameters to ensure that the estimates remain relevant.

A8.8 As part of this review, we have also considered a further response received from TTG and Sky, along with an expert report from Europe Economics, in relation to our estimate of the cost of capital which we received following the publication of the WBA Statement.

Summary of our draft decisions

A8.9 As indicated above, this Annex sets out our view on appropriate estimates of the BT Group cost of capital. Specifically, having undertaken a review of the most recent evidence on the individual parameters, we have concluded that the cost of capital estimates set out in July 2011 remain appropriate for the purposes of the current charge controls. This is based on the following:

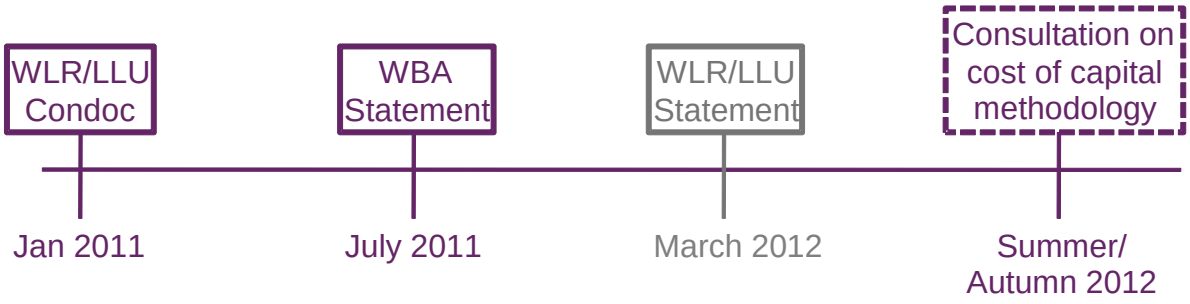
- There has been no significant change in the majority of parameters to warrant a change in the cost of capital estimates from those in July 2011;
- We have observed an increase in the 2 year BT Group asset beta and a decrease in the risk free rate since July 2011. The exact magnitude of these opposing changes is uncertain, however we expect the net effect on the overall WACC to be small.
- We have also borne in mind the principle set out in the WBA Statement that consistency is important in order to provide investors with a reasonable expectation that they can recover their investment and make a reasonable rate of return. We continue to believe that this creates a regulatory environment which encourages efficient investment.

A8.10 In updating our analysis of the individual parameters, our methodology has been consistent with that set out in Annex 8 of the March 2011 Consultation and the WBA Statement.

A8.11 In reaching this view we have noted the arguments set out by Europe Economics, provided in October 2011 and, where appropriate, we refer to these below. However, in arriving at our conclusion on the appropriate WACC for the purposes of this charge control review, we have relied on our own analysis of movements in the individual parameters to January 2012 rather than the analysis undertaken by Europe Economics.

A8.12 We note that we are proposing to undertake a review of our cost of capital methodology later in the year. Figure A8.3 shows the timing of our recent consultations and statements in relation to the cost of capital and the proposed start date for the review of our approach to estimating the cost of capital.

Figure A8.3 Cost of capital timeline



A8.13 In reaching our decision not to adjust the WACC set out in the WBA Statement, we have also had regard to:

- the proximity of the final Statement to the WBA Statement;
- the small and uncertain likely impact on the overall WACC of the changes in parameter values observed since July 2011; and
- our intention to undertake a review of our approach to estimating the cost of capital, which we expect to commence in Summer/Autumn 2012.

A8.14 We note that the cost of capital estimated in the WBA Statement is currently under appeal by BT.[277]

Key parameter values

There has been no significant change in several parameters

A8.15 As set out in the WBA Statement[278], for reasons of consistency, we proposed to apply the rates in Figure A8.3 in all relevant charge controls, providing the estimates of the individual parameters remain appropriate.

A8.16 We have therefore considered the following parameters used to arrive at the cost of capital:

- BT Group Beta
- Risk-free rate
- Equity Risk Premium
- Debt Premium
- Inflation
- Tax Rate

[277] Competition Appeal Tribunal, case 1187/3/3/11.
[278] Paragraph 6.7-6.8

A8.17 We discuss each of these parameters below. In summary, we do not consider that there has been a material change in the following parameters from July 2011 to warrant a revised estimate.

ERP

A8.18 We estimated the ERP to be 5% in the WBA Statement. This reflected the most recent work by Professors Dimson, Marsh and Staunton (DMS[279]) from the London Business School, which tracks the average premium that investors have earned from equities (as opposed to bonds or gilts) over time.

A8.19 In addition we considered regulatory benchmarks, market commentary and academic/user surveys.

A8.20 We do not consider that there is compelling evidence to suggest that an ERP of 5% is no longer appropriate, in particular as it is based on the most recent DMS evidence.

A8.21 The latest historical ERP evidence reported by DMS shows that the historic premium of equities over bonds for the UK remains at 5.2%. In addition, in the 2011 report, DMS have suggested a long-run arithmetic mean premium for the world index of around 4.5-5%.

A8.22 We note that TTG/Sky argue that if there is any change to the ERP, based on more recent market data, the direction should be downwards.

Debt premium

A8.23 We estimated the debt premium for BT Group to be within the range 2-2.5% in the July 2011 WBA Statement[280]. This is consistent with the proposed estimate in our March 2011 consultation[281].

A8.24 This was estimated by reference to the yield on BT's 2016 sterling denominated bond, over and above benchmark gilt yields. We have updated our analysis to January 2012. Over the 6 month period the spread on BT's 2016 bond, over the benchmark, remained broadly in this range. We note that it fell below 2% in July, and increased above 2.5% in November/December, however it has since fallen below 2.5%. We therefore believe that the range 2-2.5% remains appropriate.

Inflation

A8.25 We noted in our July 2011 Statement that an inflation assumption of 3% reflected an appropriate estimate of market expectations of RPI for the purposes of estimating the WACC. We note that the WBA charge control is modelled in real terms, therefore the real pre-tax WACC is used. By contrast, the LLU and WLR charge controls are modelled in nominal terms, therefore we have used the nominal pre-tax WACC.

[279] Dimson, Marsh and Staunton "Credit Suisse Global Investment Returns Sourcebook 2011" Credit Suisse Research Institute. See paragraph 6.79-6.96 WBA Statement
[280] Paragraph 6.54-6.78 WBA Statement
[281] March 2011 Consultation paragraph A12.145-150

A8.26 In the WBA statement, we explained that we would ensure that the RPI forecast for modelling asset price changes and the RPI used to forecast the cost of capital would be consistent. We have used an equivalent approach here.

A8.27 Asset price changes, for the purposes of the current charge control are modelled using a forecast RPI of 3% for 2013/14.Therefore the forecast inflation of 3% used to calculate the nominal WACC remains appropriate.

Tax rate

A8.28 We updated the tax rate in July 2011 to take account of the acceleration of the corporate tax rate reduction, announced in the March 2011 budget. The prevailing UK corporation tax rate in 2013/14 is predicted to be 24%.

A8.29 This remains the most recent expectation of the main rate of UK corporation tax for the year beginning 1 April 2013[282]. We therefore consider that this rate remains appropriate for estimating a cost of capital for the current charge control.

Recent data suggests movements in the asset beta and risk-free rate

A8.30 We have considered more recent data for the risk-free rate and BT Group beta and have observed an increase in the asset beta and a fall in the risk free rate.

Asset beta

A8.31 We set out our methodology for assessing the asset beta for BT Group in the March 2011 consultation[283] and the WBA Statement[284]. The asset beta for BT Group is calculated by de-levering the equity beta for a given time period at the average gearing observed over that same period. In the WBA Statement, we estimated an asset beta range of 0.46-0.59.

A8.32 We have updated the estimate of the asset beta for BT Group, using revised data from Bloomberg which is set out in Figure A8.4 below. We note that the 2 year daily asset beta has increased from the WBA asset beta of 0.525 to approximately 0.64.

A8.33 We note that the 1 year daily beta has also increased relative to that estimated in July 2011, however the 5 year weekly beta remains within the range estimated in the WBA Statement[285] (0.46 – 0.59).

[282] http://www.hmrc.gov.uk/rates/corp.htm
[283] Paragraph A12.111-144
[284] Paragraph 6.97-6.154
[285] As explained in the WBA statement, we place greatest weight on the 2 year beta. However, the 5 year weekly beta provides a useful cross-check, particularly during periods of financial market volatility.

Figure A8.4 – Revised BT Group beta estimates (9th January 2012)

	1 year daily data	2 year daily data	5 year weekly data
Equity beta	1.06	1.04	0.86
Average Gearing	39%	44%	40%
Asset beta	0.70	0.64	0.57

A8.34 All other things being equal, a change in the asset beta could potentially support a modest increase in the cost of capital for BT Group.

A8.35 Although we note the asset beta may have increased over the last 6 months, this cannot be looked at in isolation. If we were to update the asset beta, we would also have to update the risk free rate, where we continue to observe a downward trend in estimates (see below).

Risk-free rate

A8.36 In contrast to the asset beta, we note that the risk-free rate has fallen further since the publication of the WBA Statement in July 2011. In that statement our estimate of the risk-free rate was 1.4%. In arriving at this estimate, we considered average yields on indexed linked gilts and implied forward rates. Figure A8.5 shows the movements in these datasets since July 2011.

Figure A8.5: Changes in historical and forward looking evidence on risk free rate

	WBA Statement July-11	WLR/LLU Statement Jan-12
5 year ave 5 year index-linked gilts	1.2%	0.8%
10 year ave 5 year index-linked gilts	1.6%	1.3%
5 year ave 10 year index-linked gilts	1.3%	1.0%
10 year ave 10 year index-linked gilts	1.6%	1.5%
Implied forward rate on 5 year gilt at Feb 2014[286]	c0.9%	c-0.5%

Source: Bank of England

A8.37 The continued downward trend in gilt yields and forward rates implies a reduction in the risk-free rate. We discuss these estimates in more detail below.

A8.38 In the WBA Statement, we considered implied forward rates on 5 year gilts. We noted that these had declined significantly and were out of line with the observed historic gilt yields. We have updated our analysis and this continues to be the case. We note that the implied forward rates on indexed linked gilts are now below zero.

[286] The estimates for Jan 2012 and July 2011 represent the implied future yield on an investment in a five year ILG made in 2.5 and 2 years respectively calculated using the following formula: $f_{t,T} = \left[\frac{(1+r_T)^T}{(1+r_t)^t}\right]^{\frac{1}{T-t}} - 1$.

A8.39 The implied forward rates continue to be volatile and we remain cautious about placing significant weight on these rates.

A8.40 Calculating the risk-free rate using the 5 year averages of 10 year and 5 year indexed linked gilts also suggests a reduction in the risk-free rate from 1.4%.These averages are shown in Figure A8.6 below.

Figure A8.6 – 5 and 10 year gilt yields average rate (real)

Average period	10 year gilts (%)	5 year gilts (%)
6th January 2011	-0.7	-1.4
1 month	-0.5	-1.3
3 months	-0.3	-1.2
1 year	0.2	-0.8
2 years	0.4	-0.5
5 years	1.1	0.8
10 years	1.5	1.3

Source: Bank of England

A8.41 The figure above reflects falls in real gilt yields over the past year. Only one data point (10 year average on a 10 year gilt) is above our estimate of the risk-free rate, and this has fallen from 1.6% in July 2011. We note that all other average rates are below the risk free rate of 1.4% estimated in July 2011.

A8.42 All other things being equal, this could potentially support a modest decrease in the cost of capital for BT Group.

Net impact on the cost of capital

A8.43 We consider that updating the cost of capital to take account of recent movements in the asset beta and the risk free rate would not materially change the overall estimate of the WACC from that estimated in July 2011.

A8.44 Given the uncertainty around these parameters and the overall margin of error in estimating the WACC, we do not think there is sufficient evidence to warrant a change in the WACC.

A8.45 We have been particularly mindful of the views of the Competition Commission on the mechanics of the Capital Asset Pricing Model (CAPM). In its determination of the LLU Appeal, the Competition Commission noted:

> "...the estimation of the cost of equity, which dominates the overall calculation of the WACC, has a significant margin of error."[287]

[287] http://www.catribunal.org.uk/237-4154/1111-3-3-09-The-Carphone-Warehouse-Group-Plc.html §2.406

A8.46 We have also borne in mind the principle set out in the WBA Statement that consistency is important in order to provide investors with a reasonable expectation that they can recover their investment and make a reasonable rate of return. We continue to believe that this creates a regulatory environment which encourages efficient investment.

A8.47 Therefore, given the proximity to the WBA statement, the small and uncertain likely impact on the overall WACC and the need for consistency, we do not think that updating the cost of capital is justified.

Conclusions

A8.48 For the reasons set out above, we consider that the WACC estimated for the purposes of the WBA Statement remains appropriate.

A8.49 We intend to continue to use this WACC in future charge controls, providing it remains appropriate. Again, we would have regard to the potential impact of any new data on the WACC and the desire for consistency across charge controls.

A8.50 However, we intend to undertake a full review of our cost of capital methodology later in the year. The purpose of this review is to assess whether our current approach to estimating the cost of capital remains appropriate. We expect to commence this review once the WBA appeal has concluded.

Annex 9

Single Jumpering

Introduction

A9.1 In this Annex we set out our conclusions on whether we should set MPF charges based on the costs of a single jumpering approach or the current jumpering approach.

Summary of our conclusions

A9.2 In the March 2011 Consultation,[288] we explained our view on single jumpering as part of our discussion of the likely differences in LRICs between MPF and WLR/WLR+SMPF and we invited stakeholders to comment on our assessment (Question 8.2 of the March 2011 Consultation).

A9.3 Following the March 2011 Consultation, we have carried out further analysis, informed by our proposals in the March 2011 Consultation, comments received from stakeholders in relation to that consultation and further evidence we have gathered from Openreach[289] and from TTG.[290] Based on this analysis, we have concluded that it would not be appropriate to set MPF charges by assuming the use of a single jumpering approach:

- MPF provided via the single jumpering approach needs to be considered as a different product to the MPF product using the current jumpering approach. The MPF product using the current jumpering approach includes the TAM, but with a single jumpering approach the TAM would not be included in the MPF product, but would be included separately in other products (e.g. a tie cable product). This is because single jumpering would put the responsibility for managing utilisation of the TAM on the LLU operator. The nature and pricing structure of the two MPF products would therefore need to be different.

- Charging the current MPF product as if it were a different product that used the single jumpering approach and did not include the costs of the TAM within the MPF product would be inappropriate and lead to distortions.[291] Charging the current MPF product which uses the current jumpering approach as if it were MPF provided by the single jumpering approach could result in Openreach being unable to recover its reasonably incurred costs.

- We consider that it would be unreasonable to have expected Openreach to introduce a new single jumpering product without industry support for the development of such a product, after having considered its likely charge and its costs and benefits (and we consider this process has not yet been completed). BT's planned use of single jumpering in the implementation of 21CN, and discussions that Openreach had with some CPs about single jumpering in 2007, do not demonstrate that Openreach considered single jumpering was the most efficient mechanism for providing MPF.

[288] See paragraphs 8.42 to 8.50 of the March 2011 Consultation.
[289] See 14th S135 request of 30 January 2012.
[290] See TTG further response on Single Jumpering.
[291] We discussed these distortions in paragraphs 8.47 and 8.48 of the March 2011 Consultation.

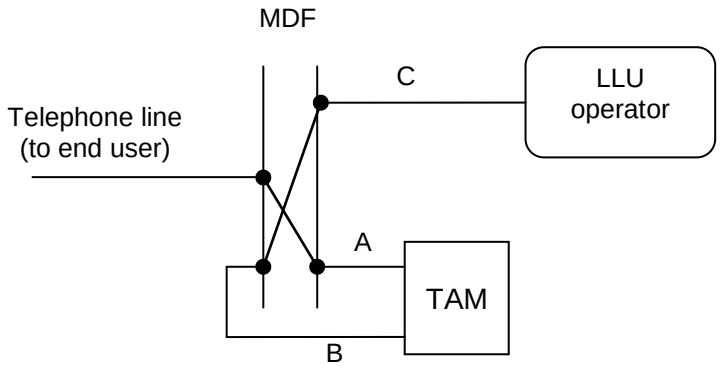
- As we consider MPF provided via the single jumpering approach to be a different product to the current MPF product, it would be appropriate to include the costs of migrating existing lines from the current jumpering approach to the single jumpering approach in assessing the benefit of moving to single jumpering.

- Single jumpering has the potential to be more efficient in certain specific circumstances for some operators, but we do not consider that it is clearly the most efficient way to provide MPF because the structure of the cost base is different in the two approaches (in particular because the responsibility for making decisions relating to efficient delivery reside with the LLU operator rather than Openreach in the single jumpering approach). Industry discussions within the Copper Commercial and Product Group would be the most appropriate way to progress investigation into the costs and benefits, and potential demand from CPs, of a new MPF product based on the single jumpering approach. These discussions have not been progressed whilst we have been considering this charge control. We are supportive of these discussions being concluded if the Copper Commercial and Product Group see value in this. However, even if single jumpering were found to be more efficient for some CPs in some circumstances, we do not consider that the current MPF product should be priced as if it were delivered using the single jumpering approach for the reasons given above.

March 2011 Consultation proposals

A9.4 In Figure 8.6 of the March 2011 Consultation we showed the current jumpering arrangement used for MPF. We reproduce this diagram below in Figure A9.1:[292]

Figure A9.1: Current jumpering approach



Source: Ofcom

A9.5 We refer to this wiring arrangement for MPF as the 'current jumpering' approach. As can be seen in Figure A9.1, it involves two jumpers on the MDF and three tie cables (A, B and C).

A9.6 With this approach Openreach is responsible for the full management of: the telephone line (to end user), the TAM, tie cables A and B and both of the MDF

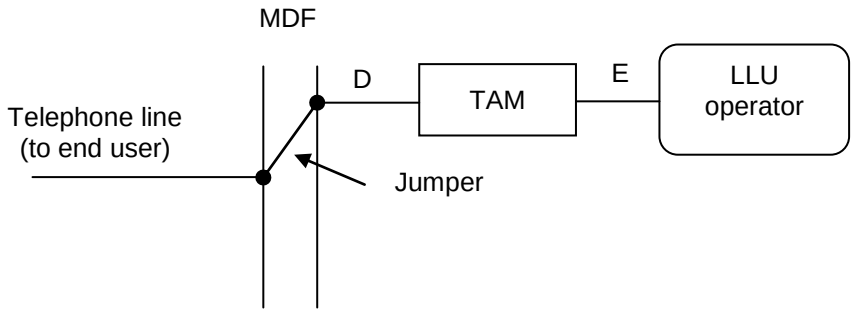
[292] In figure A9.1 and A9.2 we have labelled the tie cables to assist in the discussion throughout this annex.

jumpers. By fully managing these assets Openreach is able to decide how to share and re-use these assets across the various LLU operators and this means that it has control over the utilisation and therefore the unit cost of these assets. Because of this, all of these assets are included in the current MPF product.

A9.7 Conversely, tie cable C is dedicated to a specific LLU operator and whilst Openreach installs this tie cable the LLU operator is responsible for its usage/utilisation. Because of this, tie cable C is a separate product and is thus not part of the current MPF product.

A9.8 In Figure 8.7 of the March 2011 Consultation we showed one possible approach to provide an alternative approach (referred to as 'single jumpering'). We reproduce the diagram below in Figure A9.2.

Figure A9.2: Possible single jumpering wiring arrangement for MPF



Source: Ofcom

A9.9 This jumpering arrangement involves a single in-line TAM.[293] A further approach, also known as single jumpering, would be similar to that shown in Figure A9.2 except there would be no TAM at all. These two approaches are generally referred to as "in-line TAM" (as shown in Figure A9.2) and "TAM-less MPF". Neither of these single jumpering approaches is currently being used by LLU operators. Rather, all MPF provision uses the current jumpering approach as shown in Figure A9.1.

A9.10 A further approach has also previously been discussed. This further approach includes an intermediate frame between the TAM and the LLU operator in Figure A9.2 above. This provides a flexibility point that allows the TAM to be shared between multiple CPs. However, this inserts an additional frame and a jumper across this frame. This would therefore be similar to the current jumpering approach, except that rather than using the MDF twice, a separate, smaller frame would be used as the intermediate frame. Using a separate intermediate frame in addition to the MDF is, in our view, unlikely to be more efficient than the current jumpering approach. We therefore do not discuss this approach further.

A9.11 With the single jumpering arrangement, shown in Figure A9.2, it is necessary to determine which assets are fully in Openreach's control, and can thus be included in the MPF product, and which assets are dedicated to a specific LLU operator, and thus need to be a separate product. In the March 2011 Consultation we noted that the MPF product should include the telephone line to the end user and the one

[293] In Figure 8.7 of the March 2011 Consultation we showed an evoTAM. The evoTAM is an upgraded version of the TAM, initially deployed by BT in support of its 21CN rollout. However, for simplicity, we refer to TAMs throughout this annex since the functionality is similar in both cases.

jumper across the MDF. Conversely, the LLU operator specific product(s) ('the tie cable') would need to include the connection from the MDF to the TAM (tie cable D), the TAM itself, and the connection from the TAM to the LLU operator (tie cable E).[294]

A9.12 In the March 2011 Consultation[295] we set out our view that we considered the current jumpering approach to be an appropriate basis for assessing MPF costs, rather than using the costs of a single jumpering approach. In the March 2011 Consultation, we noted that:

- TTG previously challenged our approach in the 2009 LLU Appeal and 2009 WLR Appeal, arguing that MPF charge controls should be based on a single jumpering arrangement. In its determination of this point, the Competition Commission concluded that Ofcom did not err in setting the MPF rental charge by assuming the current jumpering approach for MPF, rather than a single jumpering approach. In reaching this conclusion, the Competition Commission noted that no operator had submitted a SoR for a single jumpering approach to BT, and that a feasibility study into single jumpering had, therefore, not been carried out. Based on the evidence provided to it, the Competition Commission was not persuaded that single jumpering would be more cost-effective.[296]

- It is not clear whether the single jumpering approach, as advocated by TTG, would be more or less costly than the current jumpering approach when all aspects of the single jumpering approach are considered;

- The current MPF product (using the current jumpering approach) was originally developed through close industry engagement involving BT and other CPs and overseen by the OTA;

- TTG has raised a new requirement with the Copper Commercial & Product Group relating to a TAM-less MPF type arrangement. We noted in the March 2011 Consultation[297] that if TTG submitted a formal SoR to Openreach for a single jumpering approach we would expect Openreach to evaluate this product and that such a process may provide information on the costs of the single jumpering approach. If single jumpering were found to be more efficient for some CPs, then we would expect Openreach to develop such a product, and for CPs to be able to purchase that new MPF product for new connections and to migrate from the existing arrangements, if they chose to do so;

- If the result of a SoR request were to find single jumpering to be cheaper overall than the current jumpering approach, we would need to consider whether to separately price MPF delivered with single jumpering, compared to when it was delivered with the current jumpering approach. We also noted in the March 2011 Consultation[298] that in such a case we would need to consider whether all MPF should be priced based on single jumpering but that our current view was that it is likely to be inappropriate to price MPF delivered using the current jumpering approach on the basis of the single jumpering approach;

[294] See paragraph 8.47 and footnote 147 of the March 2011 Consultation.
[295] See paragraphs 8.42 to 8.50 of the March 2011 Consultation.
[296] See paragraphs 3.111 to 3.127 of the Competition Commission's 2009 WLR Determination, and also paragraphs 2.316 to 2.337.
[297] See paragraph 8.45 of the March 2011 Consultation.
[298] See paragraphs 8.46 to 8.50 of the March 2011 Consultation.

- Pricing MPF delivered using the current jumpering approach as if it were delivered using the single jumpering approach would create significant distortions to incentives. With single jumpering, the use of the MDF is lower and there would be no TAM costs in the MPF product (so tending to reduce the MPF charge), but the LLU operator specific ('tie cable') costs would be higher because the tie cable would need to incorporate two tie cables and the TAM.[299] If an MPF line were delivered through current jumpering but charged on the basis of single jumpering, the purchasing CP may be able to have the 'best of both worlds' - having the potential benefit of single jumpering without having the downsides of potentially higher LLU operator specific costs. This would mean that CPs would have no incentive to actually move to the more efficient single jumpering approach, and there could therefore be a distortion in the choice of wholesale products;[300] and

- Based on the above points in the March 2011 Consultation,[301] we proposed to set charges based on the current jumpering arrangement for MPF because we were of the view that it is not obvious that the single jumpering approach is cheaper overall.

A9.13 In the March 2011 Consultation, we did not seek stakeholder comments on single jumpering in response to a specific question but, more generally, we invited stakeholders to comment on Ofcom's assessment of the likely differences in LRICs between MPF and WLR/WLR+SMPF.[302] The approach to jumpering would affect the LRIC of MPF.

Responses to the March 2011 Consultation

A9.14 Openreach agreed with Ofcom's overall approach to cost modelling and allocations though it did not specifically address single jumpering. In response to question 8.2, Openreach noted that "*Ofcom's approach to the assessment of the likely differences in LRIC between MPF and WLR/WLR+SMPF is consistent with its approach in the 2009 WLR Statement. The CAT found that Ofcom did not err in relation to the differential per the 2009 WLR Statement*".[303]

A9.15 TTG and Sky specifically responded on single jumpering and did not agree with Ofcom's proposals. We address their comments below.

A9.16 Other respondents either did not respond to question 8.2, or commented generally but without specific mention of single jumpering.

A9.17 TTG argued that the current jumpering approach drives "*significant extra cost of about £6 per line or £40 million a year (in 2013/14). The added cost comes from:*

- *Requirement for additional engineering resource to install additional jumpers;*
- *Increased use of the MDF;*

[299] Because the utilisation of the TAM has a direct impact on costs, the utilisation of the TAM needs to be the responsibility of the CP, as it is the CP that affects utilisation. The likely utilisation of the TAM is a key issue in the assessment of whether single jumpering would be likely to be more or less cost effective than current jumpering.
[300] See paragraph 8.47 of the March 2011 Consultation
[301] See paragraphs 8.42 to 8.50 of the March 2011 Consultation.
[302] Question 8.2 of the March 2011 Consultation.
[303] See paragraph 513 of the Openreach response to the March 2011 Consultation.

- *Higher frame fault rates and repair costs due to the additional components used;*
- *Higher fault rates also result in a poorer customer experience and added cost for TTG to handle the faults; and*
- *More tie cables are required."*[304]

A9.18 TTG said that there could be some increased costs arising in the single jumpering approach due to, for example, reduced TAM utilisation. It said these would be likely to be small and estimated the extra cost at around 10p.[305]

A9.19 TTG also argued that BT has little incentive to provide MPF via single jumpering since its own downstream divisions (i.e. BT Wholesale and BT Retail) do not use MPF. TTG argued that providing MPF via a less efficient approach (which it argues the current jumpering approach is), is attractive to BT as it makes WLR relatively more attractive than MPF. However, TTG argued that it is evident that BT considered the single jumpering approach to be more efficient in 2007 because it used this approach in 21CN.

A9.20 TTG also set out a number of approaches that Ofcom could take to address the fact that, in its view, single jumpering was the most efficient way to provide MPF:

- *"Option 1: Set the (single) MPF rental price based on use of single jumpering*
- *Option 2: Create new MPF single jumper product (using single jumpering costs)*
- *Option 3: Pool and spread additional costs of double jumpering across MPF and WLR"*.[306]

A9.21 TTG argued that Option 1 was the best option because this would be the standard approach to setting charges based on the level of efficiently incurred cost. TTG argued that Ofcom should set a glide-path from current prices to prices based on single jumpering by the end of the LLU / WLR charge control, but that this will not entirely rectify the fact that prices have been based on inefficient costs since 2007 (when BT commenced use of single jumpering in 21CN). In the March 2011 Consultation we said that this approach would distort incentives to actually migrate from the current jumpering approach to single jumpering because a CP could have the best of both worlds – a lower MPF price based on single jumpering where the TAM is excluded, but without facing the resulting increased cost of more expensive tie cables.[307] TTG argued that this disincentive would be small and that, in any event, this is an issue for Openreach to resolve because it should have deployed single jumpering when it became aware this was a more efficient approach. Nonetheless, TTG suggested that some incentives to migrate to a single jumpering approach could be established through pricing.[308]

A9.22 TTG also said that:

[304] See paragraph 84 of the TTG response to the March 2011 Consultation.
[305] See paragraph 87 of the TTG response to the March 2011 Consultation.
[306] See paragraph 95 of the TTG response to the March 2011 Consultation.
[307] See paragraph 8.47 of the March 2011 Consultation.
[308] See paragraph 103 of the TTG response to the March 2011 Consultation.

> *"BT's incentive to avoid use of single jumpering for MPF has been demonstrated clearly by its behaviour over the last two years where in the face of the [2009 LLU Appeal] and an SoR it has consistently obfuscated and failed to provide any cogent reasoning to support its view of the efficiency of single jumpering – this has been, in our view, a wilful tactic to delay the introduction/use of single jumpering and/or reductions in MPF charges".*[309]

A9.23 TTG also rejected several arguments that "*have been advanced variously by Ofcom, BT and the [Competition Commission]*".[310] TTG argued that,

> *"It has been suggested by BT that single jumpering is not more efficient since no LLU operator opted to use single jumpering evoTAMs product that is available as part of 21CN. This fact is irrelevant to the question of whether single jumpering is more efficient. An LLU operator would get no benefit from using single jumpering in this case since the MPF price they would pay would be exactly the same (as if they used [the current jumpering approach]) yet they would incur some extra costs (e.g. higher tie cable cost, slightly lower tie cable utilisation.)"*[311]

A9.24 TTG also argued that,

> *"Several parties have suggested that the fact that no SoR was submitted in 2007 by CPs is relevant to the question of whether single jumpering is efficient or not. We consider it wholly irrelevant. BT has had for the last eight years (as it has now) an obligation to act efficiently – that obligation is not contingent on its customers informing them of how they should be more efficient."*[312]

A9.25 Sky noted that "*it was entirely appropriate to consider whether [the current jumpering arrangement] for MPF is the most efficient wiring arrangement*" and argued that "*the higher fault rate on MPF and the increased MDF usage, results in considerably more costs being assigned to MPF than WLR within the charge control models*".[313] Sky argued that, in this context, the single jumpering approach is the more efficient approach even allowing for the higher costs that would result from the reduced utilisation of the tie cables. Sky also suggested several benefits could arise if it were able to provide and manage the test facility itself using the TAM-less MPF product. It said, "*Some of the benefits to Sky in developing its own testing capability would include:*

- *Characterisation of lines when they are first installed so that degradation can be monitored and remedied;*
- *To "routine lines" – a rolling sample of testing - to proactively pick-up faults;*
- *Testing all the way to the line card;*
- *Cost efficiency;*

[309] See paragraph 86 of the TTG response to the March 2011 Consultation.
[310] See paragraph 114 of the TTG response to the March 2011 Consultation.
[311] See the first bullet of paragraph 114 of the TTG response to the March 2011 Consultation.
[312] See the second bullet of paragraph 114 of the TTG response to the March 2011 Consultation.
[313] See paragraph 100 of the Sky response to the March 2011 Consultation.

- *Richer set of metrics to allow more accurate fault determination;*
- *Reduce "false positive" call out charges; and*
- *"Distance to fault" testing using capacitance measurements."* [314]

A9.26 Sky said that Ofcom identified three potential approaches it could take if it deemed single jumpering was the more efficient approach. These were the same as the three highlighted by TTG (see paragraph A9.20 above), although Sky identified two variants to setting costs based on single jumpering: the cost of all MPF lines could be based on single jumpering or, alternatively, the cost of MPF lines could be based on a blend of the current jumpering and single jumpering approaches based on an assumed migration from one to the other.[315] Sky said, "*The preferred option should be one that incentivises Openreach to roll out single jumper MPF quickly. Further, regulated prices typically should be based on efficient forward looking prices. Basing all MPF prices on a single jumper solution would accord with these principles*."[316]

Additional responses on Single Jumpering

A9.27 In order to address the points raised in response to the March 2011 Consultation, we have obtained further data. Openreach has provided a response setting out its analysis of TAM-less MPF and in-line TAM MPF, and why it rejected the SoR raised by TTG.[317] This response has been provided to CPs on request.[318] Openreach has also provided further information on the costs and benefits of the single jumpering approach.[319]

A9.28 TTG has provided an additional response based on the Openreach further response on Single Jumpering.[320] In addition, TTG also provided a presentation given by Openreach to certain CPs in 2007.[321]

A9.29 In its further response, TTG re-iterated the arguments made in its response to the 2011 March Consultation set out above in paragraphs A9.17 to A9.24. It also presented its own confidential model on costs and benefits of the single jumpering approach which supported the arguments it presented in its response to the March 2011 Consultation. Finally, it argued that the Openreach 2007 presentation on Single Jumpering showed that Openreach was aware that Single Jumpering was more efficient at that time.[322]

A9.30 On 18 January 2012, TTG wrote a further letter to Ofcom, highlighting its concerns with the approach we have taken in assessing whether the single jumpering approach is more efficient than the current approach and the basis on which the costs of the MPF product have been assessed.[323] TTG said that:

[314] See paragraph 103 of the Sky response to the March 2011 Consultation Response.
[315] See paragraph 104 of the Sky response to the March 2011 Consultation Response.
[316] See paragraph 105 of the Sky response to the March 2011 Consultation Response.
[317] See 14th S135 request, 30 January 2012.
[318] See update on Ofcom website of 14 December 2011:
http://stakeholders.ofcom.org.uk/consultations/wlr-cc-2011/
[319] See 14th S135 request, 30 January 2012.
[320] See the TTG further response on Single Jumpering.
[321] See 14th S135 request, 30 January 2012.
[322] See paragraphs 39 to 42 of the TTG further response on Single Jumpering.
[323] TTG letter of 18 January 2012.

- Ofcom had not asked itself the right question or gathered the relevant data to make a proper assessment of whether the single jumpering approach was more efficient;

- Ofcom had not developed and presented its own reasoned view and had relied heavily on the view presented to it by Openreach; and

- Ofcom had adopted a position of unduly favouring the status quo.

A9.31 TTG also again raised that the absence of a SoR is not relevant, arguing that Openreach is able to make efficiency improvements to products without the requirement for them to be initiated by the SoR process.

A9.32 On 27 January 2012, Sky provided a further response on single jumpering. Given that we received this response very late in the process of concluding this decision we had only a very short time to review it. Our initial view on this response is that it raises similar points to those that have been raised elsewhere.

Our response and conclusions

A9.33 We now set out our view on responses to the March 2011 Consultation, and the data we have gathered since. In doing so, we discuss the two possible architectures that could be used to deliver a single jumpering approach and whether we should use either of these to set the price for the current MPF product.

A9.34 We also discuss the historical position in terms of Openreach's assessment of whether single jumpering was a more efficient approach. Finally, we discuss more generally the costs and benefits of an MPF product delivered using the single jumpering approach, as compared to MPF using the current jumpering approach.

A9.35 We have not explicitly addressed each point made by TTG in its letter of 18 January 2012 as set out above in paragraph A9.30 and A9.31, but we consider that the discussion set out in the rest of this annex addresses these points.

Use of the single jumpering approach to set the price of MPF

A9.36 In this section we discuss whether MPF delivered via either of the two possible approaches to providing single jumpering (TAM-less MPF and In-line TAM MPF as discussed in paragraph A9.9 above) can be considered as the same product as the current MPF product and we address the question of whether single jumpering should be considered to be more efficient than the current jumpering approach, taking into account our general approach to analysing the efficient level of costs as explained in Section 3 of this draft Statement.

TAM-less MPF

A9.37 The TAM-less approach to single jumpering removes the TAM from the connection between the LLU operator and the MDF in Figure A9.2 above. The removal of the TAM means Openreach would not be able to automatically test the line itself. This would require re-engineering of provisioning and repair processes and may impact the ability of Openreach to meet the service levels offered in the current MPF product. Whilst some CPs may envisage benefits from using only their test equipment, eliminating the cost of the Openreach TAM, we consider this would result in a different product to the current MPF product because it would change the test and repair capabilities, and consequently service levels, of the product. An

arrangement that did not provide the same capabilities as the current MPF product (using the current jumpering approach) would not be a sound basis on which to assess the costs that should be applied to the efficient delivery of the current MPF product.

In-line TAM MPF

A9.38 TTG in particular argued in its response that we should set the price for MPF based on an assumption that single jumpering is more efficient (see paragraphs A9.17 to A9.24 above). This would require us to decide the most efficient way to deliver MPF using the single jumpering approach even though the product is not available. In considering the two approaches shown in Figure A9.1 (for the current jumpering approach) and Figure A9.2 (for a possible single jumpering approach), a key difference is that for the current jumpering approach the TAM and its associated tie cables can be shared between multiple LLU operators, whereas in the single jumpering approach these assets are dedicated to a specific LLU operator. In the current jumpering approach, the utilisation of the TAM and its tie cables is therefore controlled by Openreach and so the cost associated with the TAM and its tie cables have been included in the charges for the current MPF product. Because of this, Openreach is incentivised to maximise the utilisation of these assets in order to reduce its costs. The structure of the charge control provides this incentive because if Openreach achieves a greater utilisation (and so a lower cost) than that included in the charge control, it can retain the difference. Alternatively, if it achieves a lower utilisation (and therefore a higher cost) it is not in a position to increase its prices above the charge controlled level and so cannot recover those costs above the efficient level as set by the charge control.

A9.39 By comparison, in the single jumpering approach, the utilisation of the TAM and its tie cables is controlled by the LLU operator in the same way that the LLU operator has control of the utilisation of the tie cable between itself and the MDF in the current jumpering approach. With reference to Figure A9.1 and A9.2 above, the difference between the current jumpering approach and the single jumpering approach is illustrated in Figure A9.3 below:

Figure A9.3: Differences between the current jumpering approach and the single jumpering approach

	Current jumpering approach		Single jumpering approach	
	Required?	**Utilisation managed by?**	**Required?**	**Utilisation managed by?**
Tie cable A	Yes	Openreach	No	
Tie cable B	Yes	Openreach	No	
Tie cable C	Yes	LLU operator	No	
Tie cable D	No		Yes	LLU operator
Tie cable E	No		Yes	LLU operator
TAM	Yes	Openreach	Yes	LLU operator

A9.40 This structural difference in who controls the utilisation, and thus costs, of the TAM and its tie cables, and the different arrangement of these network elements, means that MPF delivered using the single jumpering approach needs to be considered as a different product to the current MPF product. The current MPF product, using the current jumpering approach, would include the TAM (as in Figure A9.1 above) whereas the MPF product using the single jumpering approach (as in Figure A9.2) would not include the TAM - this would be included separately in other products (e.g. a tie cable product).

A9.41 Therefore it would be incorrect to assess whether the single jumpering approach is more efficient because we would not be making a like-for-like comparison. We made this point in the March 2011 Consultation, where we argued that the LLU operator should be responsible for the costs that derive from the utilisation of the TAM and tie cables in the single jumpering approach, because it would be responsible for the utilisation of these assets. Whilst in the March 2011 Consultation we made this point in relation to incentives for efficiency, we also noted that this would mean these costs would then need to be treated separately from the MPF rental product. [324] In the March 2011 Consultation we explained that because the single jumpering approach results in a different MPF product and a different tie cable product, pricing MPF delivered with current jumpering approach as if it were delivered through single jumpering would create significant distortions to incentives. With single jumpering, the use of the MDF is lower and there would be no TAM costs in the MPF product (so tending to reduce the MPF charge), but the tie cable costs would be higher because the tie cable would need to incorporate the TAM. If an MPF line were delivered through current jumpering but charged on the basis of single jumpering, the purchasing CP may be able to have the 'best of both worlds' - having the potential benefit of single jumpering without having the need to actually pay for the more expensive tie cable that would be needed to make single jumpering work. This would mean that CPs would have no incentive to actually move to single jumpering, and there could be a distortion in the choice of wholesale products. In addition, pricing MPF that involves the current jumpering approach as if it were delivered using the single jumpering approach could mean that Openreach would be unable to recover its costs. Given that the current jumpering approach was developed and agreed with CPs, and that we consider that MPF delivered via a single jumpering approach is a different product to that delivered via the current jumpering approach, we do not consider it would be appropriate for Openreach to be unable to recover its efficiently incurred costs in delivering the current product.

A9.42 TTG argued that any such disincentive to actually migrate would be small and correct incentives could be provided through pricing signals. However, we do not consider that this means the current MPF product can be priced as though it is delivered via the single jumpering approach but rather that where two separate products are available the pricing of each needs to be correctly set to ensure incentives to use the products are consistent with the underlying costs.

A9.43 We therefore consider that MPF delivered using the single jumpering approach, with an in-line TAM, should be considered as a different product to MPF provided using the current jumpering approach. Basing the costs, and therefore the charges, of the current MPF product on the costs of the single jumpering approach would not be appropriate.

[324] See paragraph 8.47 and footnote 147 of the March 2011 Consultation.

Summary on possible approaches to single jumpering

A9.44 Based on the above analysis, we conclude that both TAM-less MPF and in-line MPF should be considered as different products to the current MPF product, rather than as alternate approaches to delivering the same product. Because of this it would be inappropriate to price the current MPF product on the basis of the single jumpering approach, which would have a different price due to the different structure of the product.

Other points raised on single jumpering

A9.45 TTG and Sky argued that Openreach considered the single jumpering approach was more efficient in 2007. Both TTG and Sky also raised arguments that the single jumpering approach could be beneficial in a number of different scenarios, such as to support new growth, despite Openreach rejecting the SoR raised by TTG. We have therefore addressed these points below.

Historic position on single jumpering

A9.46 As set out in paragraph A9.19 above, TTG said BT's use of single jumpering in 21CN planning indicated that it considered single jumpering to be the efficient approach in 2007.[325] TTG also subsequently referenced an Openreach presentation in 2007 which discussed the potential use of single jumpering.[326]

A9.47 TTG argued that the fact that no other CPs use the 21CN tie cable is irrelevant in considering whether single jumpering is more efficient. We accept the point made by TTG that benefits from using 21CN tie cables may not be realised because the MPF product is priced based on the current jumpering approach. As such, the benefits of the 21CN tie cable supporting an in-line TAM would not lead to a reduction in the MPF rental price, but the CP would incur the higher cost of the tie cable.

A9.48 However, we do not agree with its argument that BT's planned use of a single jumpering approach in 21CN demonstrates that BT considered single jumpering to be more efficient. We would note that TTG has not provided any information about BT's use of single jumpering in 21CN that was not considered by the Competition Commission in reaching its conclusion. We note that in the 2009 LLU Appeal and the 2009 WLR Appeal, the Competition Commission said that "*we are not persuaded that single jumpering would be a more cost effective wiring arrangement*." [327] In making its assessment, the Competition Commission took account of TTG's evidence, which included BT's possible use of single jumpering when it used MPF in its 21CN deployment, and that BT had indicated it originally planned to use single jumpering in its 21CN but it had revised its plans.[328]

A9.49 We would also make the following points:

- The use of a single jumpering approach by BT allowed for the fact that as part of its 21CN strategy, a mass migration from 20CN WLR plus SMPF to 21CN was required. The issues discussed above in relation to utilisation of TAM assets

[325] See paragraph 88 and 89 of the TTG response to the March 2011 Consultation.
[326] See paragraph 39 of the TTG further response on Single Jumpering.
[327] See paragraphs 3.120 to 3.127 of the Competition Commission's WLR Determination.
[328] See paragraphs 3.113 of the Competition Commission's WLR Determination.

could be addressed because BT would be migrating all existing lines so that volumes of TAMs could be more accurately assessed to maximise utilisation; and

- In the event, in early 2009, BT changed its plans for 21CN deployment. Whilst it continued deployment of 21CN to provide upgraded broadband services, BT has not taken forward the migration of its voice services onto 21CN. Therefore BT continues to consume SMPF for the provision of broadband services.

A9.50 The discussion Openreach had with some CPs about the possibility of using a single jumpering approach for MPF during 2007 was not considered in the Competition Commission's consideration of single jumpering, even though the presentation pre-dated the 2009 LLU Appeal and the 2009 WLR Appeal. It is our view that this does not indicate that Openreach considered single jumpering to be a more efficient approach. Openreach has stated to us that this was a preliminary technical discussion.[329] The single jumpering approach that was presented would not have been available in all cases or locations and was presented as an option to resolve issues relating to the potential exhaustion of MDF capacity.[330]

A9.51 The presentation shared by Openreach with TTG indicated some advantages of the single jumpering approach but also a number of disadvantages and, at the time, the costs and benefits of the approach were not evaluated. The presentation indicated that the price of MPF would be the same whether provided by a single jumpering approach or the current jumpering approach, that Openreach would need the ability to selectively deploy the single jumpering approach in order to justify the cost of providing dedicated TAMs to LLU operators and that support from CPs was required for Openreach to develop the approach further. TTG stated that, "*We understand that Openreach did not pursue deploying [single jumpering] following this initiative in 2007 since it required CP support which was not forthcoming*".[331] However, TTG argued that the lack of CP support "*is of no relevance since Openreach were not offering to share the benefits of [single jumpering]*".[332]

A9.52 Any CP to which Openreach presented the possible use of single jumpering in 2007 could have addressed this lack of sharing of benefits (for example by raising an SoR). Openreach had not received any SoRs for single jumpering by 2009, as explained in the CC determination of the 2009 LLU Appeal and 2009 WLR Appeal.[333]

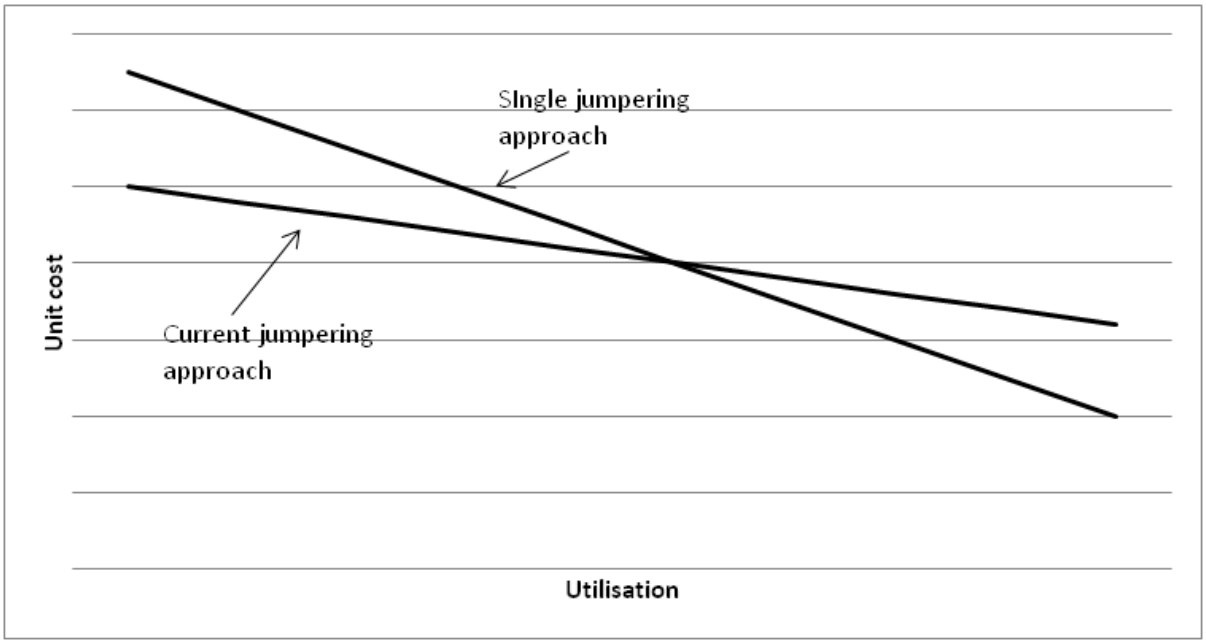
A9.53 Openreach did not develop the approach in the presentation in 2007, and so did not assess the cost and benefits of it, because of the lack of CP support for development of the approach. It would not be reasonable to assume Openreach should have developed the single jumpering approach despite the lack of support for its proposals by the potential customers of the product. Given this background, BT's evidence during the 2009 LLU Appeal and 2009 WLR Appeal indicated it was unclear to BT whether single jumpering was a more efficient approach. Based on this evidence, and evidence from TTG and Ofcom, the Competition Commission concluded that Ofcom had not erred in concluding that single jumpering was not more efficient.

[329] See 14th S135 request, 30 January 2012.
[330] See the Openreach 2007 Presentation on Single Jumpering
[331] See paragraph 41 of the TTG further response on Single Jumpering.
[332] See paragraph 42 of the TTG further response on Single Jumpering.
[333] See paragraphs 3.121 of the Competition Commission's 2009 WLR Determination.

A9.54 In assessing whether Openreach was aware that single jumpering was the more efficient approach in 2007, it is also worth considering the development of the MPF product. The MPF product was developed through industry-wide discussions, which agreed the current jumpering approach. One important aspect of the current jumpering approach is the shared use of TAMs. When MPF was first developed, demand for the product was uncertain. The shared use of TAMs, managed by Openreach, meant that whilst demand was low, more efficient use of assets could be achieved. Demand for MPF has grown significantly since the MPF product was designed and the argument now put forward is that single jumpering is more efficient.

A9.55 Figure A9.4 below shows a simple example of the costs of the two different approaches. It does not represent actual costs but merely serves to support this discussion.

Figure A9.4: Simplified example of relative costs of different jumpering approaches



A9.56 When MPF was initially considered, the low volumes and uncertainty of demand meant the current jumpering approach was reasonable because the sharing of TAMs and the tie cables connecting TAMs to the MDF meant a higher utilisation could be achieved. If a single jumpering approach had been used at the time instead, each LLU operator would have had a low initial utilisation of their dedicated TAM assets (and so a higher unit cost) and also, given uncertainty of demand, a higher risk that future growth would justify the higher initial costs. In Figure A9.4 above, whilst utilisation is low, it can be seen that the costs of the single jumpering approach would have been higher. As we have explained in paragraphs A9.38 to A9.43 above, the use of single jumpering means that the utilisation of the TAM and the tie cables connecting the TAM to the MDF and to the LLU operator is not under the control of Openreach. Therefore, Openreach would be unable to assess at what point a single jumpering approach could be more efficient overall without the input of LLU operators. Even then, given that different LLU operators would have different views, and different exchanges would have different conditions, it is not clear Openreach would be in a position to make the assessment of whether the single

jumpering approach was more efficient (e.g. to determine if and when the two lines in Figure A9.4 have crossed). It also needs to be noted that, initially, SMPF was the predominant product used by most LLU operators and was used either exclusively or in addition to MPF. The SMPF product does not include a TAM and the tie cables are connected directly to the MDF. Using the current jumpering approach to provide MPF, tie cables can be shared between SMPF and MPF. This has allowed LLU operators that initially used SMPF for some or all of their consumer base to migrate to MPF using the same tie cables. If the single jumpering approach had been used, separate tie cables would have been required for SMPF and MPF, reducing utilisation on both sets of tie cables whilst the LLU operator is still using both SMPF and MPF. This would have increased the costs of LLU operators that chose to migrate from SMPF to MPF during the migration. Also, Openreach would not have been able to assess the relative attractiveness of the single jumpering approach, compared to the current jumpering approach for MPF, as it would have needed to assume the extent and rate of migration from SMPF to MPF by different LLU operators.

A9.57 In considering the single jumpering approach, it would be reasonable for Openreach to consider that MPF delivered via the single jumpering approach is a different product to the current MPF product, given that it results in the TAM being removed from the MPF product and being included instead in the tie cable product. We do not accept that Openreach is required, based on an obligation to act efficiently (as TTG stated), to unilaterally change the MPF product, the demarcation point between MPF and the tie cable for which the LLU operator is responsible, or the charging structure of the MPF and tie cable products. These changes would result in LLU operators purchasing different products to those that they originally agreed, and those LLU operators with lower volumes and utilisation of their tie cables could be worse off. We do not think it would be reasonable or appropriate for Openreach to make such a change without agreement of the LLU operators.

A9.58 TTG argued that the absence of a SoR is irrelevant because Openreach has an obligation to act efficiently.[334] In its letter of 18 January 2012 TTG argued that an SoR is not necessary and that Openreach can make efficiency improvements to products without the need for an SoR.[335] We agree that Openreach can make efficiency improvements to products without the need for an SoR. However, this does not mean Openreach must develop any new product that may, in some specific circumstances, provide a lower cost approach to some CPs. We would also note that while BT (including Openreach) has a number of regulatory obligations, there is no explicit obligation for BT or Openreach to act efficiently. However, in setting SMP conditions Ofcom will consider, in line with our duties, the most appropriate conditions to set for the purposes of promoting efficiency. In this case, as set out above, it is not clear that Openreach is acting inefficiently by continuing to provide MPF using the current jumpering approach.

A9.59 Therefore, we conclude that it is not evident that Openreach considered single jumpering to be the more efficient approach to providing MPF in 2007.

Potential costs and benefits of the single jumpering approach

A9.60 We have set out above that we do not consider it is appropriate to set prices of the current MPF product as if it were delivered using a single jumpering approach. We

[334] See paragraph 114 of the TTG response to the March 2011 Consultation.
[335] See TTG letter of 18 January 2012.

have also explained why we do not agree with TTG's argument that Openreach was aware that single jumpering was the more efficient approach in 2007.

A9.61 As set out in the March 2011 Consultation, in October 2010, TTG submitted a SoR for TAM-less MPF.[336] Openreach rejected this SoR and also included an assessment of the in-line TAM approach in this rejection. The Copper Commercial and Product Group requested that Openreach re-visit the SoR and carry out additional analysis. This process has not completed, in part due to the discussion of single jumpering within this charge control. We have therefore considered whether single jumpering could be an efficient approach for providing a new MPF product, in order to inform the discussions of the Copper Commercial and Product Group.

A9.62 In assessing the benefits and costs of single jumpering, it is important to carry out a like-for-like comparison. As such, we take into account all the relevant network elements shown in Figure A9.1 and A9.2 – jumpering on the MDF, TAMs and all tie cables required to connect to the LLU operator. Therefore we consider the MPF plus associated tie cable products that LLU operators must purchase.

A9.63 We again consider the simple diagrams of the wiring approach in the two cases in Figure A9.1 and A9.2. If all the tie cables have the same unit cost, the TAM is the same in both cases and the utilisation of each network element is the same, then it is clear that single jumpering will have the lower network cost, because it uses one less tie cable and one less jumper. However, the costs of tie cables, and the utilisation of the tie cables and TAMs are unlikely to be the same in the two different approaches.

A9.64 In its further response on Single Jumpering, Openreach did not set out its views on any benefits of the single jumpering approach. Rather, it highlighted the reasons for its rejection of TTG's SoR due to high development costs.[337] In the further information on costs and benefits of the single jumpering approach Openreach provided,[338] it did identify cost savings due to the reduced use of the MDF. However, Openreach only included the use of the MDF in this assessment when the repair of the MDF should also have been included.

A9.65 TTG stated that "*cost savings resulting from using [the current jumpering approach] are £5.80 per line (in 2010/11):*

- *£4.30 per year in [MDF] cost since only one jumper (based on RFS cost for WLR rather than MPF[339])*
- *£1.50 per year in tie cable costs. Rather than three £1 tie cables (two part of MPF product, one paid by LLUO) only one tie cable is required for SJ. This 'inline' tie cable may be slightly more expensive[340] and will have lower utilisation. We estimate it costs £1.50. Thus the saving is 3 x £1 less £1.50 = £1.50*
- *We assume no saving in TAM cost though it is possible that the TAM used in a SJ configuration is lower cost."[341]*

[336] See paragraph 8.45 of the March 2011 Consultation.
[337] See 14th S135 request, 30 January 2012.
[338] See 14th S135 request, 30 January 2012.
[339] See Figure 8.9 of the March 2011 Consultation.
[340] TTG noted that it was "*not aware of any reason as to why this need be more expensive*". See footnote 8 of the TTG further response on Single Jumpering.
[341] See paragraph 17 of the TTG further response on Single Jumpering.

A9.66 Therefore, TTG has identified a saving in MDF costs and a saving in tie cable costs even though the tie cables that are still used will be more costly (due to being more expensive and having lower utilisation). TTG has assumed no saving from TAMs.

A9.67 We consider the information provided by Openreach and TTG below.

MDF costs

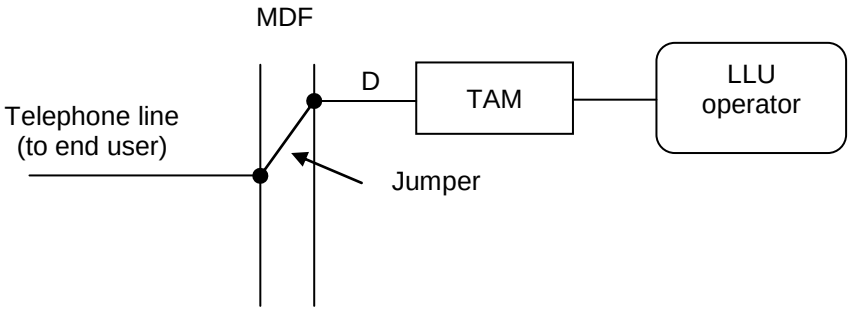
A9.68 As explained above, we consider Openreach has under-estimated the reduced costs in MDF usage as it has not included the reduced costs of repair.

A9.69 In considering whether TTG has identified the relevant cost savings, we have estimated MDF cost savings using the cost stacks of MPF and WLR presented in the March 2011 Consultation. We have used this to align with the data presented by TTG in its further response.[342] We have updated these cost stacks in this draft Statement. However, the changes between the March 2011 Consultation and this draft Statement are very small and do not impact the discussion set out below.

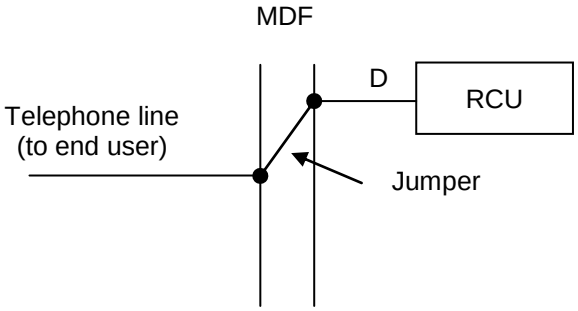
A9.70 The MPF cost stack captures the costs relevant to the current jumpering approach. There is no cost stack for a single jumpering approach to MPF. Therefore we have considered the WLR cost stack instead. A comparison of the two is shown below in Figure A9.5.

Figure A9.5: Possible single jumpering wiring arrangement for MPF and the wiring arrangement for WLR

Single jumper MPF



WLR



Source: Ofcom

[342] We have updated these costs stacks in Annex 5 – Review of unit costs of this Statement.

A9.71 As can be seen from Figure A9.5, the connection across the MDF and the number of tie cables connected to the MDF are the same in the single jumpering approach as in WLR. Therefore, we consider that the WLR cost stack provides a reasonable proxy for the costs of the use of the MDF and the tie cables from the MDF to the TAM for the single jumpering approach.

A9.72 TTG has used this approach to identify a saving of £4.30 per annum due to the reduced use of the MDF. We note that TTG has referenced the RFS figure from Figure 8.9 of the March 2011 Consultation. We did not forecast the variation in the RFS figure over time. However, in Figure 9.3 and 9.4 of Annex 9 of the March 2011 Consultation, we showed the cost stacks for MPF and WLR and these show the differential in the use and repair of the MDF by MPF and WLR reducing. Figure A9.6 below shows the difference in the cost stack line items that were set out in Figure 9.3 and 9.4 of Annex 9 of the March 2011 Consultation. For 2010/2011 this shows a difference in cost of £3.90, and the difference compared to the RFS figure quoted by TTG relates to the fact that the cost stack items do not include a specific allocation to account for ROCE:[343]

Figure A9.6: Change in cost stack differentials in March 2011 Consultation

	2009/10	*2010/11*	*2011/12*	*2012/13*	*2013/14*
MPF Use of MDF	£5.82	£4.42	£4.32	£3.50	£3.20
MPF Repair on MDF	£3.52	£3.18	£3.01	£2.88	£2.89
WLR Use of MDF	£2.91	£2.21	£2.16	£1.75	£1.60
WLR Repair on MDF	£1.65	£1.49	£1.41	£1.35	£1.36
Difference in use of MDF costs	£2.91	£2.21	£2.16	£1.75	£1.60
Difference in repair of MDF costs	£1.87	£1.69	£1.60	£1.53	£1.53
Difference (use plus repair)	£4.78	£3.90	£3.76	£3.28	£3.13

A9.73 Therefore whilst we agree with the general approach taken by TTG, we would expect the benefit would reduce over time, because the difference in the relevant costs is reducing.

A9.74 The above data reflects savings that could be made on rental charges. As TTG noted, savings on connection costs could also be achieved because provisioning would require less activity. TTG "*estimate[s] this at £6 per connection/disconnection based on Openreach's connection costs".*[344] We accept that this is logically correct though the source of the £6 assumed by TTG is not clear. Openreach suggested the nearest comparable services in its price list would be "MPF transfer" for the cost of connecting MPF using the current jumpering approach, and "MPF to WLR transfer" for the cost of connecting MPF using the single jumpering approach. The prices for these are, respectively, £39.79 and £34.86, giving a difference (in price) of just under £5.[345] We would expect prices to be reflective of costs, and so would expect the potential cost saving to also be just under £5.

[343] See paragraph 17 of the TTG further response on Single Jumpering.
[344] See paragraph 17 of the TTG further response on Single Jumpering.
[345] See Openreach price list, accessed 13/1/2012.

Cost of tie cables and TAMs

A9.75 There is one less tie cable used in the single jumpering approach, compared to the current jumpering approach. If the costs and utilisation of tie cables are the same then there is clearly a saving from the single jumpering approach. TTG has assumed that tie cables in the single jumpering approach are more costly and have a lower utilisation, but this increased cost does not entirely offset the benefit of using fewer cables. However, we would note that TTG indicates that only one tie cable is required in the single jumpering approach though, in fact, two are needed. If two tie cables are included, using TTG's assumption that each costs £1.50, then there would be no saving – the current jumpering approach would have three tie cables at £1 each giving a total of £3 whilst the single jumpering approach would have two tie cables costing £1.50, also giving £3.

A9.76 TTG has assumed a cost of £1.50 for tie cables in the single jumpering approach based on a lower utilisation and these tie cables being more expensive, though it notes it sees no reason why these cable should be more expensive. Openreach, in its further submission to Ofcom,[346] also included the costs of the relevant tie cables in its assessment. In doing so it included three tie cables for the current jumpering approach, and two for the single jumpering approach. However, it calculated the cost of the three tie cables in the current jumpering approach on the basis of the current price for a 100-pair tie cable, whilst for the tie cables in the single jumpering approach it used the current prices of the 21CN tie cables, which are more expensive.[347] It took this approach because the 21CN tie cable is the only tie cable product currently available that provides access to the TAM. It also applied different utilisations in the two cases, based on the utilisation of TAMs and tie cables in the current jumpering approach. The outcome of this analysis is that, based on Openreach's assumptions, the extra costs of tie cables (together with a higher cost of TAMs due to lower utilisation) more than offsets the benefits from reduced MDF usage identified by Openreach.

A9.77 We do not discount that the tie cables used in the single jumpering approach may cost more if, for example, they have a higher specification of cable, or the cable supporting fewer pairs. However, we believe that it would be for industry discussion to consider whether tie cables with these higher costs are the appropriate approach, or whether existing 100 pair tie cables used by LLU operators in the current jumpering approach could also meet the requirements for a single jumpering MPF product.

A9.78 In the March 2011 Consultation we also included the cost per line of TAMs, as shown below in Figure A9.7.

Figure A9.7: TAM costs in March 2011 Consultation

	2009/10	*2010/11*	*2011/12*	*2012/13*	*2013/14*
Test Access Management System (TAMS)	£6.14	£4.37	£4.00	£3.42	£3.00

[346] See 14th S135, 30 January 2012.
[347] See Openreach Price List, accessed 24/1/2012.

A9.79 TTG refers to the 2013/2014 figure shown in Figure A9.7 in its further response, albeit with an allocation of 99 pence added to allow for ROCE.[348] In its model TTG also includes an assumption as to how costs would change over time.[349] TTG has used these assumptions to calculate TAM costs in the years prior to 2013/2014. This leads to a TAM port cost in TTG's modelling for the years prior to 2013/14 that is lower than the costs shown in Figure A9.7 above. Obviously, any analysis of costs and benefits would need to derive costs on a consistent basis to carry out the assessment. The impact of using the figures above, rather than those used by TTG, depends on forecast utilisation and the point in time from which the use of the single jumpering approach is forecast to commence. Where the use of the single jumpering approach is considered on a forward looking basis, this difference would be less significant.

Summary of potential cost savings

A9.80 Therefore, we do accept that there is potential for single jumpering to be lower cost for certain components of the overall approach, though accurately assessing these may be complex. However, there are several areas where we would expect costs could be higher. Assessing the extent to which these additional costs offset the savings above would be key in assessing whether there is value in considering developing a single jumpering approach for delivery of MPF.

Impact of utilisation on costs of the single jumpering approach

A9.81 TTG recognised that single jumpering may result in a lower utilisation.[350] It assumed that Openreach achieves a 95% utilisation on the tie cables connecting the TAM to the MDF in the current jumpering approach.

A9.82 TTG stated that its utilisation is currently between 65% and 75%[✂] on its tie cables. It also assumed that if the LLU operator paid for the TAM when provisioned (as is the case for tie cables today) as opposed to only paying for the TAM when used, as in the current MPF product via the MPF rental price, there would be an incentive to increase utilisation. TTG stated that it "*would expect to achieve more than 80%"*. [351]

A9.83 The assumptions made by TTG do not agree with data on actual system size provided by Openreach, which stated that the current utilisation of TAM ports is 69% and the current utilisation of tie cables is 55%. TTG argued that the current utilisation should be treated as a worst case and that we would need to consider the utilisation that would be achieved in the single jumpering approach, not what is currently achieved. As such, TTG said "*[t]hus any numbers provided by BT must be treated with great caution*".[352]

A9.84 Utilisation is a critical component in assessing the likely benefits that may accrue from adopting a single jumpering approach. A key driver will be whether single jumpering is used only to support new provision, or whether migration of the existing base is also considered. We discuss this below.

[348] See paragraph 17 of the TTG further response on Single Jumpering. TTG included the 99p based on further information provided by Ofcom.
[349] See paragraph 17 of the TTG further response on Single Jumpering.
[350] See paragraph 17 of the TTG further response on Single Jumpering.
[351] See paragraph 17 of the TTG further response on Single Jumpering.
[352] See paragraph 17 of the TTG further response on Single Jumpering.

Migration versus expansion

A9.85 TTG presented four options as to how single jumpering could be implemented:

- "*Option A: Force migrate all MPF lines to single jumpering (SJ)*
- *Option B: Provision all new connections on SJ*
- *Option C: Put only net capacity expansion or growth onto SJ and so leave the number of MPF tie cables / lines double jumpered (DJ) unchanged*
- *Option D: Put no lines onto SJ*"[353]

A9.86 TTG accepted that in Option A and Option B there are additional costs. In Option A there would be the cost of re-jumpering lines whilst under both Option A and B there would be the cost related to the existing TAMs and tie cables that are no longer used. TTG stated that neither of these costs occurs in Option C – the expansion only option.[354]

A9.87 TTG then presented the results of its modelling exercise for Option C. Its model also supported Option A and B but excludes modelling of the additional costs it identified. TTG argued that these costs are, anyway, irrelevant because the charge control should be set based on efficient forward looking costs of single jumpering and so would exclude these costs. We have discussed above that we consider that MPF delivered via single jumpering is a different product to the current MPF product and that we do not consider that Openreach was aware (or even in a position to make an assessment) that the single jumpering approach was more efficient in 2007. In these circumstances we think it is appropriate to consider the costs of migration of existing lines between the two approaches. The current charge for bulk migration is £35.84 per line. [355] Whilst the cost of migrations where the whole base is migrated may differ slightly from this, it gives a sense of the scale of costs that would be incurred in migrating to the single jumpering approach. Taking TTG's estimated saving of £5.80 per annum (and ignoring for now the arguments in paragraphs A9.72 to A9.79 above that this may over-state savings), this would suggest a payback period of over six years, before cost of capital is added and before the costs of product development and any relevant stranded assets are included. This simple assessment indicates that migration of existing lines to the single jumpering approach is therefore unlikely to be cost effective since the possible savings will be outweighed by the related costs.

A9.88 TTG's assessment of Option C showed significant benefits arising from it. However, in an expansion only strategy, we would expect the utilisation of tie cables and TAMs could be very low. This is because only new provides of MPF that cannot be provided using existing installed tie cables would be met using the single jumpering approach. It is therefore not clear that the current utilisation (either that stated by TTG or, indeed, the lower utilisation stated by Openreach), is a sound basis for assessing utilisation in the expansion only case. Because TTG has run its model assuming the single jumpering approach was available from 2008, the volumes used by TTG assumes some of the growth since then was able to be supported on single jumpering.[356] Given that growth in MPF lines in total grew significantly in the

[353] See paragraph 10 of the TTG further response on Single Jumpering.
[354] See paragraphs 12 and 13 of the TTG further response on Single Jumpering.
[355] See Openreach price list, accessed 23/1/2012.
[356] See table on page 4 of the TTG further response on Single Jumpering.

period 2008 – 2011, this would have a significant impact in TTG's analysis because it would allow much higher utilisation to be assumed for the single jumpering approach than if the modelling took only a forward look view from now onwards.[357]

A9.89 In Option B (all new provision is supported via a single jumpering approach), a larger volume of circuits would be provided than in the expansion only approach. However, in this case the cost of TAMs no longer used would need to be considered.

A9.90 A further area that would need to be considered would be the extent to which all LLU operators that use MPF would use the single jumpering product. Whilst it may be attractive to some larger CPs, this may not be the case for all.[358] It would also be the case that the relative attractiveness of the single jumpering approach would vary on an exchange by exchange basis due to the existing customer base of each LLU operator, the total customer base served by the exchange that could ultimately take service from the LLU operator and the number of LLU operators competing for customers in the exchange.

A9.91 Therefore, there is considerable uncertainty in the utilisation that should be assumed as the basis for assessing the costs of the single jumpering approach. As explained above, we have concluded that MPF delivered by the single jumpering approach is a different product to the current MPF product. We have also explained why we do not consider that we should set the charges for the current product on the basis of the single jumpering approach. As such, we have not assessed the likely utilisation of any new product provided using the single jumpering approach as this will depend on if and when it becomes available and the individual decisions of each CP, in each exchange area, as to where they use the new product compared to the current product.

Product Development

A9.92 We must also take into account product development costs. TTG stated that it has used a figure of £3.5 million in its modelling exercise. This figure was presented by Openreach as the cost of product development to support TAM-less MPF and Openreach had indicated the cost of developing an in-line TAM single jumpering MPF product would be similar. TTG said it believed this is a conservative estimate because in-line TAM should be a simpler product to develop.[359]

A9.93 This cost of product development would depend on the exact nature of the product and would need to be shared across each line provided using the single jumpering approach. Therefore, assumptions on volumes and rate of take-up would be critical in assessing the unit cost of product development incurred by each line.

Summary on potential costs and benefits of single jumpering

A9.94 It may be possible that, under certain circumstances, in particular in order to support the expansion-only approach an alternative single jumpering product could be a lower cost approach to deployment of MPF. However, any such analysis would be dependent on the assumptions of the volume of lines provided using the single

[357] We have set out our volume forecasts for MPF in Annex 2 – Volume Forecasts of this Statement.
[358] TTG has taken some account of this by including only 95% of MPF volumes in its calculation of the number of lines using single jumpering. See paragraph 17 of the TTG further response on Single Jumpering.
[359] See footnote 14 of the TTG further response on Single Jumpering.

jumpering approach as opposed to those provided using the current jumpering approach. These assumptions will be CP specific and will be likely to mean that this approach is not relevant to some CPs that purchase MPF. The specific design of the product would also influence this assessment – for example to conclude on the specification, and therefore the costs, of the tie cables that would need to be provided in the single jumpering approach.

A9.95 It is not clear that Openreach comprehensively assessed the potential benefits and costs of the single jumpering approach, particularly in the expansion-only case, before rejecting the SoR. The Copper Commercial and Product Group has had further discussions on the single jumpering approach, but the consideration of single jumpering within this charge control has meant those discussions have not been progressed. We think that these discussions should be re-started if the Copper Commercial and Product Group still considers that there is value in progressing the development of a new MPF product based on the single jumpering approach.

Conclusion on single jumpering

A9.96 We have set out above that we do not consider the price for the current MPF product should be set on the basis of the costs of the single jumpering approach, because these would be two different products. The incentives for efficiently managing the utilisation of assets are different in the current jumpering approach compared to the single jumpering approach, such that they should be considered separate products.

A9.97 We have also concluded that it would be unreasonable to have expected Openreach to introduce a new single jumpering product without industry support for the development of such a product, after having considered all aspects of the product and its costs and benefits (and we consider this process has not yet been completed). BT's use of single jumpering in the implementation of 21CN, and discussions Openreach had with some CPs about single jumpering in 2007, do not demonstrate that Openreach was aware that single jumpering was the most efficient mechanism for providing MPF.

A9.98 We have also set out that there may be value in progressing the discussions at the Copper Commercial and Product Group because it may be possible that, under certain circumstances, in particular in order to support the expansion-only approach an alternative single jumpering product could be a lower cost approach to deployment of MPF.

Annex 10

Cost model reconciliation to RFS and comparison to Openreach Management Accounts

A10.1 This Annex describes the work carried out to meet two objectives. The first objective was to ensure that the base year data for 2009/10 was consistent with the 2009/10 RFS. The second was to ensure that the first forecast year's output (2010/11) from our model was consistent with the actual 2010/11 Openreach Management account outputs.

A10.2 Ensuring our model's aggregate base year is consistent with the independently audited and published 2009/10 RFS is important because it provides us and stakeholders' confidence that the aggregate data used in our model is materially free from bias and error. Secondly, by reconciling unit costs in the base year to the RFS we are able to demonstrate that the activity and product allocations used in the Cost Allocation model, which aim to replicate on a simplified basis, the allocations used to prepare the RFS, actually do so. The work done is ensuring this is set out from para A5.4 below.

A10.3 Ensuring the outputs from our first year's forecast are consistent with the March 2011 Management accounts is important because it demonstrates that our model, when populated with actual assumptions will produce actual results. As set out from para A5.98, our work focussed on explaining the variances between the modelled and actual results caused by differences in modelled and actual assumptions.

Reconciliation to RFS

A10.4 As explained in the March 2011[360] Consultation, we compared our cost estimates with cost estimates calculated by Openreach using the same data in its own cost modelling. Its cost model, which attempts to "shadow" our Cost Forecast and Cost Allocation model using the same base data we were provided, is called the Openreach Cost Stack (OCS) model. The results between the two models, using the unadjusted Openreach base year cost data (but excluding the RAV and Duct valuation adjustments) were consistent. As Openreach had reconciled its own cost estimates to the 2009/10 RFS, we sought to rely on this piece of evidence as we understood the differences between our cost modelling and their cost modelling. Openreach provided their reconciliation together with a comparison of the unadjusted unit cost estimates to the figures in the 2009/10 RFS.[361]

A10.5 As explained in the March 2011 Consultation,[362] the reconciliation provided further assurance that the data provided by Openreach for our cost modelling was robust. However, in the March 2011 Consultation, we noted[363] that we would obtain further information on the reconciliation, particularly in relation to reconciling differences which did not appear to add up, to provide additional confidence that the base year data was consistent with the RFS.

[360] Para 7.33
[361] S135 dated 23 September 2010
[362] Para 7.35
[363] Para 7.38

A10.6 We have undertaken this further reconciliation, the results of which are set out below. There remains an level of unexplained difference which we do not consider the difference is material as can be seen in the summary figure;

	Costs used in modelling (OCS) £'m	Unexplained differences from RFS £'m	% of OCS
CCA costs	545	1	0%
MCE	1131	(41)	(4%)

A10.7 Unexplained CCA costs differences were less than 0.2% of total CCA costs, whilst the unexplained MCE is actually lower in the OSCs costs would suggest. The small unexplained differences confirm the robustness of our approach.

Figure A10.1: Openreach reconciliation of aggregate costs to the RFS[364]

2009/10 RFS	WLR	Local Access
	£m	£m
Revenue	2,420	439
HCA Costs	1,798	364
CCA adjustments	(482)	(55)
CCA Costs	1,316	309
Return	1,104	130
MCE	7,953	952

[364] Section 135 provided on 28th September.

Figure A10.2 Total Adjustments to the RFS (2009/10)[365]	WLR	LLU including Internal
	£m	£m
Revenue – see Figure 6.6a	(71)	361
HCA Costs – see Figure 6.6a	(17)	250
CCA Adjustments	3	(14)
CCA Costs	(14)	236
Return – see Figure 6.6a	(57)	125
MCE – see Figure 6.6a	(768)	180

Resultant OCS 2009/10	WLR	LLU including Internal
	£m	£m
Revenue	2,348	800
HCA Costs	1,781	614
CCA Adjs	(479)	(69)
CC Costs	1,302	545
EBIT	1,047	255
MCE	7,185	1,131

Figure A10.3: Detailed adjustments

Adjustments	WLR	LLU including Internal
	£m	£m
Revenue Adjustments		
Other non SMP Markets		375
Northern Ireland	(69)	(14)
Roundings	(2)	0
Total revenue adjustments	(71)	361

[365] Negatives mean revenues are costs need to be removed from the RFS to get to the OCS cost figure used as a basis for our modelling.

HCA Cost Adjustments		
Other non SMP Markets		274
Northern Ireland	(59)	(22)
Additional LLU power		17
Cost of Capital on assets owned by BT Operate	35	6
Other Allocation Differences	(8)	(25)
Total HCA Cost adjustments	(17)	250

CCA Adjustments		
Other Markets	0	(17)
Northern Ireland	18	3
Less BTO assets	(9)	0
allocation differences	(7)	1
Total CCA adjustments	3	(14)

Mean Capital Employed Adjustments		
Other non SMP Markets		321
Northern Ireland	(241)	(29)
Less BT Operate Assets included in Cost of Sales	(345)	(62)
Less: Assets held by BT Group	(270)	(86)
Debtors	195	76
Allocation Differences	(107)	(41)
Total MCE Adjustments	(768)	180

Figure A10.4 :Total Reconciliation Between Regulatory Financial Statements (RFS) and Openreach Cost Stacks (OCS) for Key Products - 09/10

	Wholesale PSTN premium rentals (external)	Wholesale PSTN basic rentals (external)	Local Loop Unbundling rentals	Shared Metallic Path Facility (SMPF) rentals	Wholesale ISDN30 rentals (external)
	£/ unit	*£/ unit*	*£/ unit*	*£/ unit*	*£/ unit*
HCA Costs	74.08	76.13	73.21	12.25	54.44
CC Adjustments	(21.01)	(22.10)	(21.34)	0.22	0.29
Cost of Capital	34.86	36.13	33.32	0.99	14.97
Roundings	(0.02)	0.13	0.31	0.04	-
RFS Unit Cost	**87.90**	**90.28**	**85.49**	**13.50**	**69.71**

Summary Reconciling Differences

Northern Ireland	(0.54)	0.37	(0.67)	(0.16)	(0.14)
Line Length Adj	1.28	(0.54)	1.07		
General Cost Allocations (see below)	(0.60)	(2.07)	0.12	(0.39)	(1.15)
Total adjustments	**0.14**	**(2.24)**	**0.52**	**(0.56)**	**(1.28)**
OCS Unit Cost	**88.04**	**88.04**	**86.01**	**12.94**	**68.42**
General Cost Allocation Differences					
CCA – BTO	(0.70)	(0.70)	0.00	0.00	(0.27)
Group Assets inc notional debtors	(1.21)	(1.08)	(0.94)	(0.16)	(0.92)
Actual Debtors in OSC	0.82	0.82	0.89	0.13	0.25
Other cost allocation differences	0.48	(1.11)	0.16	(0.36)	(0.20)
General Cost Allocations	**(0.60)**	**(2.07)**	**0.12**	**(0.39)**	**(1.15)**

A10.8 The cost modelling used to generate these estimates cannot replicate exactly the detailed allocation bases used to derive the RFS and as a result there are some differences that have been attributed to "Other cost allocation differences". The RFS are produced using complex allocation rules that involve at least eight separate stages of cost allocation. These detailed attribution methodologies are set out in the 'Detailed Attribution Methodology' a document which is over 1000 pages long and sets out thousands of categories of cost headings.[366]

A10.9 The modelling approach we used as set out in Section 6 uses a simplified two stage allocation process, the Base 1 allocation consists of 168 cost headings (a number of which are not used) and 73 Base 2 activity headings. Moving from an eight stage process to a two stage process will involve making simplifications as to how costs are allocated and it is inconceivable that differences would not arise.

Reconciliation of Ofcom model to Openreach's March 2011 Management Accounts

A10.10 In September 2011 BT's March 2011 RFS were published. We therefore considered whether we should fully refresh the model; i.e. replace the March 2011 actual/forecast data with actual data from the RFS. Alternatively we could ensure that the 2011 outputs from our model were consistent with Openreach's actual results and only update key significant items.

A10.11 In September 2011 we asked Openreach to assist us in reconciling the outputs of the Cost Forecast model for 2010/11 used in the March 2011 Consultation and their March 2011 Management Accounts. Openreach provided us with their analysis and explanations of the variances in October 2011.[367]

[366] http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Financialstatements/2011/DetailedAttributionMethods2011.pdf
[367] 11th S135 of 4th and 6th October.

A10.12 The analysis set out below showed that the total modelled cost forecast for Openreach was £41m lower than what Openreach actually achieved in the 2011 Management Accounts. The big differences were due to one off items which were not explicitly considered within our assumptions, rather than issues with the main assumptions themselves. If anything, the modelled results tended to slightly under estimate costs rather than overestimate them. On this basis, we are of the view that our model continues to provide a reasonable basis for forecasting costs.

Figure A10.5: Total Reconciliation Between Openreach's March 2011 Management Accounts and Cost Forecast Model

	Variance with Cost Forecast model (£'m)
Revenue	-25
[✂]	[✂]
Total Costs - RFS	**71**

A10.13 This figure shows the variances between the outputs of our Cost Forecast model (before Ofcom adjustments) for the year to March 2011 against what actually occurred per Openreach's Management Accounts. For example actual pay was [✂] higher than we had forecast. The three key variances were as follows:

A10.14 The first significant difference between the Openreach's March 2011 Management Accounts and the Cost Forecast Model related to [✂] additional 'Other Operating Income' for repayments and asset sales. [✂],we decided not to alter our Cost Forecast Model to take account of this. We did however reconsider how this income was allocated given the presence of saleable copper in the base year costs. This is discussed in Annex 4.[368]

A10.15 The second significant difference related to IS costs. As noted in the November 2011 Consultation,[369] we now consider that IS costs were over allocated to Openreach by £100 million in 2010/11.

A10.16 Finally Openreach proposed three Specific RFS regulatory adjustments totalling [✂] million, relating to occupational health and employer's liability for engineers, interest on pension scheme liabilities and a corporate provision for anticipated asset write downs.

- The employer's liability for occupational health and interest on pension scheme liabilities relate to past employee issues which we exclude from our cost forecasts on the same basis as we exclude pension deficit repayment (see the discussion of the pensions liability in paragraphs 6.75-6.88). Therefore we have not changed our cost forecasts.

[368] Para A4.227.
[369] Para 2.6.

- One-off corporate provision relating to the anticipated asset write-downs scheduled for 2010/11.

A10.17 In conclusion and in light of the above, we are satisfied that our Cost Forecast model produces consistent results with Openreach's March 2011 Management accounts and we have decided in the context of this project that it would not be appropriate or proportionate to undertake a full model refresh.

Annex 11

No material change

A11.1 Section 86 of the Act requires that Ofcom may only set an SMP condition in respect of a particular market in a notification that does not also make the market power determination unless the condition is set by reference to a market power determination made in relation to the market in which the condition is to be set:

a. which has been reviewed and, as a consequence of that review, is reconfirmed in the notification setting the condition; or
b. in a market where Ofcom is satisfied that there has been no material change since the determination was made.

A11.2 In the November 2011 Consultation we set out our provisional conclusion that there has been no material change in either the WLA market or the WFAEL market since Ofcom's market power determinations in relation to those markets.

A11.3 Of those stakeholders that responded to our consultation, all supported our assessment. We are, therefore, concluding that we are satisfied that there has been no material change in either the WFEAL market or the WLA market since our prior market power determination in relation to each of those markets.[370]

A11.4 In the remainder of this Annex we summarise the arguments presented in the November 2011 Consultation, stakeholder views and our conclusions.

WFAEL

November 2011 Consultation proposals

A11.5 In the November 2011 Consultation we set out our provisional conclusion that there is no evidence that the WFAEL market has changed since Ofcom's market power determination in relation to that market.

A11.6 In the WFAEL market review we found BT to have SMP in the wholesale fixed analogue exchange line services market in the UK, excluding the Hull Area.

A11.7 In reaching our conclusion in the November 2011 Consultation we considered the conditions in the retail market, the market definition for the wholesale market and market power in the wholesale market. The conclusions for each of these is summarised below.

Retail market

A11.8 We noted that in the WFAEL market review we had concluded that that the retail markets for fixed narrowband analogue access remained the same as those defined in the September 2009 Retail Review - specifically that there are separate retail markets for: residential fixed narrowband analogue access; business fixed

[370] The judgment in *TalkTalk Telecom Group plc v Office of Communications* [2012] CAT 1 has clarified that a change will only amount to a material change if: it would cause the earlier market power determination to be different (in a manner that is more than *de minimis*); and that difference is capable of affecting the setting (in this case) of a subsequent charge control notification.

narrowband analogue access; and there are two separate geographic markets: the UK, excluding the Hull Area, and the Hull Area.

A11.9 In the November 2011 Consultation we noted that the evidence available since 2010 indicates that the situations had not changed. Specifically:

- consumers still do not appear to consider fixed and mobile as substitutes. For businesses, there is no evidence to suggest that the position in relation to fixed line access has changed.
- despite the fall in ISDN2 lines there is no evidence of substitution to analogue and that a price difference remained.
- the demand for fixed access remained relatively constant while the use of fixed calls is diminishing.
- cable and copper lines continue to be in price competition with each other.
- there is no evidence of substitution between the residential and business markets which offered very different range of services.
- there has been no entry in the Hull Area by CPs offering national services.

Wholesale market

A11.10 With respect to the wholesale market, in the November 2011 Consultation we concluded that there was no material change in the market that would suggested a change to the WFAEL market review conclusion that the relevant wholesale markets are: wholesale fixed analogue exchange line services in the UK, excluding the Hull Area; and wholesale fixed analogue exchange line services in the Hull Area. Specifically we concluded that:

- the available evidence on 'mobile-only' households and evidence of the behaviour of businesses suggests that there has been no material change that would affect our conclusion that most customers continue to consider mobile and fixed access as complementary rather than substitute services.
- the available evidence suggests that there has been no material change to our finding that cable, full LLU and WLR-based providers compete.
- the available evidence does not suggest a material change in the market that would cause our conclusion that residential and business access services are in the same market needs to be revisited.
- the available evidence does not suggest that there has been a material change which would affect our conclusion that digital and analogue access are in separate markets.
- there has been no material change to the structure of the proposed NGA deployment by BT or Virgin and accordingly, we do not consider there has been any material change that would affect that our conclusions concerning on NGA's impact on the market in the period under consideration (to 2014).
- we noted that there is no evidence of a change in consumer behaviour with respect to VOIP and, that we did not consider that there has been a material

change to the market that impacts on our conclusion that VoIP is not a substitute for narrowband access, or that the prospective growth in VoIP usage has any direct implications for our market definition.

- we considered that the arguments for considering there to be common pricing constraints across the UK excluding the Hull Area remain sound and unchanged.

Competitive conditions in the WFAEL market in the UK excluding the Hull Area

A11.11 In the WFAEL 2010 Market Review we concluded that BT had SMP in the WFAEL market in the UK excluding the Hull Area. This conclusion was based on the presumption of SMP arising from BT's market share and that there were no features of the market that would overturn the presumption of SMP.

A11.12 In the November Consultation we considered that there was no material change to the market that would change that conclusion. Specifically we noted:

- the core economic features of BT's (sunk) infrastructure advantage remains unchanged, as do the significant economies of scale and scope in the industry and there have been no substantial initiatives in new infrastructure developments.

- BT remains the major significant wholesale service provider of access services and the only major CP not focussed primarily on self-supply, leaving no real scope for countervailing buyer power.

- BT's prices for relevant services appear to be determined significantly by the controls imposed on it rather than by market forces, consistent with a finding of SMP.

- although BT's market share is forecast to decline gradually, it remains high.

- while it is difficult to anticipate precisely the extent of PIA use, we do not consider that the available evidence suggests its use will have a substantive short-term change on overall national market competition within the term of the WFAEL market review (i.e. up to 2014).

- while LLU reduces the barriers to entry it is unlikely that significant additional entry will occur based on LLU in the next few years.

A11.13 In light of the above, we asked stakeholders the following question:

Question 4.1: *Do you agree with our assessment that there has been no material change in the WFAEL market since our market power determination that BT had SMP in WFAEL 2010 Market Review? If not, please explain your reasons.*

November 2011 Consultation responses

A11.14 All stakeholders who commented (EE, Openreach and CWW) agreed with our consultation assessment that there has not been a material change in the WFAEL market since our market power determination in the WFAEL market review.

A11.15 Specifically:

- EE agreed that there was no evidence of material change, but noted that in its view the projected volumes of WLR lines for 2013/14 presented a decline in WLR, which is not warranted; and

- Openreach noted that "*For the purposes of introducing the LLU and WLR charge controls, Openreach agrees with Ofcom's assessment that there has been no material change in the WLR Analogue market since Ofcom's review in December 2010.*"

Our response and conclusions

A11.16 We note the volume points raised by EE which we will address in Annex 2 on volumes.

A11.17 In the light of the assessment presented in the November 2011 Consultation and Stakeholder views, we are satisfied that there has been no material change since our market power determination in the WFAEL market review.

WLA

November 2011 Consultation proposals

Market Definition

A11.18 The WLA 2010 Market Review concluded that the WLA market includes loop-based, cable-based and fibre-based local access at a fixed location; it excludes mobile-based, fixed wireless-based and satellite-based access; there is a single market for WLA connections which are used for business and residential use; and there are two geographic WLA markets (the UK excluding Hull and Hull).

A11.19 In the November 2011 Consultation we set out our provisional conclusion that there is no evidence that the WLA market has changed since Ofcom's market power determination in relation to that market. In that market we found BT to have SMP in wholesale local access services in the UK excluding the Hull Area. Specifically we noted:

- that the evidence from retail pricing is that Cable, as provided by Virgin Media, continues to compete directly with other forms of local access.

- NGA roll-out and take up while still at a nascent stage was consistent expectation in the WLA 2010 Market Review.

- the observed trends indicate that the proportion of mobile only households has continued to grow only slightly, as has the proportion of fixed only households, with the proportion of households taking both fixed and mobile services remaining broadly constant.

- that fixed wireless access has not grown materially since 2010.

- that while there will be some demand for satellite based local access where fixed line services are limited, our provisional assessment is that there has been no material change suggesting that such services offer a more competitive service than considered in the WLA market review.

- business and wholesale products remain undifferentiated.
- that we have not seen any substantial self-provision since the WLA market review.
- that the arguments for considering there to be common pricing constraints across the UK excluding the Hull Area remain sound and unchanged.
- the development of local new build access continues to represent a minor element of the market and not one that has changed since 2010.
- BT has not moved to local pricing nor has it signalled any intention of doing so.

Competitive conditions in the WLA market in the UK, excluding the Hull Area

A11.20 In the WLA 2010 Market Review we concluded that the BT market share of 84 per cent at that time created a presumption that BT had significant market power. These market shares were based on the percentage of active BT lines used by LLU operators.

A11.21 In the November consultation, having applied the criteria set out in the WLA 2010 Market Review, we considered that BT's market share continued to be strong evidence of SMP and that there were no features of the market that would overturn or modify the proposed conclusions that derived from our market share analysis. Specifically:

- BT's share in the WLA market remains at 84%.[371] Virgin's market share has not moved, nor has its footprint changed materially.
- there are high barriers to new market entry.
- in the absence of alternative provision, there is no evidence that users of WLA would be able to assert countervailing buyer power.

A11.22 In light of the above, we asked stakeholders the following question:

Question 4.2: *Do you agree with our assessment that there has been no material change in the WLA market since our market power determination that BT had SMP in WLA 2010 Market Review? If not, please explain your reasons.*

November 2011 Consultation responses

A11.23 All those stakeholders who commented (EE, Openreach and CWW) agreed with our provisional assessment that there has not been a material change in the WLA market since our market power determination in the WLA market review.

A11.24 Specifically, Openreach noted that "*For the purposes of introducing the LLU and WLR charge controls, Openreach agrees with Ofcom' assessment that there has been no material change in the LLU market since Ofcom's review in 2010*".[372]

[371] Ofcom compiled statistics from Openreach and VM.
[372] Openreach's response to the November 2011 Consultation, paragraph 72.

Our response and conclusions

A11.25 In the light of the assessment presented in the November 2011 Consultation and Stakeholder views, we are satisfied that there has been no material change since our market power determination in the WLA market review.

Annex 12

Legal Instruments

PART I – DRAFT DECISION WITH REGARDS TO THE SETTING OF, AND MODIFICATION TO, SMP CONDITIONS

[DRAFT] NOTIFICATION UNDER SECTIONS 48(1) AND 86 OF THE COMMUNICATIONS ACT 2003

Decision for the setting of and modification to SMP services conditions to be imposed on BT as a result of the market power determination made by OFCOM in their "*Review of the wholesale local access market – Statement on market definition, market power and remedies*" as published on 7 October 2010

Background

1. On 7 October 2010, OFCOM published a document entitled "*Review of the wholesale local access market – Statement on market definition, market power and remedies*" (the "**WLA Statement**").[373]

2. At Annex 2 to the WLA Statement, OFCOM published a notification identifying, in accordance with section 79 of the Act, the services market for wholesale local access services within the United Kingdom, but not including the Hull Area, in which OFCOM determined that, for the purposes of making a market power determination under the Act, BT has Significant Market Power ("**SMP**") (the "**2010 Notification**").

3. As a result of that market power determination, in accordance with section 48(1) of the Act, OFCOM set on BT pursuant to section 45 of the Act the SMP services conditions set out in Schedule 1 to the 2010 Notification, including Condition FAA4 which imposes obligations on BT with regard to cost based charges and Condition FAA9 which imposes a requirement on BT to provide a Local Loop Unbundling service.

4. Although the WLA Statement which accompanied the 2010 Notification concluded that in principle a charge control on the local loop unbundling service is necessary, it deferred consideration of the specifics of that charge control, including the relevant costs, method and design as to how that charge control should be applied, to a separate consultation.

5. On 31 March 2011, OFCOM published a consultation document entitled "*Charge control review for LLU and WLR services*"[374] (the "**March 2011 Consultation**") which included, in Annex 13 to that document, the publication of a notification under section 48 of the Act setting out OFCOM's proposals to impose SMP services conditions on BT and to modify certain SMP services conditions already imposed on BT (the "**March Consultation Notification**").

6. Following comments from stakeholders received in response to the March 2011 Consultation, OFCOM made some amendments to the proposals set out in that consultation

[373] http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf.
[374] As updated on 18 April 2011 and 18 May 2011, see: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/Correction18011.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/changes180511.pdf.

and on 23 November 2011 published a second consultation document entitled "*LLU and WLR Charge Control - Further Consultation*", which included in Annex 5 to that document, the publication of a notification under section 48A of the Act setting out OFCOM's further proposals to impose SMP services conditions on BT and to modify certain SMP services conditions already imposed on BT (the "**November Consultation Notification**").

7. Copies of the March Consultation Notification and the November Consultation Notification were sent to the Secretary of State in accordance with sections 50(1)(a) and 48C(1) of the Act, respectively.

8. OFCOM received 12 responses to the March Consultation Notification and 6 responses to the November Consultation Notification, and have considered every such representation duly made. The Secretary of State has not notified OFCOM of any international obligation on the United Kingdom for this purpose.

9. On [•] 2012, after making any modifications that appeared appropriate, OFCOM sent a copy of their proposal and a statement setting out the reasons for it to the European Commission, BEREC and the regulatory authorities in every other member state, in accordance with section 48B of the Act. [Insert details of any comments received from the European Commission, BEREC and the NRAs].

Decisions in this notification

Decision to set SMP service conditions

10. OFCOM hereby, in accordance with section 48 (1) of the Act, in relation to the services market identified in paragraph 8(a) of the 2010 Notification, set SMP Condition FAA4(A) to apply to BT as set out in Schedule 1 to this Notification.

11. OFCOM, in accordance with section 86(1)(b) of the Act, set that SMP Condition FAA4(A) by reference to the market power determination made in relation to the services market identified in paragraph 9(a) of the 2010 Notification in relation to which OFCOM are satisfied there has been no material change since that determination was made.

12. The decision with regards to the SMP Condition shall have effect from [1 April 2012].

13. The effect of, and OFCOM's reasons for making, the decision set out in Schedule 1 to this Notification are contained in the explanatory statement accompanying this Notification.

Decision to modify SMP service conditions

14. OFCOM also in accordance with sections 48(1) and 86(4) of the Act hereby modify SMP Condition FAA4 to ensure that it cross references to the new SMP Condition FAA4(A) imposing a charge control (see paragraphs 10 and 11 above). Accordingly, in paragraph FAA4.1 of SMP Condition FAA4 as set in Schedule 1 to the 2010 Notification, for the reference to SMP Condition FA3(A), there shall be substituted the reference to SMP Condition FAA4(A), and SMP Condition FAA4 shall be read accordingly. In making this change, OFCOM are satisfied that there has been no material change in the market indentified in the 2010 Notification since that determination was made.

15. The decision with regards to the modification to this SMP Condition shall have effect from [1 April 2010].

16. The effect of, and OFCOM's reasons for making, the decision in paragraph 14 of this Notification are contained in the explanatory statement accompanying this Notification.

OFCOM's duties and legal tests

17. OFCOM consider that the setting of SMP Condition FAA4(A), and the modification to Condition FAA4, referred to above comply with the requirements of sections 45 to 47, 87 and 88 of the Act as appropriate and relevant to them.

18. In making the decisions set out in this Notification, OFCOM have considered and acted in accordance with their general duties set out in section 3, and the six Community requirements in section 4, of the Act.

19. A copy of this Notification has been sent to the Secretary of State, European Commission and BEREC and the regulatory authorities in every other Member State in accordance with section 48C of the Act.

Interpretation

20. Except for references made to the identified services market in this Notification as set out in the 2010 Notification and except as otherwise defined in paragraph 21 of this Notification, words or expressions used in this Notification shall have the same meaning as they have been ascribed in the Act.

21. In this Notification—

(a) "**2010 Notification**" has the meaning given to it in paragraph 2 above;

(b) "**Act**" means the Communications Act 2003 (c. 21);

(c) "**BEREC**" means the Body of European Regulators for Electronic Communications;

(d) "**BT**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;

(e) "**Hull Area**" means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications (Hull) plc;

(f) "**March 2011 Consultation**" has the meaning given to it in paragraph 5 above;

(g) "**March Consultation Notification**" has the meaning given to it in paragraph 5 above;

(h) "**November Consultation Notification**" has the meaning given to it in paragraph 6 above;

(i) "**OFCOM**" means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002 (c. 11);

(j) "**United Kingdom**" has the meaning given to it in the Interpretation Act 1978 (c.30); and

(k) "**WLA Statement**" has the meaning given to it in paragraph 1 above.

22. For the purpose of interpreting this Notification—

(a) headings and titles shall be disregarded; and

(b) the Interpretation Act 1978 (c. 30) shall apply as if this Notification were an Act of Parliament.

23. Schedule 1 to this Notification shall form part of this Notification.

Signed by

[To be signed when notification made]

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

[•] 2012

Schedule 1

[DRAFT] Decision with regards to setting of SMP services condition FAA4(A) as a result of the market power determination made by OFCOM in a statement entitled "*Review of the wholesale local access market – Statement on market definition, market power and remedies*" as published on 7 October 2010 in which it was determined that BT has significant market power

1. The following new SMP Condition FAA4(A) shall be set by inserting it after Condition FAA4 in Part 2 of Schedule 1 to the 2010 Notification—

Condition FAA4(A) – Charge control

FAA4(A).1 Without prejudice to the generality of Condition FAA4, and subject to paragraphs FAA4(A).3 and FAA4(A).6, the Dominant Provider shall take all reasonable steps to secure that, at the end of each Relevant Year, the Percentage Change (determined in accordance with paragraphs FAA4(A).4 and FAA4(A).5, as applicable) in:

(a) the aggregate of charges for SMPF Ancillary Services;

(b) the aggregate of charges for MPF Ancillary Services;

(c) the aggregate of charges for Co-Mingling Services;

(d) the charge for MPF Transfer, except for the First Relevant Year in relation to which the charge ceiling specified in paragraph FAA4(A).2(c) applies;

(e) the charge for MPF New Provide, except for the First Relevant Year in relation to which the charge ceiling specified in paragraph FAA4(A).2(d) applies;

(f) the charge for SMPF Connection, except for the First Relevant Year in relation to which the charge ceiling specified in paragraph FAA4(A).2(e) applies;

(g) the charge for MPF Rental, except for the First Relevant Year in relation to which the charge ceiling specified in paragraph FAA4(A).2(a) applies;

(h) the charge for SMPF Rental, except for the First Relevant Year in relation to which the charge ceiling specified in paragraph FAA4(A).2(b) applies,

(i) the charge for MPF Connection;

in each of the nine categories of products and/or services specified in paragraphs FAA4(A).1(a) to (i) above is not more than the Controlling Percentage (as determined in accordance with paragraph FAA4(A).8).

FAA4(A).2 The Dominant Provider shall not charge more than:

(a) for MPF Rental, the amount of £[87.41] in the First Relevant Year;

(b) for SMPF Rental, the amount of £[11.92] in the First Relevant Year;

(c) for MPF Transfer, the amount of £[33.54] in the First Relevant Year;

(d) for MPF New Provide, the amount of £[51.16] in the First Relevant Year;

(e) for SMPF Connection, the amount of £[33.54] in the First Relevant Year;

(f) for MPF Cease, the amount of £0.00 in each of the First Relevant Year and the Second Relevant Year;

(g) for SMPF Cease, the amount of £0.00 in each of the First Relevant Year and the Second Relevant Year;

(h) for MPF Singleton Jumper Removal, the amount of £[25.81] in the First Relevant Year;

(i) for SMPF Singleton Jumper Removal, the amount of £[28.15] in the First Relevant Year

(j) for MPF Bulk Jumper Removal, the amount of £[19.63] in the First Relevant Year; and

(k) for SMPF Bulk Jumper Removal, the amount of £[22.99] in the First Relevant Year.

FAA4(A).3 For the purpose of complying with paragraph FAA4(A).1 (and except in relation to the charges specified in FAA4(A).2(a) to (e) for the First Relevant Year), the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made at the beginning of the Relevant Year.

The Dominant Provider shall be deemed to have satisfied this obligation where, in the case of a single Charge Change during the Relevant Year, the following formula is satisfied:

$$RC\left(1-D\right)\leq TRC$$

where:

RC is the revenue change associated with the single Charge Change made in the Relevant Year, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Prior Financial Year;

TRC is the target revenue change required in the Relevant Year to achieve compliance with paragraph FAA4(A).1, calculated by the Percentage Change required in the Relevant Year to achieve compliance with paragraph FAA4(A).1 multiplied by the revenue accrued during the Prior Financial Year; and
D is the elapsed proportion of the Relevant Year in question, calculated as:

(a) for the First Relevant Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from [1 April = 0 to 31 March = 365, divided by 366];

(b) for the Second Relevant Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from [1 April = 0 to 31 March = 364, divided by 365].

FAA4(A).4 The Percentage Change for the purposes of each of the categories of products and/or services (each of which is known as a 'basket') specified in paragraphs FAA4(A).1(a),

FAA4(A).1(b) and FAA4(A).1(c) respectively shall be calculated for the purposes of complying with paragraph FAA4(A).1 by employing the following formula:

$$C_t = \frac{\sum_{i=1}^{n}\left[R_i \frac{(p_{t,i} - p_{0,i})}{p_{0,i}} \right]}{\sum_{i=1}^{n} R_i}$$

where:

C_t is the Percentage Change in the aggregate of charges for the products and/or services in the basket at a particular time *t* during the Relevant Year;
n is the number of products and/or services in the basket;

R_i is the sum of the revenue accrued during the Prior Financial Year in respect of the specific product and/or service *i* and the revenue accrued during the Prior Financial Year in respect of equivalent products and/or services provided by the Dominant Provider to itself, calculated to exclude any discounts offered by the Dominant Provider;

$p_{0,i}$ is (i) for the First Relevant Year, the charge specified in the Annex to this Condition in respect of the corresponding specific product and/or service *i*; and (ii) for the Second Relevant Year, the published charge made by the Dominant Provider for the specific product and/or service *i* at the beginning of the Relevant Year excluding any discounts offered by the Dominant Provider; and

$p_{t,i}$ is the published charge made by the Dominant Provider for the specific product and/or service *i* at time *t* during the Relevant Year excluding any discounts offered by the Dominant Provider.

For the avoidance of doubt, for the purpose of calculating the Percentage Change for the basket specified in paragraph FAA4(A).1(c), the revenues accrued for Co-Mingling Services shall be taken to include all revenue accrued from selling Co-Mingling Services and/or other services irrespective of their use.

FAA4(A).5 The Percentage Change for the purposes of each of the categories of products and/or services specified (each of which is referred to in this paragraph as a "single charge category") in paragraphs FAA4(A).1(d), FAA4(A).1(e), FAA4(A).1(f), FAA4(A).1(g), FAA4(A).1(h) and FAA4(A).1(i) respectively shall be calculated for the purposes of complying with paragraph FAA4(A).1 by employing the following formula:

$$C_t = \frac{(p_t - p_0)}{p_0}$$

where:

C_t is the Percentage Change in charges for the specific product and/or service in the single charge category in question at a particular time *t* during the Relevant Year;

p_0 is (i) for the First Relevant Year, the charge specified in paragraph FAA4(A).2 in respect of the single charge category in question; and (ii) for the Second Relevant Year, the published charge made by the Dominant Provider for the specific product

and/or service in the single charge category in question at the beginning of the Relevant Year excluding any discounts offered by the Dominant Provider; and
p_t is the published charge made by the Dominant Provider for the specific product and/or service in the single charge category in question at the time *t* during the Relevant Year excluding any discounts offered by the Dominant Provider.

FAA4(A).6 In the case of each of the categories of products and/or services (each of which is known as a 'basket') specified in paragraphs FAA4(A).1(a), FAA4(A).1(b) and FAA4(A).1(c) respectively, the Dominant Provider shall also and, in any event, take all reasonable steps to secure that, at the end of each Relevant Year, the Percentage Change in discrete charges for each and every product and/or service falling within the basket in question is:

(a) no more than the Controlling Percentage increased by [7.5] percentage points; and

(b) no less than the Controlling Percentage reduced by [7.5] percentage points;

where, for the purposes of (a) and (b) above, Controlling Percentage is the Controlling Percentage (as determined in accordance with paragraph FAA4(A).8) for the basket within which the product and/or service falls to which the discrete charges relate. For the purpose of this paragraph FAA4(A).6, the Percentage Change shall be calculated by employing the formula set out in paragraph FAA4(A).5 and its references to a single charge category shall be treated as references to charges for the specific product and/or service falling with the basket in question.

FAA4(A).7 For the purpose of complying with paragraph FAA4(A).6, the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all relevant individual charge changes during any Relevant Year shall be no more than that which it would have accrued had all of those changes been made at the beginning of the Relevant Year.

The Dominant Provider shall be deemed to have satisfied this obligation where, in the case of a single change in charges during the Relevant Year, the following formula is satisfied:

$$RC\left(1-D\right)\leq TRC$$

where:

RC is the revenue change associated with the single charge change made in the Relevant Year, calculated by the relevant Percentage Change immediately following the charge change multiplied by the revenue accrued during the Prior Financial Year;

TRC is the target revenue change required in the Relevant Year to achieve compliance with paragraph FAA4(A).1, calculated by the Percentage Change required in the Relevant Year to achieve compliance with paragraph FAA4(A).1 multiplied by the revenue accrued during the Prior Financial Year; and
D is the elapsed proportion of the Relevant Year in question, calculated as:

(a) for the First Relevant Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from [1 April = 0 to 31 March = 365, divided by 366];

(b) for the Second Relevant Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 April = 0 to 31 March = 364, divided by 365.

FAA4(A).8 Subject to paragraphs FAA4(A).9 and FAA4(A).10, the Controlling Percentage in relation to any Relevant Year means:

(a) for the category of products and/or services specified in paragraph FAA4(A).1(a),
  i. for the First Relevant Year, [-7.6] percentage points, and
  ii. for the Second Relevant Year, RPI decreased by [13] percentage points;

(b) for the category of products and/or services specified in paragraph FAA4(A).1(b),
  i. for the First Relevant Year, [-3.6] percentage points, and
  ii. for the Second Relevant Year, RPI decreased by [9] percentage points;

(c) for the category of products and/or services specified in paragraph FAA4(A).1(c),
  i. for the First Relevant Year, [1.8] percentage points, and
  ii. for the Second Relevant Year, RPI decreased by [3.6] percentage points;

(d) for the category of products and/or services specified in paragraph FAA4(A).1(d), for the Second Relevant Year, RPI decreased by [11.3] percentage points;

(e) for the category of products and/or services specified in paragraph FAA4(A).1(e), for the Second Relevant Year, RPI decreased by [14.2] percentage points;

(f) for the category of products and/or services specified in paragraph FAA4(A).1(f), for the Second Relevant Year, RPI decreased by [11.3] percentage points;

(g) for the category of products and/or services specified in paragraph FAA4(A).1(g), for the Second Relevant Year, RPI decreased by [5.9] percentage points;

(h) for the category of products and/or services specified in paragraph FAA4(A).1(h), for the Second Relevant Year, RPI decreased by [15.9] percentage points;

(i) for the category of products and/or services specified in paragraph FAA4(A).1(i),
  i. for the First Relevant Year, [-3.6] percentage points, and
  ii. for the Second Relevant Year, RPI decreased by [9] percentage points

For the avoidance of doubt, the MPF Transfer, MPF New Provide, MPF Rental, SMPF Connection, SMPF Rental, MPF Singleton Jumper Removal, SMPF Singleton Jumper Removal, MPF Bulk Jumper Removal and SMPF Bulk Jumper Removal charges are constrained by FAA4(A).2 in the First Relevant Year.

FAA4(A).9 Where the Percentage Change in the First Relevant Year is less than the Controlling Percentage (the "Excess"), then for the purposes of each of the categories of products and/or services specified in paragraphs FAA4(A).1(a), FAA4(A).1(b), FAA4(A).1(c), FAA4(A).1(d), FAA4(A).1(e), FAA4(A).1(f), FAA4(A).1(g), FAA4(A).1(h) and FAA4(A).1(i) respectively the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph FAA4(A).8, but increased by the absolute value of the Excess.

FAA4(A).10 Where the Percentage Change in the First Relevant Year is more than the Controlling Percentage (the "Deficiency"), then for the purposes of each of the categories of products and/or services specified in paragraphs FAA4(A).1(a), FAA4(A).1(b), FAA4(A).1(c), FAA4(A).1(d), FAA4(A).1(e), FAA4(A).1(f), FAA4(A).1(g), FAA4(A).1(h) and FAA4(A).1(i) respectively the Controlling Percentage for the following Relevant Year shall be determined

in accordance with paragraph FAA4(A).8, but decreased by the absolute value of the Deficiency.

FAA4(A).11 The Dominant Provider shall ensure that during each Relevant Year:

(a) the charge made by it for MPF Special Fault Investigation 2 (SFI2) - Base module is the same as the charge made by it for SMPF Special Fault Investigation 2 (SFI2) - Base module;

(b) the charge made by it for MPF Special Fault Investigation 2 (SFI2) - Network module is the same as the charge made by it for SMPF Special Fault Investigation 2 (SFI2) - Network module;

(c) the charge made by it for MPF Special Fault Investigation 2 (SFI2) - Frame module is the same as the charge made by it for SMPF Special Fault Investigation 2 (SFI2) - Frame module;

(d) the charge made by it for MPF Special Fault Investigation 2 (SFI2) - Internal Wiring module is the same as the charge made by it for SMPF Special Fault Investigation 2 (SFI2) - Internal Wiring module;

(e) the charge made by it for MPF Special Fault Investigation 2 (SFI2) - Internal equip module is the same as the charge made by it for SMPF Special Fault Investigation 2 (SFI2) - Internal equip module;

(f) the charge made by it for MPF Special Fault Investigation 2 (SFI2) - Coop module is the same as the charge made by it for SMPF Special Fault Investigation 2 (SFI2) - Coop module; and

(g) the charge made by it for MPF Special Fault Investigation 2 (SFI2) - Frame direct module is the same as the charge made by it for SMPF Special Fault Investigation 2 (SFI2) - Frame direct module.

For the avoidance of doubt, nothing in this paragraph FAA4(A).11 shall prevent the Dominant Provider from increasing and/or decreasing the charges made for each of the services at paragraphs FAA4(A).11 (a) to (g) above provided the requirements set out in this paragraph FAA4(A).11 are complied with.

FAA4(A).12 The Dominant Provider shall ensure that during each Relevant Year:

(a) the charge made by it for MPF Service Maintenance Level 3 is the same as the charge made by it for WLR Service Maintenance Level 3;

(b) the charge made by it for MPF Service Maintenance Level 4 is the same as the charge made by it for WLR Service Maintenance Level 4;

(c) the charge made by it for SMPF Service Maintenance Level 3 is the same as the charge made by it for WLR Service Maintenance Level 3; and

(d) the charge made by it for SMPF Service Maintenance Level 4 is the same as the charge made by it for WLR Service Maintenance Level 4.

For the avoidance of doubt, nothing in this paragraph FAA4(A).12 shall prevent the Dominant Provider from increasing and/or decreasing the charges made for each of the

services at paragraphs FAA4(A).12 (a) to (d) above provided the requirements set out in this paragraph FAA4(A).12 are complied with.

FAA4(A).13 Where:

(a) the Dominant Provider makes a material change (other than to a Charge) to any Charge Controlled Service for which a Charge is charged;

(b) the Dominant Provider makes a change to the date on which its financial year ends; or

(c) there is a material change in the basis of the Retail Prices Index,

paragraphs FAA4(A).1 to FAA4(A).12 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of this paragraph FAA4(A).13, a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for that existing Charge Controlled Service.

FAA4(A).14 The Dominant Provider shall record, maintain and supply to OFCOM in writing, no later than three months after the end of each Relevant Year, the data necessary for OFCOM to monitor compliance of the Dominant Provider with the price control by performing the calculation of the Percentage Change. The data shall include:

(a) pursuant to Condition FAA4(A).4 and FAA4(A).5, as applicable, the calculated Percentage Change relating to each category of products and services listed in conditions FAA4(A).1 (a) through to (i);

(b) pursuant to Condition FAA4(A).3, calculation of the revenue accrued as a result of all relevant individual charge changes during any Relevant Year compared to the target revenue change;

(c) all relevant data the Dominant Provider used in the calculation of the percentage change C_t pursuant to Condition FAA4(A).4, for the category of products and services specified in paragraph FAA4(A).1(d), FAA4(A).1(e), FAA4(A).1(f), FAA4(A).1(g), FAA4(A).1(h) and FAA4(A).1(i);

(d) all relevant data the Dominant Provider used in the calculation the percentage change C_t pursuant to Conditions FAA4(A).5, for the category of products and services specified in paragraph FAA4(A).1(a), FAA4(A).1(b) and FAA4(A).1(c);

(e) all relevant data the Dominant Provider used in the calculation of the revenue change and target revenue change pursuant to Condition FAA4(A).3;

(f) all relevant revenues accrued during the Prior Financial Year in respect of the specific product or service;

(g) published charges made by the Dominant Provider at time t during the Relevant Year excluding any discounts offered by the Dominant Provider;

(h) the relevant published charge at the start of the Relevant Year; and

(i) other data necessary for monitoring compliance with the charge control.

FAA4(A).15 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the Second Relevant Year, the Dominant Provider shall make such adjustment to any of its charges for the provision of Charge Controlled Services and by such day in that Relevant Year (or if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

FAA4(A).16 Paragraphs FAA4(A).1 to FAA4(A).15 shall not apply to such extent as OFCOM may direct.

FAA4(A).17 The Dominant Provider shall comply with any direction OFCOM may make from time to time under this Condition.

FAA4(A).18 In this Condition:

(a) "**Charge**" means for the purposes of paragraph FAA4(A).11, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a communications provider for the Charge Controlled Service;

(b) "**Charge Change**" means a change to any of the charges for the provision of the products and/or services listed in paragraphs FAA4(A).1(a) to FAA4(A).1(i);

(c) "**Charge Controlled Service**" means a service or basket of services listed in FAA4(A).1(a) to FAA4(A).1(i);

(d) "**Co-Mingling Services**" means all of the products and/or services listed from time to time for the purpose of Part 3 of the Annex to this Condition;

(e) "**Controlling Percentage**" is to be determined in accordance with paragraph FAA4(A).8;

(f) "**Dominant Provider**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;

(g) "**MPF Ancillary Services**" means all of the products and/or services listed from time to time for the purpose of Part 2 of the Annex to this Condition;

(h) "**MPF Bulk Jumper Removal**" shall be construed as having the same meaning as 'MPF MDF Remove Jumper Order Bulk Charge' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(i) "**MPF Cease**" shall be construed as having the same meaning as 'MPF Cease charge' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(j) "**MPF Connection**" shall be construed as having the same meaning as 'MPF Connection Charge Stopped Line Provide' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(k) "**MPF New Provide**" shall be construed as having the same meaning as 'MPF Connection charge – New Provide – Standard' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(l) "**MPF MDF Remove Jumper Order Singleton Charge**" shall be construed as having the same meaning as 'MPF MDF Remove Jumper Order Singleton Charge' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(m) "**MPF Rental**" shall be construed as the annual rental of access to Metallic Path Facilities;

(n) "**MPF Singleton Jumper Removal**" shall be construed as having the same meaning as 'MPF MDF Remove Jumper Order Singleton Charge' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(o) "**MPF Service Maintenance Level 3**" shall be construed as having the same meaning as 'Service Maintenance Level 3 (Annual Rental)' in respect of the feature 'LLU MPF', as provided by the Dominant Provider on its website for definitions and explanations of its products;

(p) "**MPF Service Maintenance Level 4**" shall be construed as having the same meaning as 'Service Maintenance Level 4 (Annual Rental)' in respect of the feature 'LLU MPF', as provided by the Dominant Provider on its website for definitions and explanations of its products;

(q) "**MPF Special Fault Investigation 2 (SFI2) - Base module**" shall be construed as having the same meaning as 'MPF Special Fault Investigation 2 (SFI2) - Base module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(r) "**MPF Special Fault Investigation 2 (SFI2) - Coop module**" shall be construed as having the same meaning as 'MPF Special Fault Investigation 2 (SFI2) - Coop module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(s) "**MPF Special Fault Investigation 2 (SFI2) - Frame direct module**" shall be construed as having the same meaning as 'MPF Special Fault Investigation 2 (SFI2) - Frame direct module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(t) "**MPF Special Fault Investigation 2 (SFI2) - Frame module**" shall be construed as having the same meaning as 'MPF Special Fault Investigation 2 (SFI2) - Frame module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(u) "**MPF Special Fault Investigation 2 (SFI2) - Internal equip module**" shall be construed as having the same meaning as 'MPF Special Fault Investigation 2 (SFI2) - Internal equip module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(v) "**MPF Special Fault Investigation 2 (SFI2) - Internal Wiring module**" shall be construed as having the same meaning as 'MPF Special Fault Investigation 2 (SFI2) - Internal Wiring module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(w) "**MPF Special Fault Investigation 2 (SFI2) - Network module**" shall be construed as having the same meaning as 'MPF Special Fault Investigation 2

(SFI2) - Network module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(x) "**MPF Transfer**" shall be construed as having the same meaning as 'MPF Connection charge – Singleton migrations (Transfer from WLR/SMPF or Change of CP migrations)' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(y) "**OFCOM**" means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002;

(z) "**Percentage Change**" has the meaning given to it in paragraph FAA4(A).4 and FAA4(A).5, as applicable;

(aa) "**Prior Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year;

(bb) "**Relevant Year**" means each of the following two periods:

(1) the period beginning on [1 April 2012 and ending on 31 March 2013] (the "**First Relevant Year**");

(2) the period beginning on 1 April 2013 and ending on 31 March 2014 (the "**Second Relevant Year**");

(cc) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office for National Statistics at the time of publication of this Notification) from time to time in respect of all items;

(dd) "**RPI**" means the amount of the change in the Retail Prices Index in the period of twelve months ending on 31st October immediately before the beginning of a Relevant Year, expressed as a percentage (rounded to two decimal places) of that Retail Prices Index as at the beginning of that first mentioned period;

(ee) "**SMPF Ancillary Services**" means all of the products and/or services listed from time to time for the purpose of Part 1 of the Annex to this Condition;

(ff) "**SMPF Bulk Jumper Removal**" shall be construed as having the same meaning as 'SMPF MDF Remove Jumper Order Bulk Charge' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(gg) "**SMPF Cease**" shall be construed as having the same meaning as 'SMPF Cease charge' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(hh) "**SMPF Connection**" shall be construed as having the same meaning as 'SMPF Connection charge, Basic Provide on existing narrowband, Simultaneous Provide of SMPF with narrowband, Singleton Migration (Transfer or change of CP migrations) from Narrowband, MPF, SMPF and ISDN/ Highway', as provided by the Dominant Provider on its website for definitions and explanations of its products;

(ii) "**SMPF MDF Remove Jumper Order Singleton Charge**" shall be construed as having the same meaning as 'SMPF MDF Remove Jumper Order Singleton

Charge' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(jj) "**SMPF Rental**" shall be construed as rental of access to the non-voice band frequency of Metallic Path Facilities; and

(kk) "**SMPF Service Maintenance Level 3**" shall be construed as having the same meaning as 'Service Maintenance Level 3 (Annual Rental)' in respect of the feature 'LLU Shared MPF', as provided by the Dominant Provider on its website for definitions and explanations of its products;

(ll) "**SMPF Service Maintenance Level 4**" shall be construed as having the same meaning as 'Service Maintenance Level 4 (Annual Rental)' in respect of the feature 'LLU Shared MPF', as provided by the Dominant Provider on its website for definitions and explanations of its products;

(mm) "**SMPF Singleton Jumper Removal**" shall be construed as having the same meaning as 'SMPF MDF Remove Jumper Order Singleton Charge' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(nn) "**SMPF Special Fault Investigation 2 (SFI2) - Base module**" shall be construed as having the same meaning as 'SMPF Special Fault Investigation 2 (SFI2) - Base module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(oo) "**SMPF Special Fault Investigation 2 (SFI2) - Coop module**" shall be construed as having the same meaning as 'SMPF Special Fault Investigation 2 (SFI2) - Coop module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(pp) "**SMPF Special Fault Investigation 2 (SFI2) - Frame direct module**" shall be construed as having the same meaning as 'SMPF Special Fault Investigation 2 (SFI2) - Frame direct module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(qq) "**SMPF Special Fault Investigation 2 (SFI2) - Frame module**" shall be construed as having the same meaning as 'SMPF Special Fault Investigation 2 (SFI2) - Frame module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(rr) "**SMPF Special Fault Investigation 2 (SFI2) - Internal equip module**" shall be construed as having the same meaning as 'SMPF Special Fault Investigation 2 (SFI2) - Internal equip module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(ss) "**SMPF Special Fault Investigation 2 (SFI2) - Internal Wiring module**" shall be construed as having the same meaning as 'SMPF Special Fault Investigation 2 (SFI2) - Internal Wiring module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(tt) "**SMPF Special Fault Investigation 2 (SFI2) - Network module**" shall be construed as having the same meaning as 'MPF Special Fault Investigation 2 (SFI2) - Internal equip module' as provided by the Dominant Provider on its website for definitions and explanations of its products;

(uu) "**SMPF Transfer**" shall be construed as having the same meaning as 'SMPF Connection charge – Basic Provide on existing narrowband, Simultaneous Provide of SMPF with narrowband, Singleton Migration (Transfer or change of CP migrations) from Narrowband, MPF, SMPF and ISDN/ Highway' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(vv) "**WLR Service Maintenance Level 3**" shall be construed as having the same meaning as 'Service Maintenance Level 3 (Annual Rental)' in respect of the feature 'WLR – Wholesale Premium - per line', as provided by the Dominant Provider on its website for definitions and explanations of its products; and

(ww) "**WLR Service Maintenance Level 4**" shall be construed as having the same meaning as 'Service Maintenance Level 3 (Annual Rental)' in respect of the feature 'WLR – Wholesale Premium - per line', as provided by the Dominant Provider on its website for definitions and explanations of its products.

Annex to Condition FAA4(A)

Products and/or services subject to charge control pursuant to paragraphs FAA4(A).1(a), FAA4(A).1(b) and FAA4(A).1(c)

Part 1

Meaning of SMPF Ancillary Services

For the purposes of Condition FAA4(A), the expression "**SMPF Ancillary Services**" shall be construed as including only the following fourteen products and/or services, subject to such changes as OFCOM may direct from time to time following any proposal by the Dominant Provider to introduce a new product and/or service or to substitute one or more of these fourteen products and/or services for another (in which case this list shall be construed accordingly):

	Item	Initial charge
1	SMPF Bulk Migration Normal – Delivered during a 24 hour period	£33.14
2	SMPF Tie Pair Modification (3 working day lead time Re-termination)	£47.53
3	SMPF Tie Pair Modification (Multiple Re-termination)	£35.88
4	SMPF MDF Remove Jumper Order Singleton Charge	£28.89
5	SMPF MDF Remove Jumper Order Bulk Charge	£24.88
6	SMPF Order rejected at initial validation	£1.20
7	SMPF Order rejected at detailed evaluation	£13.05
8	SMPF Order returned for amendment	£13.05
9	Cancellation of SMPF orders for Provide, Simultaneous provide, Migration, Modification or Amend	£11.74
10	Amend orders. Allowable change to SMPF Order	£14.35
11	SMPF standard line test (RWT)	£4.43
12	Network RWT	£81.60
13	SMPF Flexi Cease Fault Investigation Charges	£71.81
14	SMPF Expedite	£103.20

Except in so far as the context otherwise requires, the terms or descriptions of products and/or services used in this Part 1 shall be construed as having the same meaning as those provided by the Dominant Provider on its website for definitions and explanations of its products in addition to future product updates. These are as at [1 March 2012] found as follows:

- For SMPF product information, please refer to http://www.openreach.co.uk/orpg/home/products/llu/smpf/smpf.do.
- For assurance information including care levels, please refer to the Service Products section of the Openreach website: http://www.openreach.co.uk/orpg/home/products/serviceproducts/service_products.do.

- For 21C related products, please refer to LLU secure portal, of the Openreach website for which CPs need to request access. This is done by choosing “LLU secure” from the Local Loop Unbundling menu available at: http://www.openreach.co.uk/orpg/home/products/llu/llu.do.
- For information held in the price list, please refer to the “LLU Pricing” section of the price list available at: http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.

Part 2

Meaning of MPF Ancillary Services

For the purposes of Condition FAA4(A), the expression "**MPF Ancillary Services**" shall be construed as including only the following fifteen products and/or services, subject to any such changes as OFCOM may direct from time to time following any proposal by the Dominant Provider to introduce a new product and/or service or to substitute one or more of these fifteen products and/or services for another (in which case this list shall be construed accordingly):

	Item	Initial charge
1	MPF Connection Charge Stopped Line Provide	£45.75
2	MPF Expedite	£158.40
3	MPF Same CP Mass Migration charge – Normal hours	£34.80
4	MPF Tie Pair Modification (3 working day lead time Re-termination)	£39.25
5	MPF Tie Pair Modification (Multiple Re-termination)	£34.80
6	MPF MDF Remove Jumper Order Singleton Charge	£16.80
7	MPF MDF Remove Jumper Order Bulk Charge	£10.80
8	MPF Order rejected at initial validation	£1.20
9	MPF Order rejected at detailed evaluation	£13.05
10	MPF Order returned for amendment	£13.05
11	Cancellation of MPF orders for Provide, Migration, Modification or Amend	£11.74
12	Amend orders. Allowable change to MPF Order	£14.35
13	MPF Standard line test	£4.43
14	Network RWT	£81.60
15	MPF Working Line Takeover (WLTO)	£45.75

Except in so far as the context otherwise requires, the terms or descriptions of products and/or services used in this Part 2 shall be construed as having the same meaning as those provided by the Dominant Provider on its website for definitions and explanations of its products in addition to future product updates. These are as at [1 March 2012] found as follows:

- For MPF product information, please refer to http://www.openreach.co.uk/orpg/home/products/llu/mpf/mpf.do.
- For assurance information including care levels, please refer to the Service Products section of the Openreach website: http://www.openreach.co.uk/orpg/home/products/serviceproducts/service_products.do.
- For 21C related products including Test Access Product, please refer to LLU secure portal, of the Openreach website for which CPs need to request access. This is done by choosing "LLU secure" from the Local Loop Unbundling menu available at: http://www.openreach.co.uk/orpg/home/products/llu/llu.do.

- For information held in the price list, please refer to the “LLU Pricing” section of the price list available at: http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.

Part 3

Meaning of Co-Mingling Services

For the purposes of Condition FAA4(A), the expression "**Co-Mingling Services**" shall be construed as including only the following ninety two products and/or services, subject to any such changes as OFCOM may direct from time to time following any proposal by the Dominant Provider to introduce a new product and/or service or to substitute one or more of these ninety eight products and/or services for another (in which case this list shall be construed accordingly):

	Item	Current Charge
1	Internal Tie Cable (2) (Notes 9)	£421.20 connection
2	Internal Tie Cable (2) (Notes 9)	£15.60 pa rental
3	Internal Tie Cable (2) Jointing Fixed Charge per External Tie Cable	£153.60 fixed charge per cable
4	Handover Distribution Frame Extension to provide additional 1500 tie pair capacity for MCU1	£216.00
5	Additional Handover Distribution Frame to provide additional 4800 tie pair capacity for B-BUSS7	£1,629.60
6	Standalone Handover Distribution Frame (HDF) 9	£2,070.00
7	Standalone Handover Distribution Frame (HDF) 18	£2,168.40
8	MDF Licence Fee per Internal Tie Cable per annum	£26.40 pa per cable
9	20 CN Enhanced Specification LLU Internal Tie Cable (1) for Co-location and Co-mingling	£921.60 connection
10	20 CN Enhanced Specification LLU Internal Tie Cable (1) for Co-location and Co-mingling	£78.00 pa rental
11	21CN-32 pair standard Internal Tie Cable-HDF connected	£414.00 connection
12	21CN-32 pair standard Internal Tie Cable-HDF connected	£34.80 pa rental
13	21CN-64 pair standard Internal Tie Cable-HDF connected	£528.00 connection
14	21CN-64 pair standard Internal Tie Cable-HDF connected	£44.40 pa rental
15	21CN-32 pair enhanced Internal Tie Cable-HDF connected	£434.40 connection
16	21CN-32 pair enhanced Internal Tie Cable-HDF connected	£37.20 pa rental
17	21CN-64 pair enhanced Internal Tie Cable-HDF connected	£559.20 connection

18	21CN-64 pair enhanced Internal Tie Cable-HDF connected	£48.00 pa rental
19	21CN-100 pair enhanced Internal Tie Cable-HDF connected	£921.60 connection
20	21CN-100 pair enhanced Internal Tie Cable-HDF connected	£78.00 pa rental
21	LLU Internal Tie Cable Cease of 1-10 Cables	£723.60
22	LLU Internal Tie Cable Cease of 11-20 Cables	£814.80
23	LLU Internal Tie Cable Cease of 21-30 Cables	£906.00
24	LLU Internal Tie Cable Cease of 31-40 Cables	£994.80
25	LLU Internal Tie Cable Cease of 41-50 Cables	£1086.00
26	BT Provided External 100 Pair cable @ 100 metres - Rental per annum fixed charge per cable	£117.60 pa rental
27	BT Provided External 100 Pair cable @ 100 metres - Connection fixed charge per cable	£1498.80 connection
28	BT Provided External 100 Pair cable @ 100 metres - Rental per annum Per extra 100 pairs	£99.60 pa rental
29	BT Provided External 100 Pair cable @ 100 metres - Connection Per extra 100m	£234.00 connection
30	BT Provided External -500 Pair cable @ 100 metres - Rental per annum fixed charge per cable	£188.40 pa rental
31	BT Provided External -500 Pair cable @ 100 metres - Connection fixed charge per cable	£2451.60 connection
32	BT Provided External -500 Pair cable @ 100 metres - Rental per annum Per extra 100m	£147.60 pa rental
33	BT Provided External -500 Pair cable @ 100 metres - Connection Per extra 100m	£234.00 connection
34	BT Provided External 500 Pair cable @ 100 metres - Rental per annum Per extra 100 pairs	£99.60 pa rental
35	BT Provided External 500 Pair cable @ 100 metres - Connection fixed charge Per extra 100 pairs	£472.80
36	BT Provided External 100 Pair cable @ 100 metres - Rental per annum Per extra 100m	£79.20 pa rental
37	BT Provided External 100 Pair cable @ 100 metres - Connection Per extra 100 pairs	£472.80 connection
38	Operator provided External 100 Pair cable pull through @ 100 metres - Rental fixed per annum (fixed charge per cable)	£27.60 pa rental
39	Operator provided External 100 Pair cable pull through @ 100 metres - Connection (fixed charge per cable)	£1328.40 connection
40	Operator Provided External 500 Pair cable pull through @ 100 metres - Rental fixed per annum (fixed charge per cable)	£31.20 pa rental

41	Operator Provided External 500 Pair cable pull through @ 100 metres - Connection (fixed charge per cable)	£1888.80 connection
42	Operator provided External 100 Pair cable pull through @ 100 metres - rental fixed per annum Per extra 100 pairs	£14.40 pa rental
43	Operator provided External 100 Pair cable pull through @ 100 metres - Connection Per extra 100 pairs	£454.80 connection
44	Operator provided External 500 Pair cable pull through @ 100 metres - rental fixed per annum Per extra 100 pairs	£14.40 pa rental
45	Operator provided External 500 Pair cable pull through @ 100 metres - Connection Per extra 100 pairs	£454.80 connection
46	Hand-over Distribution Frame charge per 100 pair tie cable	£25.20
47	Distant location full survey	£972.00
48	Missed joint survey or testing appointment	£18.00
49	Co-location order rejection - no space available	£226.80
50	Co-location full survey	£5757.60
51	Site visit charge to be allocated to all orders not in conjunction with the installation of a base product.	£284.40
52	Co-Mingling order rejection - no space or insufficient space available	£464.40
53	Co-Mingling set up fee (per sq metre)	£256.80
54	Comingling Shared Point of Presence Administration Fee	£228.00
55	Ancillary Service Structure Fixed price to service 1-3 Rack Space Units	£4928.40
56	Ancillary Service Structure Fixed price to service 4-6 Rack Space Units	£6130.80
57	Ancillary Service Structure Fixed price to service 7-9 Rack Space Units	£7734.00
58	Ancillary Service Structure upgrade from 1-3 Rack Space Units to 4-6 Rack Space Units	£2650.80
59	Ancillary Service Structure downgrade from 4-6 Rack Space Units to 1-3 Rack Space Units	£856.80
60	Low Capacity Unit (LCU)	£3423.60
61	Medium Capacity Unit 1 (MCU with 1 customer rack space unit)	£3961.20
62	Medium Capacity Unit 2 (MCU with 2 customer rack space units)	£4204.80
63	B-BUSS3 (Broadband Britain Umbilical Services Structure with 3 customer rack space units)	£6530.40
64	B-BUSS7 (Broadband Britain Umbilical Services Structure with 7 customer rack space units)	£7731.60
65	AC Final Distribution Rental per 10kw increment per annum (Charges will appear in billed units of decawatts (100W)	£348.00 pa rental
66	Cooling per kw	£1545.60

67	Upgrade of existing MCU1 product to MCU2	£904.80
68	Upgrade of existing BBUSS3 Point Of Presence to BBUSS7 (power and space)	£1999.20
69	Upgrade of existing BBUSS 3 Point Of Presence to B-BUSS 7 (space only)	£1758.00
70	Downgrade of existing BBUSS 7 Point Of Presence to B-BUSS 3 (space only)	£650.40
71	MCU1 Max or MCU2 Max initial build	£4222.80
72	Upgrade of existing MCU1 / MCU2 to MCU1Max / MCU2Max	£2426.40
73	Out of Hours Connection Fee for upgrade of existing MCU1 / MCU2 to MCU1Max / MCU2Max	£932.40
74	Upgrade of existing MCU1 / MCU2 to MCU1MaxAux / MCU2MaxAux	£6195.60
75	Out of Hours Connection Fee for upgrade of existing MCU1 / MCU2 to MCU1MaxAux / MCU2MaxAux	£932.40
76	Basic Single Rack	£3049.20
77	Complete Single Rack	£4028.40
78	Security rental per sq. Metre	£22.80
79	Service Charge per square metre per annum	£54.00
80	BT's Normal Working Hours, planned	£43.20 per hour (minimum £174.00)
81	BT's Normal Working Hours, unplanned	£64.80 per hour (minimum £260.40)
82	BASIS (BT Assisted Site Delivery Service) fixed charge	£346.80
83	Site Access	£328.80
84	Handover	£273.60
85	Security partitioning per site charge	£130.80
86	ESS Survey for capacity upgrade	£346.80 pa rental
87	ESS Rental of existing capacity per kW per annum (Note 2, charges will appear in billed units of decawatts (10W))	£162.00
88	Provision of sub meter	£822.00
89	APO Cancellation Charge	£301.20
90	Internal 100 pair Tie Cable - HDF connected (1) for Co-Location and Co-Mingling - Connection	£532.80
91	Internal 100 pair Tie Cable - HDF connected (1) for Co-Location and Co-Mingling - Rental	£21.60
92	Duct Charge - Hand-over Distribution Frame option per 100	£115.20

pair Frame capacity

Except in so far as the context otherwise requires, the terms or descriptions of products and/or services used in this Part 3 shall be construed as having the same meaning as those provided by the Dominant Provider on its website for definitions and explanations of its products in addition to future product updates. These are as at [1 March 2012] found as follows:

- For SMPF and MPF product information, please refer to http://www.openreach.co.uk/orpg/home/products/llu/llu.do.
- For assurance information including care levels, please refer to the Service Products section of the Openreach website: http://www.openreach.co.uk/orpg/home/products/serviceproducts/service_products.do.
- For 21C related products, please refer to LLU secure portal, of the Openreach website for which CPs need to request access. This is done by choosing “LLU secure” from the Local Loop Unbundling menu available at: http://www.openreach.co.uk/orpg/home/products/llu/llu.do.
- For information held in the price list, please refer to the Plan and Build area within the “LLU Pricing” section of the price list available at: http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.

PART II – DRAFT DIRECTION REGARDING REMOVAL OF COST ORIENTATION OBLIGATION FOR MPF RENTAL, MPF CEASE, SMPF CEASE AND ENHANCED SERVICE LEVEL CARE SERVICES

[DRAFT] NOTIFICATION UNDER SECTION 49 OF THE COMMUNICATIONS ACT 2003

Decision with regards to the Direction under section 49 of the Communications Act 2003 and SMP Condition FAA4.1 imposed on BT as a result of a market power determination made by OFCOM in "*Review of the wholesale local access market – Statement on market definition, market power and remedies*" as published on 7 October 2010, that BT has significant market power in the market for wholesale local access services in the United Kingdom excluding the Hull Area

Background

1. On 7 October 2010, OFCOM published their statement entitled "*Review of the wholesale local access market – Statement on market definition, market power and remedies*" (the "**WLA Statement**").

2. In the WLA Statement, OFCOM determined that BT held Significant Market Power ("**SMP**") in the market for wholesale local access in the United Kingdom but not including the Hull Area.

3. As a result, OFCOM imposed a number of remedies on BT in order to address identified competition concerns. Those remedies included the SMP services condition FAA4 which applied to, among others, those markets set out at paragraph 2 above.

4. FAA4 imposes a cost orientation obligation upon BT, as follows:

> ***FAA4.1*** *Unless Ofcom directs otherwise from time to time, the Dominant Provider shall secure, and shall be able to demonstrate to the satisfaction of Ofcom, that each and every charge offered, payable or proposed for Network Access covered by Condition FAA1 and/or Conditions FAA9, FAA10 and FAA12 is reasonably derived from the costs of provision based on a forward looking long run incremental cost approach and allowing an appropriate mark up for the recovery of common costs including an appropriate return on capital employed.*

5. BT currently offers MPF Rental, MPF Cease, SMPF Cease and Enhanced Service Level Care Services within the market described at paragraph 2 above. The charge ceiling imposed in Condition FAA4(A) on MPF Rental is not based on a forward looking long-run incremental cost approach, allowing an appropriate mark up for the recovery of common costs including an appropriate return on capital employed, and therefore is not consistent with SMP Condition FAA4.1. Further, the charge ceiling imposed in Condition FAA4(A) on MPF Cease and SMPF Cease is set below forward looking long-run incremental cost, and therefore is also not consistent with the SMP Condition FAA4(A).1. In addition, OFCOM considers that different pricing constraints apply to Enhanced Service Level Care Services. Therefore, OFCOM considers that the cost orientation obligations should not continue to apply to these services.

6. On 31 March 2011, OFCOM published a consultation document entitled "*Charge control review for LLU and WLR services*"[375] (the "**March 2011 Consultation**") which included, in

[375] As updated on 18 April 2011 and 18 May 2011, see: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/Correction18011.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/changes180511.pdf.

Annex 13 to that document, the publication of a notification under section 48 of the Act setting out OFCOM's proposal to set a new SMP Condition FAA4(A) entitled 'Charge control'.

7. In addition, in the March 2011 Consultation, OFCOM published a notification under section 49 of the Communications Act 2003 and SMP Services Condition FAA4 of a proposal for giving a direction in relation to the removal of MPF Rental, MPF Cease, SMPF Cease and Enhanced Service Level Care Services from cost orientation obligations (the "**Direction Proposal**").

8. Following comments from stakeholders received in response to the March 2011 Consultation, OFCOM made some amendments to the proposals set out in that consultation and on 23 November 2011 published a second consultation document entitled "*LLU and WLR Charge Control - Further Consultation*", which included in Annex 5 to that document, the publication of a notification under section 48A of the Act setting out OFCOM's further proposals to set a new SMP Condition FAA4(A) entitled 'Charge control'.

9. In accordance with section 50 of the Act, copies of the Direction Proposal were sent to the Secretary of State, the European Commission and the regulatory authorities of every of the Member State.

10. By virtue of section 49(9) of the Act, OFCOM may give effect to the Direction Proposal, with or without modification, only if—

(a) they have considered every representation about the proposal that is made to OFCOM within the period specified in the Direction Proposal; and

(b) they have had regard to every international obligation of the United Kingdom (if any) which has been notified to OFCOM for this purpose by the Secretary of State.

11. For the reasons set out in the explanatory statement accompanying this Direction, in accordance with section 49(2) of the Act, OFCOM are satisfied that this Direction is—

(a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;

(b) not such to discriminate unduly against particular persons or against a particular description of persons;

(c) proportionate to what it is intended to achieve; and

(d) in relation to what it is intended to achieve, transparent.

12. For the reasons set out in the explanatory statement accompanying this Direction, OFCOM have considered and acted in accordance with their general duties set out in section 3 of, and the six Community requirements set out in section 4, of the Act in making this Direction.

13. OFCOM have considered every representation about the Direction Proposal duly made to them and the Secretary of State has not notified OFCOM of any international obligation of the United Kingdom for this purpose.

Direction

14. OFCOM hereby, in accordance with section 49 of the Act and paragraph 7 of Schedule 3 to the Electronic Communications, Wireless Telegraphy Regulations 2011 and under

Condition FAA4.1, directs that SMP services Condition FAA4 shall not apply to MPF Rental, MPF Cease, SMPF Cease and Enhanced Service Level Care Services provided by BT in the market set out in paragraph 8(a) of the Notification to the WLA Statement, that is to say: wholesale local access services.

15. The effect of, and the reasons for making, this Direction are set out in the accompanying explanatory statement.

Effective date

16. This Direction shall take effect on the [1 April 2012].

Interpretation

17. Except for references made to the identified services market in this Direction and subject to paragraph 18 below, words or expressions used in this Direction shall have the same meaning as they have been ascribed in the Act.

18. In this Direction—

(a) "**Act**" means the Communications Act 2003 (c.21);

(b) "**BT**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;

(c) "**Direction Proposal**" has the meaning given to it in paragraph 7 of this Direction;

(d) "**Enhanced Service Level Care Services**" means maintenance which is part of the enhanced service provided by BT in consideration of the charge for a metallic path facility or a shared metallic path facility and includes a maintenance service level additional to Service Maintenance Level 2 (Annual Rental);

(e) "**Electronic Communications and Wireless Telegraphy Regulations**" means the Electronic Communications and Wireless Telegraphy Regulations 2011, SI 2011/1210;

(f) "**Hull Area**" means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications (Hull) plc;

(g) "**March 2011 Consultation**" has the meaning given to it in paragraph 6 of this Direction;

(h) "**MPF Cease**" shall be construed as having the same meaning as 'MPF Cease charge' as provided by BT on its website for definitions and explanations of its products;

(i) "**MPF Rental**" shall be construed as the annual rental of access to Metallic Path Facilities;

(j) "**OFCOM**" means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002 (c. 11);

(k) "**Service Maintenance Level 2 (Annual Rental)**" shall be construed as having the same meaning as 'Service Maintenance Level 2 (Annual Rental)' has as provided by BT on its website for definitions and explanations of its products;

(l) "**SMPF Cease**" shall be construed as having the same meaning as 'SMPF Cease charge' has as provided by the Dominant Provider on its website for definitions and explanations of its products;

(m) "**United Kingdom**" has the meaning given to it in the Interpretation Act 1978 (c.30); and

(n) "**WLA Statement**" has the meaning given to it in paragraph 1 of this Direction.

19. For the purpose of interpreting this Direction—

(a) headings and titles shall be disregarded; and

(b) the Interpretation Act 1978 (c. 30) shall apply as if this Notification were an Act of Parliament.

Signed by

[To be signed when notification made]

[TITLE]

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

[•] 2012

PART III – DRAFT CONSENT FOR PERIOD TO NOTIFY CHARGES (LLU)

[DRAFT] NOTIFICATION UNDER SECTION 49 OF THE COMMUNICATIONS ACT 2003

Decision with regards to the Consent under section 49 of the Communications Act 2003 and SMP Services Condition FAA6.1 imposed on BT as a result of the market power determinations made by OFCOM that BT has significant market power in the market for wholesale local access services within the United Kingdom but not including the Hull Area

Background

1. On 7 October 2010, OFCOM published a document entitled "*Review of the wholesale local access market – Statement on market definition, market power and remedies*" (the "**2010 Notification**").

2. At Annex 2 to the 2010 Notification, OFCOM published a notification identifying, in accordance with section 79 of the Act, the services market of wholesale local access services within the United Kingdom, but not including the Hull Area, in which OFCOM determined that, for the purposes of making a market power determination under the Act, BT has Significant Market Power ("**SMP**").

3. As a result of that market power determination, in accordance with section 48(1) of the Act, OFCOM set on BT pursuant to section 45 of the Act the SMP services conditions set out in Schedule 1 to the 2010 Notification, including Condition FAA6 which imposes obligations on BT with regard to prior notification of charges, terms and conditions before taking effect. In particular, paragraph FAA6.2 of that Condition provides:

> ***FAA6.2*** *Save where otherwise provided in Condition FAA6, the Dominant Provider shall send to Ofcom and to every person with which it has entered into an Access Contract covered by Condition FAA1 and/or Conditions FAA9 to FAA12 a written notice of any amendment to the charges, terms and conditions on which it provides Network Access or in relation to any charges, terms and conditions for new Network Access (an "Access Charge Change Notice") not less than 90 days before any such amendment comes into effect for existing Network Access, or not less than 28 days before any such charges, terms and conditions come into effect for new Network Access provided after the date that this Condition enters into force. This obligation for prior notification will not apply where the new or amended charges or terms and conditions are directed or determined by Ofcom or are required by a notification or enforcement notification issued by Ofcom under sections 94 or 95 of the Act.*

4. On 31 March 2011, OFCOM published a consultation document entitled "*Charge control review for LLU and WLR services*"[376] (the "**March 2011 Consultation**") which included, in Annex 13 to that document, the publication of a notification under section 48 of the Act setting out OFCOM's proposal to set a new SMP Condition FAA4(A) entitled 'Charge control'.

5. In addition, in the March 2011 Consultation, OFCOM published a Notification of a proposal to give a Consent under section 49 of the Communications Act 2003 and SMP Services Condition FAA6.1 in relation to charges to which that proposed Condition relates (the "**Consent Proposal**").

[376] As updated on 18 April 2011 and 18 May 2011, see: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/Correction18011.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/changes180511.pdf.

6. Following comments from stakeholders received in response to the March 2011 Consultation, OFCOM made some amendments to the proposals set out in that consultation and on 23 November 2011 published a second consultation document entitled "*LLU and WLR Charge Control - Further Consultation*", which included in Annex 5 to that document, the publication of a notification under section 48A of the Act setting out OFCOM's further proposals to set a new SMP Condition FAA4(A) entitled 'Charge control'.

7. In accordance with section 50 of the Act, copies of the Consent Proposal were sent to the Secretary of State, the European Commission and the regulatory authorities of every of the Member State.

8. By virtue of section 49(9) of the Act, OFCOM may give effect to the Consent Proposal, with or without modification, only if—

(a) they have considered every representation about the proposal that is made to OFCOM within the period specified in the Consent Proposal; and

(b) they have had regard to every international obligation of the United Kingdom (if any) which has been notified to OFCOM for this purpose by the Secretary of State.

9. For the reasons set out in the explanatory statement accompanying this Consent, in accordance with section 49(2) of the Act, OFCOM are satisfied that this Consent is—

(a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;

(b) not such to discriminate unduly against particular persons or against a particular description of persons;

(c) proportionate to what it is intended to achieve; and

(d) in relation to what it is intended to achieve, transparent.

10. For the reasons set out in the explanatory statement accompanying this Consent, OFCOM has considered and acted in accordance with their general duties set out in section 3 of, and the six Community requirements set out in section 4, of the Act in giving this Consent.

11. OFCOM have considered every representation about the Consent Proposal duly made to them and the Secretary of State has not notified OFCOM of any international obligation of the United Kingdom for this purpose.

Consent

12. OFCOM hereby, pursuant to section 49 of the Act, paragraph 7 of Schedule 3 to the Electronic Communications and Wireless Telegraphy Regulations 2011 and under Condition FAA6.1, gives consent to BT that the period of 90 days referred to in Condition FAA6.2 (which relates to amendments to the charges, terms and conditions for existing Network Access) is to be reduced to a period of [28] days for any amendments to charges made under an Access Charge Change Notice notified prior to [1 April 2012] for services subject to Condition FAA4(A) (and the Condition shall otherwise apply accordingly).

Interpretation

13. In this Consent—

(a) "**2010 notification**" has the meaning given to it in paragraph 1 of this Consent.

(b) "**Act**" means the Communications Act 2003 (c.21);

(c) "**BT**" and "**Dominant Provider**", respectively, means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;

(d) "**Consent Proposal**" has the meaning given to it in paragraph 5 above;

(e) "**March 2011 Consultation**" has the meaning given to it in paragraph 4 above;

(f) "**Electronic Communications and Wireless Telegraphy Regulations**" means the Electronic Communications and Wireless Telegraphy Regulations 2011, SI 2011/1210;

(g) "**OFCOM**" means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002 (c. 11);

(h) "**SMP Condition FAA4(A)**" means SMP Condition FAA4(A) as set out in Schedule 1 to the Notification published by OFCOM on [•] at [•] to the explanatory statement accompanying this Consent; and

(i) "**United Kingdom**" has the meaning given to it in the Interpretation Act 1978 (c.30).

14. Except insofar as the context otherwise requires, words or expressions in this Consent shall have the meaning assigned to them in paragraph 13 above and otherwise any word or expression shall have the same meaning as it has in the Act.

15. For the purpose of interpreting this Consent—

(a) headings and titles shall be disregarded; and

(b) the Interpretation Act 1978 (c. 30) shall apply as if this Consent were an Act of Parliament.

Effective date

16. This Consent shall take effect on [1 April 2012].

Signed by

[To be signed when notification made]

[NAME]

[TITLE]

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

[•] 2012

PART IV – DRAFT DECISION WITH REGARDS TO THE SETTING OF, AND MODIFICATION TO, SMP CONDITIONS

NOTIFICATION UNDER SECTION 48(1) AND 86 OF THE COMMUNICATIONS ACT 2003

[DRAFT] Decision for the setting of and modification to SMP services conditions to be imposed on BT as a result of the market power determination made by OFCOM in their "*Review of the wholesale fixed analogue exchange lines markets: Statement on market definition, market power determinations and remedies*" as published on 20 December 2010

Background

1. On 20 December 2010, OFCOM published a "*Review of the wholesale fixed analogue exchange lines markets: Statement on market definition, market power determinations and remedies*" (the "**WFAEL Statement**").[377]

2. At Annex 1 to the WFAEL Statement, OFCOM published a notification identifying, in accordance with section 79 of the Act, the services market for wholesale analogue exchange line services within the United Kingdom, excluding the Hull Area, in which OFCOM determined that, for the purposes of making a market power determination under the Act, BT has Significant Market Power ("**SMP**") (the "**2010 Notification**").

3. As a result of that market power determination, in accordance with section 48(1) of the Act, OFCOM set on BT pursuant to section 45 of the Act the SMP services conditions set out in Schedule 1 to the 2010 Notification, including Condition AAAA3 which imposes obligations on BT with regard to cost based charges and Condition AAAA10 which imposes a requirement on BT to provide a wholesale analogue WLR service.

4. Although the WFAEL Statement which accompanied the 2010 Notification concluded that in principle a charge control on the wholesale analogue WLR service is necessary, it deferred consideration of the specifics of that charge control, including the relevant costs, method and design as to how that charge control should be applied, to a separate consultation.

5. On 31 March 2011, OFCOM published a consultation document entitled "*Charge control review for LLU and WLR services*"[378] (the "**March 2011 Consultation**") which included, in Annex 13 to that document, publication of a notification under section 48 of the Act setting out OFCOM's proposals to impose SMP services conditions on BT and to modify certain SMP services conditions already imposed on BT (the "**March Consultation Notification**").

6. Following comments from stakeholders received in response to the March 2011 Consultation, OFCOM made some amendments to the proposals set out in that consultation and on 23 November 2011 published a second consultation document entitled "*LLU and WLR Charge Control – Further Consultation*", which included in Annex 5 to that document, the publication of a notification under section 48A of the Act setting out OFCOM's further proposals to impose SMP services conditions on BT and to modify certain SMP services conditions already imposed on BT (the "**November Consultation Notification**").

[377] http://stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-fixed-exchange/statement/statement.pdf.
[378] As updated on 18 April 2011 and 18 May 2011, see: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/Correction18011.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/changes180511.pdf.

7. Copies of the March Consultation Notification and the November Consultation Notification were sent to the Secretary of State in accordance with sections 50(1)(a) and48C(1) of the Act, respectively.

8. OFCOM received 12 responses to the March Consultation Notification and 6 responses to the November Consultation Notification, and have considered every such representation duly made. The Secretary of State has not notified OFCOM of any international obligation on the United Kingdom for this purpose.

9. On [•] 2012, after making any modifications that appeared appropriate, OFCOM sent a copy of their proposal and a statement setting out the reasons for it to the European Commission, BEREC and the regulatory authorities in every other member state, in accordance with section 48B of the Act. [Insert details of any comments received from the European Commission, BEREC and the NRAs].

Decisions in this notification

Decision to set SMP service conditions

10. OFCOM hereby, in accordance with section 48(1) of the Act, in relation to the services market identified in paragraph 8(a) of the 2010 Notification, sets SMP Condition AAAA4(WLR), to apply to BT as set out in Schedule 1 to this Notification.

11. OFCOM, in accordance with section 86(1)(b) of the Act, set that SMP Condition AAAA4(WLR) by reference to the market power determination made in relation to the services market identified in paragraph 9(a) of the 2010 Notification in relation to which OFCOM are satisfied that there has been no material change since the determination was made.

12. The decision with regards to the SMP Condition shall have effect from [1 April 2012].

13. The effect of, and OFCOM's reasons for making the decision set out in the Schedule 1 to this Notification are contained in the explanatory statement accompanying this Notification.

Decision to modify SMP service conditions

14. OFCOM also in accordance with sections 48(1) and 86(4) of the Act hereby modify SMP Condition AAAA10, as set out in Schedule 2 to this Notification, to clarify that the requirement to provide a wholesale analogue WLR service includes providing such ancillary services as may be reasonably necessary for the use of that service. In making this change, OFCOM are satisfied that there has been no material change in the market indentified in the in the 2010 Notification since the determination in the 2010 Notification was made.

15. OFCOM are also in accordance with section 86(4) of the Act modifying SMP Conditions AAAA3, AAAA5 and AAAA6(a), as set out below, to ensure that they cross-reference to the new SMP condition AAAA4(WLR) imposing a charge control (see paragraphs 10 and 11 above). In making these changes, OFCOM are satisfied that there has been no material change in the market indentified in the in the 2010 Notification since the determination in the 2010 Notification was made. Accordingly:

(a) in paragraph AAAA3.2 as set out in Schedule 1 to the 2010 Notification, for the reference to Condition AAA4(WLR), there shall be substituted the reference to Condition AAAA4(WLR), and Condition AAAA3 shall be read accordingly; and

(b) in paragraphs AAAA5.2(q) and AAAA5.3 of SMP Condition AAAA5 as set out in Schedule 1 to the 2010 Notification, for the reference to Condition AAA4(WLR), there shall be substituted the reference to Condition AAAA4(WLR), and Condition AAAA5 shall be read accordingly; and

(c) in paragraphs AAAA6(a).3 and AAAA6(a).5 of SMP Condition AAAA6(a) as set out in Schedule 1 to the 2010 Notification, for the reference to Condition AAA4(WLR), there shall be substituted the reference to Condition AAAA4(WLR), and Condition AAAA6(a) shall be read accordingly.

16. The decision with regards to the modifications to SMP Conditions AAAA3, AAAA5, AAAA6(a) and AAAA10 shall have effect from [1 April 2012].

17. The effect of, and OFCOM's reasons for making, each of these decisions set out in the Schedule 2 to this Notification and paragraphs 13 and 14 of this Notification are contained in the explanatory statement accompanying this Notification.

OFCOM's duties and legal tests

18. OFCOM consider that the setting of SMP Condition AAAA4(WLR) and the modifications to Conditions AAAA3, AAAA5, AAAA6(a) and AAAA10 referred to above comply with the requirements of sections 45 to 47, 87 and 88 of the Act as appropriate and relevant to them.

19. In making the decisions set out in this Notification, OFCOM have considered and acted in accordance with their general duties set out in section 3, and the six Community requirements in section 4, of the Act.

20. A copy of this Notification has been sent to the Secretary of State, European Commission and BEREC in accordance with section 48C of the Act.

Interpretation

21. Except for references made to the identified services market in this Notification as set out in the 2010 Notification and except as otherwise defined in paragraph 22 of this Notification, words or expressions used in this Notification shall have the same meaning as they have been ascribed in the Act.

22. In this Notification—

(a) "**2010 Notification**" has the meaning given to it in paragraph 2 above;

(b) "**Act**" means the Communications Act 2003 (c.21);

(c) "**BEREC**" means the Body of European Regulators for Electronic Communications;

(d) "**BT**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;

(e) "**Hull Area**" means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications (Hull) plc;

(f) "**March 2011 Consultation**" has the meaning given to it in paragraph 5 above;

(g) "**March Consultation Notification**" has the meaning given to it in paragraph 5 above;

(h) "**November Consultation Notification**" has the meaning given to it in paragraph 6 above;

(i) "**OFCOM**" means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002 (c. 11);

(j) "**United Kingdom**" has the meaning given to it in the Interpretation Act 1978 (c. 30); and

(k) "**WFAEL Statement**" has the meaning given to it in paragraph 1 above.

23. For the purpose of interpreting this Notification—

(a) headings and titles shall be disregarded; and

(b) the Interpretation Act 1978 (c. 30) shall apply as if this Notification were an Act of Parliament.

24. Schedules 1 and 2 to this Notification shall form part of this Notification.

Signed by

[To be signed when notification made]

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

[•] 2012

Schedule 1

[DRAFT] Decision in relation to setting of SMP services condition AAAA4(WLR) as a result of the market power determination made by OFCOM in a statement entitled "Review of the wholesale fixed analogue exchange lines markets: Statement on market definition, market power determinations and remedies" as published on 20 December 2010 in which it was determined that BT has significant market power

1.The following new SMP Condition AAAA4(WLR) shall be set by inserting it after Condition AAAA3 in Part 2 of Schedule 1 to the 2010 Notification—

Condition AAAA4(WLR) - Charge control

AAAA4(WLR).1 Without prejudice to the generality of Condition AAAA3, and subject to paragraph AAAA4(WLR).3, the Dominant Provider shall take all reasonable steps to secure that, at the end of each Relevant Year, the Percentage Change (determined in accordance with paragraph AAAA4(WLR).4, as applicable) in:

(a) the charge for Analogue Core WLR rental, except for the First Relevant Year in relation to which the charge ceiling specified in paragraph AAAA4(WLR).2(a) applies;

(b) the charge for WLR Transfer except for the First Relevant Year in relation to which the charge ceiling specified in paragraph AAAA4(WLR).2(b) applies; and

(c) the charge for WLR New Connection except for the First Relevant Year in relation to which the charge ceiling specified in paragraph AAAA4(WLR).2(c) applies;

in each of the three single charge categories of products and/or services specified in paragraphs AAAA4(WLR).1(a) to (c) above is not more than the Controlling Percentage (as determined in accordance with paragraph AAAA4(WLR).5).

AAAA4(WLR).2 The Dominant Provider shall not charge more than:

(a) for Analogue Core WLR rental, the amount of £[98.81] in the First Relevant Year;

(b) for WLR Transfer, the amount of £[3.29] in the First Relevant Year;

(c) for WLR New Connection, the amount of £[50.06] in the First Relevant Year.

AAAA4(WLR).3 For the purpose of complying with paragraph AAAA4(WLR).1, (and except in relation to the charges specified in AAAA4(WLR).2 for the First Relevant Year), the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made for the Second Relevant Year, on 1 April of that year.

The Dominant Provider shall be deemed to have satisfied this obligation where, in the case of a single Charge Change during the Relevant Year, the following formula is satisfied:

$$RC(1-D) \leq TRC$$

where:

RC is the revenue change associated with the single Charge Change made in the Relevant Year, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Prior Financial Year;

TRC is the target revenue change required in the Relevant Year to achieve compliance with paragraph AAAA4(WLR).1, calculated by the Percentage Change required in the Relevant Year to achieve compliance with paragraph AAAA4(WLR).1 multiplied by the revenue accrued during the Prior Financial Year; and

D is the elapsed proportion of the Relevant Year in question, calculated as:

(a) for the First Relevant Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from [1 April = 0 to 31 March = 365, divided by 366];

(b) for the Second Relevant Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from [1 April = 0 to 31 March = 364, divided by 365].

AAAA4(WLR).4 The Percentage Change for the purposes of each of the products and/or services specified (each of which is referred to in this paragraph as a "single charge category") in paragraphs AAAA4(WLR).1(a), AAAA4(WLR).1(b) and AAAA4(WLR).1 (c) respectively shall be calculated for the purposes of complying with paragraph AAAA4(WLR).1 by employing the following formula:

$$C_t = \frac{(p_t - p_0)}{p_0}$$

where:

C_t is the Percentage Change in charges for the specific product and/or service in the single charge category in question at a particular time *t* during the Relevant Year;

p_0 is (i) for the First Relevant Year, the charge specified in paragraph AAAA4(WLR).2 in respect of the single charge category in question; and (ii) for the Second Relevant Year, the published charge made by the Dominant Provider for the specific product and/or service in the single charge category in question at the beginning of the Relevant Year excluding any discounts offered by the Dominant Provider; and

p_t is the published charge made by the Dominant Provider for the specific product and/or service in the single charge category in question at the time *t* during the Relevant Year excluding any discounts offered by the Dominant Provider.

AAAA4(WLR).5 Subject to paragraphs AAAA4(WLR).6 and AAAA4(WLR).7, the Controlling Percentage in relation to any Relevant Year means:

(a) for the category of products and/or services specified in paragraph AAAA4(WLR).1.(a). for the Second Relevant Year, RPI decreased by [7.3] percentage points;

(b) for the category of products and/or services specified in paragraph AAAA4(WLR).1.(b) for the Second Relevant Year, RPI;

(c) for the category of products and/or services specified in paragraph AAAA4(WLR).1.(c) for the Second Relevant Year, RPI decreased by [10.2] percentage points.

For the avoidance of doubt, the charges for each of these products and/or services are constrained by AAAA4(WLR).2 in the First Relevant Year.

AAAA4(WLR).6 Where the Percentage Change in either of the First Relevant Year is less than the Controlling Percentage (the "Excess"), then for the purposes of each of the categories of products and/or services specified in paragraphs AAAA4(WLR).1(a), AAAA4(WLR).1(b) and AAAA4(WLR).1(c) respectively the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AAAA4(WLR).5, but increased by the absolute value of the Excess.

AAAA4(WLR).7 Where the Percentage Change in either of the First Relevant Year is more than the Controlling Percentage (the "Deficiency"), then for the purposes of each of the categories of products and/or services specified in paragraphs AAAA4(WLR).1(a), AAAA4(WLR).1(b) and AAAA4(WLR).1(c) respectively the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AAAA4(WLR).5, but decreased by the absolute value of the Deficiency.

AAAA4(WLR).8 Where

(a) the Dominant Provider makes a material change (other than to a Charge) to any Charge Controlled Service for which a Charge is charged;

(b) the Dominant Provider makes a change to the date on which its financial year ends; or

(c) there is a material change in the basis of the Retail Prices Index;

paragraphs AAAA4(WLR).1 to AAAA4(WLR).7 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of this paragraph AAAA4(WLR).8, a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for that existing Charge Controlled Service.

AAAA4(WLR).9 The Dominant Provider shall record, maintain and supply to OFCOM in writing, no later than three months after the end of the Relevant Year, the data necessary for OFCOM to monitor compliance of the Dominant Provider with the price control by performing the calculation of the Percentage Change. The data shall include:

(a) pursuant to Condition AAAA4(WLR).4, the calculated Percentage Change relating to each category of products and services listed in paragraphs AAAA4(WLR).1 (a) through to (c);

(b) pursuant to Condition AAAA4(WLR).3, calculation of the revenue accrued as a result of all relevant individual charge changes during any Relevant Year compared to the target revenue change;

(c) all relevant data the Dominant Provider used in the calculation of the percentage change C_t pursuant to Conditions AAAA4(WLR).4 for the category of products and services specified in paragraphs AAAA4(WLR).1 (a) through to (c);

(d) all relevant data the Dominant Provider used in the calculation of the revenue change and target revenue change pursuant to Condition AAAA4(WLR).3;

(e) all relevant revenues accrued during the Prior Financial Year in respect of the specific product or service;

(f) published charges made by the Dominant Provider at time *t* during the Relevant Year excluding any discounts offered by the Dominant Provider;

(g) the relevant published charge at the start of the Relevant Year; and

(h) other data necessary for monitoring compliance with the charge control.

AAAA4(WLR).10 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the Second Relevant Year, the Dominant Provider shall make such adjustment to any of its charges for the provision of Charge Controlled Services and by such day in that Relevant Year (or if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

AAAA4(WLR).11 Paragraphs AAAA4(WLR).1 to AAAA4(WLR).10 shall not apply to such extent as OFCOM may direct.

AAAA4(WLR).12 The Dominant Provider shall comply with any direction OFCOM may make from time to time under this Condition.

AAAA4(WLR).13 In this Condition:

(a) "**Analogue Core WLR Rental**" means, unless OFCOM directs otherwise from time to time for the purpose of the meaning of this expression, such services as the Dominant Provider is required to provide under SMP services condition AAAA10.1(a) and which on the date this Condition takes effect include:

i. the rental of an analogue exchange line for control and billing purposes;

ii. maintenance which is part of the service provided by the Dominant Provider in consideration of the charge for an Exchange Line and includes a maintenance service level with a fault repair time of no more than provided for Level 1 service care level for Basic lines, as defined in the Dominant Provider's standard terms and conditions; and

iii. one main directory listing per telephone number, comprising of either:

I. a residential style listing; or

II. a business style listing, where the Dominant Provider provides to the Third Party a WLR3 service, as defined in the Dominant Provider's standard terms and conditions;"

(b) "**Charge**" means for the purposes of paragraph AAAA4(WLR).8, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a communications provider for the Charge Controlled Service;

(c) "**Charge Change**" means a change to any of the charges for the provision of the products and/or services listed in AAAA4(WLR).1(a), AAAA4(WLR).1(b) and AAAA4(WLR).1(c);

(d) "**Charge Controlled Service**" means a product and/or service listed in AAAA4(WLR).1(a), AAAA4(WLR).1(b) and AAAA4(WLR).1(c);

(e) "**Controlling Percentage**" is to be determined in accordance with paragraph AAAA4(WLR).5;

(f) "**Dominant Provider**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;

(g) "**OFCOM**" means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002 (c. 11);

(h) "**Percentage Change**" has the meaning given to it in paragraph AAAA4(WLR).4;

(i) "**Prior Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year;

(j) "**Relevant Year**" means each of the following two periods:

i. the period beginning on 1 April 2012 and ending on 31 March 2013 (the "First Relevant Year");

ii. the period beginning on 1 April 2013 and ending on 31 March 2014 (the "Second Relevant Year");

(k) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office for National Statistics at the time of publication of this Notification) from time to time in respect of all items;

(l) "**RPI**" means the amount of the change in the Retail Prices Index in the period of twelve months ending on 31 October immediately before the beginning of a Relevant Year, expressed as a percentage (rounded to two decimal places) of that Retail Prices Index as at the beginning of that first mentioned period.

(m) "**WLR Transfer**" means a charge for the transfer of control of an analogue access line; and

(n) "**WLR New Connection**" means a charge for the connection of a new analogue line to a premises.

SCHEDULE 2

Modification to SMP service condition AAAA10.

SMP Condition AAAA10 shall be modified by

(a) removing the current paragraphs AAAA10.1 and AAAA10.2 of Condition AAAA10 in Part 2 of Schedule 1 to the Notification published at Annex 1 of the statement entitled "Review of the wholesale fixed analogue exchange lines markets: Statement on market definition, market power determinations and remedies" published on 20 December 2010 by OFCOM and inserting in their place the following new paragraphs AAAA10.1 and AAAA10.2:

> "**AAAA10.1** The Dominant Provider shall provide Wholesale Line Rental, which shall include, where also requested by a Third Party, such Ancillary Services as may be reasonably necessary for the use of Wholesale Line Rental, as soon as is reasonably practicable, or as directed by Ofcom, on reasonable terms to every Third Party who makes a reasonable request in relation to wholesale analogue exchange line services.
>
> **AAAA10.2** Unless Ofcom directs otherwise from time to time, the Dominant Provider shall ensure that charges of providing WLR services in paragraph AAAA10.1, including for the avoidance of doubt such Ancillary Services as may be reasonably necessary for the use of Wholesale Line Rental, are based on the forward looking long-run incremental cost, except where the Dominant Provider and Third Party have agreed another basis for the charges."

(b) inserting the following new paragraph AAAAA10.6 in Condition AAAA10 after the current paragraph AAAA10.5:—

> "**AAAA10.6** In this Condition:
>
> "**Ancillary Services**" mean an Associated Facility or services associated with an Electronic Communications Network and/or an Electronic Communications Service which enable and/or support the provision of services via that Network and/or Service or have the potential to do so."

PART V – [DRAFT] DIRECTION REGARDING REMOVAL OF COST ORIENTATION OBLIGATION FOR ANALOGUE CORE WLR RENTAL AND WLR TRANSFER

[DRAFT] NOTIFICATION UNDER SECTION 49 OF THE COMMUNICATIONS ACT 2003

Decision with regards to the Direction under section 49 of the Communications Act 2003 and SMP Conditions AAAA3.1 and AAAA10.2 imposed on BT as a result of a market power determination made by OFCOM in its "*Review of the wholesale fixed analogue exchange lines markets: Statement on market definition, market power determinations and remedies*" as published on 20 December 2010, that BT has significant market power in the market for wholesale fixed analogue exchange line services in the United Kingdom excluding the Hull Area

Background

1. On 20 December 2010, OFCOM published its statement entitled Review of the wholesale fixed analogue exchange lines markets (the "**Wholesale Review Statement**").

2. In the Wholesale Review Statement, OFCOM determined that BT held Significant Market Power ("**SMP**") in the market for wholesale fixed analogue exchange line services.

3. As a result, OFCOM imposed a number of remedies on BT in order to address identified competition concerns. Those remedies included SMP services conditions AAAA3 and AAAA10 which apply to those markets set out at paragraph 2 above.

4. Both AAAA3 and AAAA10 impose a cost orientation obligation upon BT, as follows:

> ***AAAA3.1*** *Unless Ofcom directs otherwise from time to time, the Dominant Provider shall secure, and shall be able to demonstrate to the satisfaction of Ofcom, that each and every charge offered, payable or proposed for Network Access covered by Condition AAAA1(a) is reasonably derived from the costs of provision based on a forward looking long-run incremental cost approach and allowing an appropriate mark up for the recovery of common costs including an appropriate return on capital employed;*
>
> ***AAAA10.2*** *Unless Ofcom directs otherwise from time to time, the Dominant Provider shall ensure that charges of providing WLR services in paragraph AAAA10.1 are based on the forward looking long-run incremental cost, except where the Dominant Provider and Third Party have agreed another basis for the charges.*

5. BT currently offers Analogue Core WLR Rental and WLR Transfer within the market described at paragraph 2 above. The charge ceiling imposed in Condition AAAA4(WLR) on Analogue Core WLR Rental is not based on a forward looking long-run incremental cost approach, allowing an appropriate mark up for the recovery of common costs including an appropriate return on capital employed, and therefore is not consistent with SMP Conditions AAAA3.1 and AAAA10.1. Further, the charge ceiling imposed in Condition AAAA4(WLR) on WLR Transfer is set below forward looking long-run incremental cost, and therefore is also not consistent with the SMP Conditions AAAA3.1 and AAAA10.1. Therefore, OFCOM considers that the cost orientation obligations should not continue to apply to these services.

6. On 31 March 2011, OFCOM published a consultation document entitled "*Charge control review for LLU and WLR services*"[379] (the "**March 2011 Consultation**") which included, in Annex 13 to that document, the publication of a notification under section 48 of the Act setting out OFCOM's proposal to set a new SMP Condition AAAA4(WLR) entitled 'Charge control'.

7. In addition, in the March 2011 Consultation, OFCOM published a notification under section 49 of the Communications Act 2003 and SMP Services Conditions AAAA3 and AAAA10 of a proposal for giving a direction in relation to the removal of Analogue Core WLR Rental and WLR Transfer from cost orientation obligations (the "**Direction Proposal**").

8. Following comments from stakeholders received in response to the March 2011 Consultation, OFCOM made some amendments to the proposals set out in that consultation and on 23 November 2011 published a second consultation document entitled "*LLU and WLR Charge Control - Further Consultation*", which included in Annex 5 to that document, the publication of a notification under section 48A of the Act setting out OFCOM's further proposals to set a new SMP Condition AAAA4(WLR) entitled 'Charge control'.

9. In accordance with section 50 of the Act, copies of the Direction Proposal were sent to the Secretary of State, the European Commission and the regulatory authorities of every of the Member State.

10. By virtue of section 49(9) of the Act, OFCOM may give effect to the Direction Proposal, with or without modification, only if—

(a) they have considered every representation about the proposal that is made to OFCOM within the period specified in Direction Proposal; and

(b) they have had regard to every international obligation of the United Kingdom (if any) which has been notified to OFCOM for this purpose by the Secretary of State.

11. For the reasons set out in the explanatory statement accompanying this Direction, in accordance with section 49(2) of the Act, OFCOM are satisfied that this Direction is—

(a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;

(b) not such to discriminate unduly against particular persons or against a particular description of persons;

(c) proportionate to what it is intended to achieve; and

(d) in relation to what it is intended to achieve, transparent.

12. For the reasons set out in the explanatory statement accompanying this Direction, OFCOM have considered and acted in accordance with their general duties set out in section 3 of, and the six Community requirements set out in section 4, of the Act in making this Direction.

[379] As updated on 18 April 2011 and 18 May 2011, see: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/Correction18011.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/changes180511.pdf.

13. OFCOM have considered every representation about the Direction Proposal duly made to it and the Secretary of State has not notified OFCOM of any international obligation of the United Kingdom for this purpose.

Direction

14. OFCOM hereby, in accordance with section 49 of the Act, paragraph 7 of Schedule 3 to the Electronic Communications and Wireless Telegraphy Regulations 2011 and under Conditions AAAA3.1 and AAAA10.1, directs that SMP service Conditions AAA3.1 and AAA10.2 shall not apply to Analogue Core WLR Rental and WLR Transfer provided by BT in support of the rental of wholesale lines for the market set out in paragraph 8(a) of the Notification to the Wholesale Review Statement, that is to say: wholesale fixed analogue exchange line services.

15. The effect of, and the reasons for making, this Direction are set out in the accompanying explanatory statement.

Effective date

16. This Direction shall take effect on the [1 April 2012].

Interpretation

17. Except for references made to the identified services market in this Direction and subject to paragraph 18 below, words or expressions used in this Direction shall have the same meaning as they have been ascribed in the Act.

18. In this Direction—

(a) "**Act**" means the Communications Act 2003 (c.21);

(b) "**Analogue Core WLR Rental**" means, unless OFCOM directs otherwise from time to time for the purpose of the meaning of this expression, such services as the Dominant Provider is required to provide under SMP services condition AAAA10.1(a) and which on the date this Direction takes effect include:

i. the rental of an analogue exchange line for control and billing purposes;

ii. maintenance which is part of the service provided by the Dominant Provider in consideration of the charge for an Exchange Line and includes a maintenance service level with a fault repair time of no more than provided for Level 1 service care level for Basic lines, as defined in the Dominant Provider's standard terms and conditions; and

iii. one main directory listing per telephone number, comprising of either:
   I. a residential style listing; or
   II. a business style listing, where the Dominant Provider provides to the Third Party a WLR3 service, as defined in the Dominant Provider's standard terms and conditions;

(c) "**BT**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;

(d) "**Direction Proposal**" has the meaning given to it in paragraph 7 of this Direction;

(e) "**Electronic Communications and Wireless Telegraphy Regulations 2011**" means the Electronic Communications and Wireless Telegraphy Regulations 2011, SI 2011/1210;

(f) "**Hull Area**" means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications (Hull) plc;

(g) "**March 2011 Consultation**" has the meaning given to it in paragraph 6 of this Direction;

(h) "**OFCOM**" means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002 (c. 11);

(i) "**United Kingdom**" has the meaning given to it in the Interpretation Act 1978 (c.30);

(j) "**Wholesale Review Statement**" has the meaning given to it in paragraph 1 of this Direction; and

(k) "**WLR Transfer**" means a charge for the transfer of control of an analogue access line.

19. For the purpose of interpreting this Direction—

(a) headings and titles shall be disregarded; and

(b) the Interpretation Act 1978 (c. 30) shall apply as if this Notification were an Act of Parliament.

Signed by

[To be signed when notification made]

[TITLE]

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

[•] 2012

PART VI – [DRAFT] CONSENT FOR PERIOD TO NOTIFY CHARGES (WLR)

[DRAFT] NOTIFICATION UNDER SECTION 49 OF THE COMMUNICATIONS ACT 2003

Decision with regards to the Consent under section 49 of the Communications Act 2003 and SMP Services Condition AAAA6(a).1 imposed on BT as a result of the market power determination made by OFCOM that BT has significant market power in market for wholesale fixed analogue exchange line services in the UK, excluding the Hull Area

Background

1. On 20 December 2010, OFCOM published a document entitled "*Review of the wholesale fixed analogue exchange lines markets: Statement on market definition, market power determinations and remedies*" (the "**2010 Notification**").

2. At Annex 2 to the 2010 Notification, OFCOM published a notification identifying, in accordance with section 79 of the Act, the services market of wholesale fixed analogue exchange line services within the United Kingdom, but not including the Hull Area, in which OFCOM determined that, for the purposes of making a market power determination under the Act, BT has Significant Market Power ("**SMP**").

3. As a result of that market power determination, in accordance with section 48(1) of the Act, OFCOM set on BT pursuant to section 45 of the Act the SMP services conditions set out in Schedule 1 to the 2010 Notification, including Condition AAAA6(a) which imposes obligations on BT with regard to prior notification of charges before taking effect. In particular, paragraph AAAA6(a).2 of that Condition provides:

> ***AAAA6(a).2*** *Except where new or amended charges are directed or determined by Ofcom or where such charges are required by a notification or an enforcement notification given by Ofcom under sections 94 or 95 of the Act, the Dominant Provider shall send to Ofcom and to every Third Party with which it has entered into an Access Contract covered by Condition AAAA1(a) a written notice of any amendment to the charges on which it provides Network Access or in relation to any charges for new Network Access (an "Access Charge Change Notice"):*
>
> *(a) where the proposed amendment relates to the Wholesale Line Rental Charge, not less than 90 days before any such amendment comes into effect; and*
>
> *(b) in any other case, not less than 28 days before any such amendment comes into effect.*

4. On 31 March 2011, OFCOM published a consultation document entitled "*Charge control review for LLU and WLR services*"[380] (the "**March 2011 Consultation**") which included, in Annex 13 to that document, the publication of a notification under section 48 of the Act setting out OFCOM's proposal to set a new SMP Condition AAAA4(WLR) entitled 'Charge control'.

5. In addition, in the March 2011 Consultation, OFCOM published a Notification of a proposal to give a Consent under section 49 of the Communications Act 2003 and SMP

[380] As updated on 18 April 2011 and 18 May 2011, see: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/Correction18011.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/changes180511.pdf.

Services Condition AAAA6(a).1 in relation to charges to which that proposed Condition relates (the "**Consent Proposal**").

6. Following comments from stakeholders received in response to the March 2011 Consultation, OFCOM made some amendments to the proposals set out in that consultation and on 23 November 2011 published a second consultation document entitled "*LLU and WLR Charge Control - Further Consultation*", which included in Annex 5 to that document, the publication of a notification under section 48A of the Act setting out OFCOM's further proposals to set a new SMP Condition AAAA4(WLR) entitled 'Charge control'.

7. In accordance with section 50 of the Act, a copies of the Consent Proposal were sent to the Secretary of State, the European Commission and the regulatory authorities of every of the Member State.

8. By virtue of section 49(9) of the Act, OFCOM may give effect to the Consent Proposal, with or without modification, only if—

(a) they have considered every representation about the proposal that is made to OFCOM within the period specified in the Consent Proposal; and

(b) they have had regard to every international obligation of the United Kingdom (if any) which has been notified to OFCOM for this purpose by the Secretary of State.

9. For the reasons set out in the explanatory statement accompanying this Consent, in accordance with section 49(2) of the Act, OFCOM are satisfied that this Consent is—

(a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;

(b) not such to discriminate unduly against particular persons or against a particular description of persons;

(c) proportionate to what it is intended to achieve; and

(d) in relation to what it is intended to achieve, transparent.

10. For the reasons set out in the explanatory statement accompanying this Consent, OFCOM have considered and acted in accordance with their general duties set out in section 3 of, and the six Community requirements set out in section 4, of the Act in giving this Consent.

11. OFCOM have considered every representation about the Consent Proposal duly made to them and the Secretary of State has not notified OFCOM of any international obligation of the United Kingdom for this purpose.

Consent

12. OFCOM hereby, pursuant to section 49 of the Act, paragraph 7 of Schedule 3 to the Electronic Communications and Wireless Telegraphy Regulations and under Condition AAAA6(a).1, gives consent to BT that period of 90 days referred to in Condition AAAA6(a).2 (amendments to the Wholesale Line Rental Charge) is to be reduced to a period of 28 days for any amendments to charges made under an Access Charge Change Notice notified prior to [1 April 2012] for services subject to Condition AAAA4(WLR) (and the Condition shall otherwise apply accordingly).

Interpretation

13. In this Consent—

(a) "**2010 Notification**" has the meaning given to it in paragraph 1 of this Consent;

(b) "**Act**" means the Communications Act 2003 (c.21);

(c) "**BT**" and "**Dominant Provider**", respectively, means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined in section 1159 of the Companies Act 2006;

(d) "**Consent Proposal**" has the meaning given to it in paragraph 5 above;

(j) "**Electronic Communications and Wireless Telegraphy Regulations**" means the Electronic Communications and Wireless Telegraphy Regulations 2011, SI 2011/1210;

(e) "**March 2011 Consultation**" has the meaning given to it in paragraph 4 above;

(f) "**OFCOM**" means the Office of Communications as established pursuant to section 1(1) of the Office of Communications Act 2002 (c. 11);

(g) "**SMP Condition AAAA4(WLR)**" means SMP Condition AAAA4(WLR) as set out in Schedule 1 to the Notification published by OFCOM on [•] at [•] to the explanatory statement accompanying this Consent; and

(h) "**United Kingdom**" has the meaning given to it in the Interpretation Act 1978 (c.30).

12. Except insofar as the context otherwise requires, words or expressions in this Consent shall have the meaning assigned to them in paragraph 13 above and otherwise any word or expression shall have the same meaning as it has in the Act.

13. For the purpose of interpreting this Consent—

(a) headings and titles shall be disregarded; and

(b) the Interpretation Act 1978 (c. 30) shall apply as if this Consent were an Act of Parliament.

Effective date

14. This Consent shall take effect on [1 April 2012].

Signed by

[To be signed when notification made]

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

[•] 2012

Annex 13

Glossary

2005 Cost of Copper Review: means the statement "*Valuing BT's Copper Network*" published on 18 August 2005.
http://stakeholders.ofcom.org.uk/binaries/consultations/copper/statement/statement.pdf

2005 LLU Statement: means the statement "*Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6*" published on 30 November 2005.
http://stakeholders.ofcom.org.uk/binaries/consultations/llu/statement/llu_statement.pdf

2006 WLR Statement: means the statement "*Wholesale Line Rental:Reviewing and setting charge ceilings for WLR services*" published on 24 January 2006.
http://stakeholders.ofcom.org.uk/binaries/consultations/wlrcharge/statement/statement.pdf

2008 Openreach Financial Framework Consultation: means the consultation document "*A New Pricing Framework for Openreach, Developing new charge controls for wholesale line rental, unbundled local loops and related services*" published on 30 May 2008.
http://stakeholders.ofcom.org.uk/binaries/consultations/openreach/summary/openreachcondoc.pdf

2009 Openreach Financial Framework Consultation: means the consultation document "*A New Pricing Framework for Openreach*" published on 5 December 2008.
http://stakeholders.ofcom.org.uk/binaries/consultations/openreachframework/summary/off.pdf

2009 Openreach Financial Framework Statement: means the statement "*A new pricing framework for Openreach*" published on 22 May 2009.
http://stakeholders.ofcom.org.uk/binaries/consultations/openreachframework/statement/statement.pdf

2009 WLR Consultation: means the consultation document "*Charge controls for Wholesale Line Rental and related services*" published on 3 July 2009.
http://stakeholders.ofcom.org.uk/binaries/consultations/wlrcc/summary/wlrcc.pdf

2009 WLR Statement: means the "*Charge controls for Wholesale Line Rental and related services*" published on 26 October 2009.
http://stakeholders.ofcom.org.uk/binaries/consultations/wlr/summary/wlrcondoc.pdf

2009 WLR Implementation Statement: means the second statement "*Charge controls for Wholesale Line Rental – implementation and cost orientation*" published on 23 February 2010.
http://stakeholders.ofcom.org.uk/binaries/consultations/wlr/statement/wlr_statement.pdf

2009 LLU Appeal: means The Carphone Warehouse PLC v Office of Communications, Case no. 1111/3/3/09.

2009 LLU Determination: The CC's determination of the 2009 LLU Appeal, pursuant to a reference under section 193 of the Act: http://www.competition-commission.org.uk/appeals/communications_act/llu_determination.pdf

2009 WLR Appeal: means The Carphone Warehouse PLC v Office of Communications, Case no. 1149/3/3/09.

2009 WLR Determination: The CC's determination of the 2009 WLR Appeal, pursuant to a reference under section 193 of the Act: http://www.competition-commission.org.uk/appeals/communications_act/wlr_determination.pdf

2010 WLA Consultation: means the consultation "*Review of the wholesale local access market, Consultation on market definition, market power determinations and remedies*" published on 23 March 2010: http://stakeholders.ofcom.org.uk/binaries/consultations/wla/summary/wlacondoc.pdf

2010 WFAEL Consultation: means the consultation "*Review of the wholesale fixed analogue exchange lines markets, Consultation on the proposed markets, market power determinations and remedies*" published on 15 October 2010: http://stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-fixed-exchange/summary/main.pdf

2011 ISDN30 Consultation: means the first consultation document "Price controls for wholesale ISDN30 services" published on 1 April 2011: http://stakeholders.ofcom.org.uk/binaries/consultations/isdn30-2011/summary/isdn30-2011.pdf

21CN: BT's next generation network upgrade.

AI Accommodation Basket: Access Locate and AI Accommodation Administration Fee services charge controlled in Leased Lines market.

All-in Tender Price Index (TPI): An index which measures actual tender prices charged for construction work.

Anchor pricing: An approach that sets the upper bound for charges of existing services by reference to the cost of providing those services using existing technology. This ensures that the introduction of new technology which is intended to provide a greater range of services does not inappropriately lead to an increase in the cost of the existing services.

Ancillary services: Services that relate to the Core Rental Services and that are of an ancillary nature but which fall within markets in which BT has been found to have SMP.

Basket: A set of services where the charge control is applied to the total revenue from those services in a given year, subject to a specified compliance formula.

BT: British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

BT Retail: The retail division of BT.

BT Wholesale: The wholesale division of BT.

BT March 2011 Management Accounts: BT's internal management accounts as set in March 2011.

C&WW: Cable & Wireless Worldwide.

CAT: the Competition Appeals Tribunal.

Calling and network features: Calling and network features are add-on services provided alongside core WLR rentals. There are around 50 network features and around 30 call features that Openreach charges for. For example, call features include: call diversion, call barring, bypass number, call waiting, call sign, caller display, reminder call, ringback. Network features include: call diversion by admin control, change of divert to number, outgoing calls barred, incoming calls barred.

Co-mingling Services: All essential support services which are used jointly by SMPF and MPF, including the collocation services. E.g., electricity, ventilation.

Copper Commercial & Product Group: Industry forum for discussion of copper based telecommunications services.

Common costs: Costs which are shared by all the services supplied by a firm.

CC: means the Competition Commission.

Core Rental Services (CRS): The key Openreach rental services, comprising MPF Rental, PSTN Rental (Basic and Premium) and SMPF Rental.

Cost Allocation model: In this model, costs from the Cost Forecast model are allocated to individual services cost and asset data allocated to services to derive unit cost estimates. The Cost Allocation model also draws on a calculation of the forecast asset values and depreciation, for Copper and Duct, provided by the RAV model.

Cost Forecast model: This is an activity-based costing model, using data linked to historically observed activity levels and costs together with estimates of future level of demand. In this model we forecast operating costs and capital expenditure at an Openreach level. The output is fed into the Cost Allocation model.

Cost orientation: The principle that the price charged for the provision of a service should reflect the underlying costs incurred in providing that service.

Cost Orientation and Regulatory Financial Reporting Review: Ofcom's current review of cost orientation and regulatory financial reporting
http://stakeholders.ofcom.org.uk/consultations/cost-orientation-telecoms/

Cost stack: An accounting column that presents a breakdown of the component costs or charges for a particular product or service.

Common Regulatory Framework: The directives of the European Parliament and Council in 2002 (as amended) to establish a common regulatory framework across the EU for electronic communications networks and services. These consist of the Framework Directive (2002/21/EC), the Authorisation Directive (2002/20/EC), the Access Directive (2002/19/EC), the Universal Service Directive (2002/22/EC) and the Privacy and Electronic Communications Directive (2002/58/EC), all amended by the Better Regulation Directive (2009/140/EC). See
http://europa.eu/legislation_summaries/information_society/legislative_framework/l24216a_en.htm

Communications Provider (CP): A person who provides an Electronic Communications Network or provides an Electronic Communications Service.

Communication Workers Union (CWU): is the main trade union in the United Kingdom for people working within telephony or postal industries.

Current cost accounting (CCA): An accounting convention, where assets are valued and depreciated according to their current replacement cost whilst maintaining the operating or financial capital of the business entity.

Current cost accounting fully allocated cost (CCA FAC): An approach used to measure a company's costs.

Current generation network (CGN): A network that uses existing (copper) technology in the core and backhaul.

Current year volume weights: Current year volume weights approach sets prices based on a forecast of the current year volumes/revenues weighting.

Cumulo rates: The business rates paid by BT Group on its network business. These relate to the use of public land for assets such as poles, duct, street cabinets and the equipment in exchange buildings.

Digital Access Carrier System (DACS): A system that allows a single pair of copper lines between an exchange and a pole or roadside cabinet to be used to connect multiple customers to the exchange.

DSL (Digital Subscriber Line): a family of technologies generically referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as "twisted copper pairs") into high-speed digital lines, capable of supporting advanced services such as fast internet access and video-on-demand.

Digital subscriber line access multiplexor (DSLAM): A network device, located in the telephone exchanges of the internet service providers, which connects multiple customer DSLs to a high-speed Internet backbone line using multiplexing techniques.

Directory costs: The cost of producing and distributing phone directories.

DMC: Professors Dimson, Marsh and Staunton of the London Business Schools, authors of "Credit Suisse Global Investment Returns Sourcebook 2009", Credit Suisse Research Institute and "Credit Suisse Global Investment Returns Sourcebook 2010", Credit Suisse Research Institute

DP (Distribution Point): see **Network Diagram**.

Discount factor: The factor by which a future cash flow must be multiplied to calculate its present value.

Distributed long run incremental cost (DLRIC): The LRIC of the individual service with a share of costs which are common to other services over BT's core network.

Distributed stand alone cost (DSAC): An accounting approach estimated by adding to the DLRIC a proportionate share of the inter-increment common costs. Rather than all common costs shared by a service being allocated to the service under consideration, the common costs are instead allocated amongst all the services that share the network increment.

Dropwire: The part of the network that uses a copper line from the distribution point to and including the PSTN NTE.

E&Y: Ernst and Young

Early termination charge (ETC): The fee that will be charged by a Communications Provider to their customer for early termination of a contract or agreement.

EE: Everything Everywhere plc.

EOI: Equivalence of inputs, a concept established by the BT Undertakings according to which BT provides, in respect of a particular product or service, the same product or service to all CPs (including BT) on the same timescales, terms and conditions (including price and service levels) by means of the same systems and processes, and includes the provision to all CPs (including BT) of the same commercial information about such products, services, systems and processes.

Ethernet Direct Access (EDA): Ethernet Access Direct provides point-to-point data connectivity between sites. It can be used to build and extend customer networks, develop new infrastructure, and meet low-capacity backhaul requirements. EAD supports cloud computing, simultaneous online pupil access in classrooms and storage area network connectivity.

Enhanced Care services: Services provided to CPs where they wish to receive a quicker response from Openreach to reported faults than offered under standard terms.

Equi proportional mark-up (EPMU): The application of the same percentage mark-up to the incremental costs of two or more services.

EvoTAMS: Industry name given to an improved version of earlier TAMS. “Evo” stands for “evolution”.

FCS: Federation of Communication Services.

FTTC: means fibre to the cabinet, a "next generation broadband" service based on fibre optic cable installed from the telephone exchange to the street-side telephone cabinet. The connection from the cabinet to the customer's premise is by copper wire.

FTTP: means fibre to the premise, a "next generation broadband" service based on fibre optic cable installed from the telephone exchange all the way to the customer's premise.

Fully allocated cost (FAC): An accounting approach under which all the costs of the company are distributed between its various products and services. The fully allocated cost of a product or service may, therefore, include some common costs that are not directly attributable to the service.

GC: Global Crossing plc.

GEA: Generic Ethernet Access. This is a term representing a variety of possible technical solutions that would allow other operators to sell retail broadband services over an incumbents next generation network.

General Building Cost Index (GBCI): A national index that measures the cost of construction works, including materials and labour. The GBCI is published by the Building Cost Information Service (BCIS), a service of the Royal Institute of Chartered Surveyors. Information on the GBCI and the GBCI data, including 5-year forecasts, are available from BCIS at http://www.bcis.co.uk/.

Glide path: The notional path that the charge of a product should follow so as to match the product's forecast cost at a particular point in the future (normally in this case the cost at the end of the control period).

Gross replacement cost (GRC): The cost of replacing an existing tangible fixed asset with an identical or substantially similar new asset having a similar production or service capacity.

Handover distribution frame (HDF): An internal wiring frame provided within an LLU operator's equipment area where tie cables are terminated and cross connected to the LLU operator's exchange equipment by flexible wire jumpers.

Hereditament: A unit of rateable property. In telecoms, a hereditament is a single contiguous network asset which is assessed as a whole.

Historic cost accounting (HCA): A method of accounting under which assets and liabilities are recorded at the values at which they were first acquired.

Incremental costs: Those costs which are directly caused by the provision of that service in addition to the other services which the firm also produces. Another way of expressing this is that the incremental costs of a service are the difference between the total costs in a situation where the service is provided and the costs in another situation where the service is not provided.

Inertia clause: A clause in which restricts relative charge movements within a basket of services.

International Benchmarking Report (IBR): The IBR is a confidential cost benchmarking report which compares data from operators across Europe and determines their relative performance.

ISDN2: A digital telephone line service that supports telephony and switched data services. ISDN2 provides the calling or data capacity equivalent to two analogue telephone lines.

ISDN30: A digital telephone service that provides up to the equivalent of 30 analogue lines over a common digital bearer circuit. These lines provide digital voice telephony, data services and a wide range of ancillary services.

Jumpering: The wiring arrangement for a given service on the MDF.

Leased line: A permanently connected communications link between two premises dedicated to the customers' exclusive use.

Leased Lines Charge Control (LLCC): Charge controls imposed by Ofcom, as per Ofcom's LLCC Statement of 2 July 2009, for wholesale traditional and alternative interface leased lines services supplied by BT in markets in which it was found to have significant market power. See http://stakeholders.ofcom.org.uk/consultations/llcc/statement/

Line length adjustment: An adjustment for the difference in the average lengths of a MPF and a WLR line.

Local Exchange Carriers (LECs): Local telephone network operators operating within the USA.

Local loop: The access network connection between the customer's premises and the local serving exchange, usually comprised of two copper wires twisted together.

Local loop unbundling (LLU): A process by which a dominant provider's local loops are physically disconnected, or partially disconnected, from its network and connected to competing provider's networks. This enables operators other than the incumbent to use the local loop to provide services directly to customers.

Local loop unbundling operator (LLUO): A CP using LLU to provide an electronic communications service to customers.

Long run incremental cost (LRIC): The cost caused by the provision of a defined increment of output given that costs can, if necessary, be varied and that some level of output is already produced.

Long Term Evolution (LTE): Long Term Evolution (LTE) is a wireless broadband technology developed by the Third Generation Partnership Project (3GPP), an industry trade group. 3GPP engineers named the technology "Long Term Evolution" because it represents the next step (4G) in a progression from GSM, a 2G standard, to UMTS, the 3G technologies based upon GSM. LTE provides significantly increased peak data rates, with the potential for 100 Mbps downstream and 30 Mbps upstream, reduced latency, scalable bandwidth capacity, and backwards compatibility with existing GSM and UMTS technology.

LUS (Light User Scheme) – The LUS provides a reduced line rental to lower income customers of BT Retail as mandated by Ofcom and the Universal Service Directive.

MAC process: The process an internet service subscriber needs to follow to switch their internet service provider. The subscriber needs to ask their current provider for a migration authorization code (MAC) which they then must pass to their intended provider. The MAC uniquely identifies the telephone line to be switched.

MDF: means the main distribution frame.

MDF/unbundled local loop: An internal wiring frame where copper access network cables are terminated and cross connected to exchange equipment by flexible wire jumpers.

Material Change in Circumstance (MCC): The Local Government Finance Act 1988 defines MCCs to be "*matters affecting the physical state of physical enjoyment of the hereditament*".

Medium Term Plan (MTP): BT's internal business plans containing financial forecasts separated by business divisions.

Metallic path facilities (MPF): The provision of access to the copper wires from the customer premises to a BT MDF that covers the full available frequency range, including both narrowband and broadband channels, allowing a competing provider to provide the customer with both voice and/or data services over such copper wires.

Migration services: The services rendered by Openreach in migrating a customer from one service provider to another for a given service.

Minimum contract period (MCP): The amount of time a consumer must remain in a contract before being able to cancel it.

Modern equivalent asset (MEA): An approach to setting charges that bases costs on what is believed to be the most efficient available technology that performs the same function as the old technology.

Mobile Call Termination Review: 'Wholesale Mobile Voice Call Termination' Statement, 15 March 2011, http://stakeholders.ofcom.org.uk/consultations/mtr/?a=0

MCT Rates: Charge levied by a mobile communication provider when terminating a call. Subject to charge controls set in the Mobile Call Termination Review.

Movements in the frontier (efficiency): The annual rate at which an efficient operator would be expected to reduce its operating costs in the future.

MPF ancillary services (basket): The set of MPF ancillary services subject to a basket charge control.

Multi-service Access Node (MSAN): A type of "first-mile"/"last-mile" access equipment installed in a telephone exchange or a roadside telecoms cabinet, to connect customers' telephone lines to the core network, which can provide a variety of voice and data services to a range of customers.

Next generation access (NGA): a term used by BT to describe a significant upgrade to the telecommunication access network replacing some or all of the copper cable with optical fibre.

National Telecommunications Regulatory Authority (NRA): The term used to describe the regulatory body for the purpose of the Common Regulatory Framework in each EU state. In the UK the NRA is Ofcom.

Net replacement cost (NRC): Gross replacement cost less accumulated depreciation based on gross replacement cost.

Network Charge Controls: The Network Charge Controls (NCCs) is the term given to the regulation of BT's interconnection prices that has existed since 1997. Interconnection prices are the prices that BT charges other telecoms companies for using its network. Many interconnection prices are regulated. This is because BT is in a dominant position in providing the services concerned.

Network terminating equipment (NTE): Transmission equipment located at the customer premises. Performs a similar function to LTE and also provides the customer interface.

Next generation network (NGN): A network that uses IP technology in the core and backhaul to provide all services over a single platform.

Oftel: the Office of Telecommunications (Oftel) was a UK Government Department in the charged with promoting competition and maintaining the interests of consumers in the UK telecommunications market. It was set up under the Telecommunications Act 1984 after privatisation of the nationalised operator BT. It was superceded by Ofcom in 2003.

Office of the Telecommunications Adjudicator (OTA): An independent body that facilitates discussion between CPs on operational issues related to new and existing telecoms products and services.

Openreach: The access division of BT established by Undertakings in 2005.

Openreach Model: Set of calculations provided by Openreach to demonstrate their view on returns on BT duct assets.

Pension Review: Ofcoms statement on the treatment of Pension Costs in setting charge controls for BT published on 15th December 2010.
http://stakeholders.ofcom.org.uk/consultations/btpensions/statement/

Physical Infrastructure Access (PIA): This allows competitors to deploy their own NGA infrastructure between the customer and the local exchange, using BT's duct and pole infrastructure, to provide broadband and telephony.

Prior year volume weights: In setting a Basket charge control, the compliance test includes a weighting of the service prices by volume us of those services. Ofcom in these controls uses previous years volumes. This is the prior year weighting of the services.

Public switched telecommunications network (PSTN): The conventional telephony network used to provide telephone calls using circuit-switching.

Rateable value (RV): The theoretical open market annual rental value of a business/non-domestic property as calculated by the Valuation Office and used in their calculation of business rates.

RAV model: This model calculates the forecast asset values and depreciation, for Copper and Duct. The model also applies a regulatory adjustment (the regulatory asset value adjustment, or RAV adjustment) previously applied by Ofcom. The output of this model is included in the Cost Allocation Model.

Regulatory asset value (RAV): The value ascribed by Ofcom to an asset or capital employed in the relevant licensed business.

Regulatory financial statements (RFS): The financial statements that BT is required by Ofcom to prepare, have audited and publish.

Return on capital employed (ROCE): The ratio of accounting profit to capital employed. The measure of capital employed can be either Historic Cost Accounting (HCA) or Current Cost Accounting (CCA).

Rate of return (RoR): The ratio of money gained or lost (whether realised or unrealised) on an investment relative to the amount of money invested.

Retail price index (RPI): A measure of inflation published monthly by the Office for National Statistics. It measures the change in the cost of a basket of retail goods and services.

RPIX: A measure of inflation in the UK, equivalent to the all-items Retail Price Index (RPI) excluding mortgage interest payments.

RPIY: A measure of the "core inflation rate" in the UK, which excludes not only mortgage costs but also indirect taxes such as VAT, excise duties and other specific taxes. It is a measure of underlying price change excluding the direct impacts of economic policy changes.

Retail Price Controls: Price controls applied to the rates BT was allowed to charge retail customers for its products from its privatisation in 1984 until Ofcom allowed them to expire in July 2006.

RFS (Regulatory Financial Statements): Audited BT accounts of services subject to SMP obligations. BT is required to prepare such accounts as part of its regulatory obligations.

Sky: British Sky Broadcasting plc.

SMPF - ancillary services (basket): The set of SMPF ancillary services subject to a basket charge control.

Special Fault Investigation (SFI): A chargeable investigation product from Openreach.

SSE: Scottish and South Energy plc.

Stand alone costs (SAC): An accounting approach under which the total cost incurred in providing a service is allocated to that service.

Service Management Centre (SMC): The contact point in Openreach for CPs requesting LLU, WLR and other services.

Significant market power (SMP): The term used in the European Common Regulatory Framework to describe the position of a person who enjoys a market position of dominance with respect to that market.

Statement of Requirements (SoR): A request raised by a CP to Openreach for the development of a new product or feature. Openreach is required to respond to all SoRs for services subject to SMP conditions, though the implementation is subject to commercial criteria.

Test access management system (TAMS): Used to provide remote access facilities on broadband circuits for testing towards the customer and into the network.

The Act: The Communications Act 2003 (as amended). (Available at http://www.legislation.gov.uk/ukpga/2003/21/contents).

Tie cable: A cable that connects equipment to the MDF.

Time division multiplex (TDM): a method of putting multiple data streams in a single signal by separating each signal into many segments, each having a very short duration. Each individual data stream is reassembled at the destination based on timing.

Time-related charges (TRCs): Time Related Charges (TRCs) are raised by Openreach to recover costs incurred when Openreach engineers perform work not covered under the terms of the Openreach service.

TTG: Talk Talk Group.

UK Competitive Telecommunications Association (UKCTA): An association which represents BT's main competitors.

Valuation Office Agency (VOA): The Valuation Office Agency is an executive agency of HM Revenue & Customs (HMRC). Amongst other functions, it compiles and maintains the business rating and council tax valuation list for England and Wales.

VM: Virgin Media.

Weighted average cost of capital (WACC): The rate that a company is expected to pay on average to all its security holders to finance its assets.

Wholesale Extension Services (WES): Wholesale Extension Services provides the connection between an end user and a CP's network. WES offers a secure link between a

CP's recognised Point of Presence (POP) and an end user site. It enables end users to extend their network via another location and to share applications between those locations in a secure manner.

Wholesale Fixed Analogue Exchange Line (WFAEL) market: The market for wholesale fixed analogue exchange line services. Wholesale fixed analogue exchange lines are intermediate products that are sold to CPs to enable them to provide a telephone connection (typically a single 64 kbit/s channel) from a customer's premises to a local aggregation point (e.g. local exchange) in the access network. This connection provides consumers with the capability to consume other telephony services in the form of telephone calls, facsimile and dial-up internet access.

WFAEL 2010 Market Review: means the statement "*Review of the wholesale fixed analogue exchange lines markets, Statement on market definition, market power determinations and remedies*" published on 20 December 2010: http://stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-fixed-exchange/statement/statement.pdf

Wholesale Local Access (WLA) market: The market for wholesale local access services. The WLA market covers fixed telecommunications infrastructure, specifically the physical connection between end users' premises and a local exchange. This connection is needed to support fixed line services, such as telephony and broadband. It includes copper loop-, cable- and fibre-based local access at a fixed location. The market for wholesale local access includes lines which are used for analogue, ISDN and private circuit local ends delivering services to both business and residential customers. The market definition also includes self-supply of wholesale exchange lines.

WLA 2010 Market Review: means the statement "*Review of the wholesale local access market. Statement on market definition, market power determinations and remedies*" published on 7 October 2010: http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf

Wholesale Line Rental (WLR): The service offered by BT to other UK communications providers to enable them to offer retail line rental services in competition with BT's own retail services. Line rental is offered along with calls (and other service elements, such as broadband) to retail customers.

Wholesale Line Rental (WLR) Basic: The basic telephone line product offered by Openreach to other CPs so that other CPs can offer consumers their own-brand telephony service using BT's network. Openreach provides, maintains and repairs the lines. For further details: http://www.openreach.co.uk/orpg/home/products/wlr3/wlr3.do

Wholesale Line Rental (WLR) Premium: A telephone line product offered by Openreach to other CPs so that other CPs can offer consumers their own-brand telephony service using BT's network. WLR Premium offers a superior level of management and care compared to WLR Basic, and was historically intended for business customers. For further details: http://www.openreach.co.uk/orpg/home/products/wlr3/wlr3premium/wlr3premium.do

WiFi: The standard wireless local area network technology for connecting computers and other electronic devices to each other and to the Internet. WiFi units comply with The Institute of Electrical and Electronics Engineers 802.11 standards.

Annex 14

Sources of evidence

Introduction

A14.1 We have noted throughout this draft Statement the evidence we have relied upon in relation to our findings and how we have relied upon that evidence. This Annex lists the main sources of that evidence. We also list all responses to the March 2011 Consultation and November 2011 Consultation and to our various section 135 requests.

A14.2 Whilst this Annex lists the main evidence we have relied upon, the list is for convenience only and is not intended to be exhaustive.

Ofcom documents

A14.3 A new pricing framework for Openreach, Second Consultation, 5 December 2008, http://stakeholders.ofcom.org.uk/binaries/consultations/openreachframework/summary/off.pdf

A14.4 A new pricing framework for Openreach, Statement, 22 May 2009, http://stakeholders.ofcom.org.uk/binaries/consultations/openreachframework/statement/statement.pdf

A14.5 Wholesale Local Access (WLA) market review, Statement, 07 October 2010 http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf

A14.6 Wholesale Line Rental (WLR) charge control Statement and Consultation, 26 October 2009 http://stakeholders.ofcom.org.uk/consultations/wlr/

A14.7 Wholesale Line Rental (WLR) implementation and cost orientation Statement, 23 February 2011 http://stakeholders.ofcom.org.uk/binaries/consultations/wlr/statement/wlr_statement.pdf

A14.8 Wholesale Fixed Analogue Exchange Line (WFAEL) review statement, 20 December 2010 http://stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-fixed-exchange/statement/statement.pdf

A14.9 Review of the wholesale broadband access markets, Statement, 3 December 2010 http://stakeholders.ofcom.org.uk/binaries/consultations/wba/statement/wbastatement.pdf

A14.10 Wholesale Broadband Access (WBA) charge control review consultation, 20 January 2011 http://stakeholders.ofcom.org.uk/consultations/wba-charge-control/

A14.11 WBA Charge Control, Statement, 20 July 2011 http://stakeholders.ofcom.org.uk/binaries/consultations/823069/statement/statement.pdf

A14.12 Openreach Financial Framework Local Loop Unbundling Charge Control: Adoption of Revised SMP Services Conditions following the Competition Appeal Tribunal's Directions, 14 October 2010
http://stakeholders.ofcom.org.uk/binaries/consultations/openreachframework/statement/revisedsmpconditions.pdf

A14.13 Leased Lines charge control statement, 2 July 2009
http://stakeholders.ofcom.org.uk/consultations/llcc/

A14.14 Review of BT Network charge Controls statement, 15 September 2009
http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf

A14.15 Mobile Call Termination Statement, 27 March 2007
http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_term/statement/statement.pdf

A14.16 Wholesale mobile voice call termination consultation, 1 April 2010
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

A14.17 Review of the Wholesale Local Access market, Statement, 16 December 2004,
http://stakeholders.ofcom.org.uk/binaries/consultations/rwlam/statement/rwlam161204.pdf

A14.18 Mobile call termination: a simpler pricing rule, consultation, 16 November 2010
http://stakeholders.ofcom.org.uk/consultations/mtr/

A14.19 Framework for Disclosure of Charge Control Models, October 2010
http://stakeholders.ofcom.org.uk/binaries/consultations/784024/Charge_control.pdf

A14.20 Next Generation Networks, Statement, January 2010,
http://stakeholders.ofcom.org.uk/binaries/consultations/ngndevelopments/statement/ngn_statement.pdf

A14.21 Pensions review, Statement, December 2010
http://stakeholders.ofcom.org.uk/binaries/consultations/btpensions/statement/statement.pdf

A14.22 Valuing copper access, Statement, 18 August 2005
http://stakeholders.ofcom.org.uk/binaries/consultations/copper/statement/statement.pdf

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A14.29 FCS response to the March 2011 Consultation, 8 July 2011
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A14.38 TTG further response on Single Jumpering, January 2012

A14.39 VM response to the March 2011 Consultation, October 2011 http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/responses/Virgin.pdf

Information requests under section 135 of the Act ("Section 135 requests")

A14.40 Ofcom issued a series of notices under Section 135 of the Act requiring various CPs to provide specified information as set out in the Notice for the purposes of an analysis of identified markets as contemplated by Section 79 under the Act. These are commonly known as section135 requests.

A14.41 S135 request of 16 July ('1st S135') covering accurate and detailed information to assist our understanding, including to populate our own cost forecast and allocation models used for the purposes of each of these reviews. Information received from BT (Openreach).

A14.42 S135 request of 23 September 2010 ('2nd S135') covering accurate and detailed information to assist our understanding, including to populate our own cost forecast and allocation models, and also to carry out other analysis in relation to the charge control. Information received from BT (Openreach).

A14.43 S135 request of 4 October 2010 ('3rd S135') covering accurate and detailed information to assist our understanding, including to populate its own cost forecast and allocation models, and also to carry out other analysis in relation to the charge control. Information received from BT (Openreach).

A14.44 S135 request of 13 October 2010 ('4th S135') covering accurate and detailed information to help perform the opening phase of work on efficiency; to assist our analysis of differentials; and to further populate our own cost forecast and allocation models. Information received from BT (Openreach).

A14.45 S135 request of 22 October 2010 ('5th S135') covering accurate and detailed information to perform analysis of duct revaluation. Information received from BT (Openreach).

A14.46 S135 request of 26 October 2010 ('6th S135') covering accurate and detailed information to perform work on our assessment of efficiency (specifically, on historic changes in Openreach's costs to inform our understanding of Openreach's historic efficiency); to assess WLR/LLU differentials; and to populate our own cost forecast modelling. Information received from BT (Openreach).

A14.47 S135 request of 19 November 2010 ('7th S135') covering accurate and detailed information to perform analysis of duct revaluation Ofcom documents. Information received from BT (Openreach).

A14.48 S135 request of 7 December 2010 covering accurate and detailed information for the purpose of financial modelling for the charge controls reviews. Information received from: BT Wholesale; Telefonica O2 UK Ltd; Cable & Wireless Worldwide Plc; Virgin Media; TalkTalk Telecoms Group Plc.

A14.49 S135 request ("8th S135") of 10 December 2010 covering accurate and detailed information for review of the cost data previously provided by Openreach as part of our WLR, LLU and ISDN30 charge control review. We also ask for information to

inform our understanding of real wage inflation, volume forecasts and the scope of the charge controls. Information received from BT (Openreach).

A14.50 S135 request ("9th S135") of 20 January 2011 covering accurate and detailed information to feed into our assessment of the appropriate efficiency target for Openreach over the period of the charge controls. Information received from BT (Openreach).

A14.51 S135 request ("10th S135") of 5 August 2011 covering accurate and detailed information to feed into our analysis and understanding of Cumulo allocations, power and ventilation cost allocations, copper cable and duct valuation, BT's Local Line Costing Study, Openreach's IT costs, corporate overheads, fault rates, redeployment costs, fleet costs, accommodation charges, cost reduction targets and product management costs as part of our WLR, LLU charge control review. Information received from BT (Openreach).

A14.52 S135 request ("11th S135") of 20 September 2011 covering accurate and detailed information to feed into our analysis and understanding of SLG costs, TAMS replacement costs, phone book cost recovery, Openreach accounting reconciliation as part of our WLR, LLU charge control review. Information received from BT (Openreach).

A14.53 S135 request ("12th S135") of 1 November 2011 covering accurate and detailed information to feed into our analysis and understanding of cost allocations, fault rates, costs of specific WLR and LLU ancillary products and services Cumulo allocations, Openreach efficiency, and other LLU costs as part of our WLR, LLU charge control review. Information received from BT (Openreach).

A14.54 S135 request ("13th S135") of 21 December 2011 covering accurate and detailed information to feed into our assessment of product care levels, LLU other revenues, line length differentials, calling and network features, special fault investigation products, LLU and WLR product volumes as part of our WLR, LLU charge control review. Information received from BT (Openreach).

A14.55 S135 request ("14th S135") of 30 January 2012 covering accurate and detailed information to feed into our assessment of single jumpering data, expedite services, combi cards, cost of sales, glide path and ancillary services. Information received from BT (Openreach)

A14.56 S135 request of 30 January 2012 covering accurate and detailed information to feed into our assessment of ancillary services. Information received from Sky.

European Commission documents

A14.57 European Commission, Implementation report 2009, Comparison of UK and EU LLU average prices (October 2009) http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/15threport/15report_part2.pdf

A14.58 Directive 2009/140/EC of 20 November 2009 amending Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services.

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A14.60 European Commission, Public Consultation on Costing Methodologies (October 2011) http://ec.europa.eu/information_society/policy/ecomm/library/public_consult/cost_accounting/index_en.htm

Competition Appeal Tribunal documents

A14.61 The Carphone Warehouse Group Plc v Office of Communications (Local Loop Unbundling) case no. 1111/3/3/09 http://www.catribunal.org.uk/237-4154/1111-3-3-09-The-Carphone-Warehouse-Group-Plc.html

A14.62 The Carphone Warehouse PLC v Office of Communications (Wholesale Line Rental), Case no. 1149/3/3/09 http://catribunal.org/239-6782/Ruling-Disposal-of-the-appeal.html

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A14.63 Armstrong, Doyle and Vickers, “The access pricing problem: a synthesis”, The Journal of Industrial Economics, June 1996, pp 131-150

A14.64 Fernandez, Pablo: Market Risk Premium Used in 2008 by Professors: A Survey with 1,400 Answers (April 16, 2009). Available at SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1344209

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A14.65 Communications Market Report 2010 http://stakeholders.ofcom.org.uk/binaries/research/cmr/753567/CMR_2010_FINAL.pdf

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A14.67 Consumer Experience Report 2011, published December 2011, http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-11/research_report_of511a.pdf.

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A14.68 Analysys Mason, ‘Alternative methodologies for the valuation of BT’s duct assets’, 2 March 2010, commissioned by Ofcom (the Analysys Mason report) http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/annexes/duct-assets.pdf

A14.69 KPMG, ‘Efficiency review of BT Openreach’ , March 2011, commissioned by Ofcom

A14.70 BDO, Review of BT duct valuation 2009/10 report, 2011,commissioned by Ofcom

A14.71 Office of the Telecommunications Adjudicator, take-up of UK LLU & WLR lines http://www.offta.org.uk/updates/otaupdate20101207.htm

A14.72 Frontier economics, 'Openreach's next price controls: Issues for consideration', commissioned by Sky and the Talk Talk Group.

A14.73 Towerhouse consulting, Cost Accounting and Price Controls commissioned by UKCTA

A14.74 Volume forecasts, Analysys Mason and IDATE (FTTx Watch Service 2010)

A14.75 NERA study, December 2008, commissioned by Ofcom

A14.76 Dimson, Marsh and Staunton, "Credit Suisse Global Investment Returns Sourcebook 2009", Credit Suisse Research Institute

A14.77 Dimson, Marsh and Staunton, "Credit Suisse Global Investment Returns Sourcebook 2010", Credit Suisse Research Institute

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A14.79 Enders Analysis, "UK fixed telecoms market", December 2011. The content of this report is confidential to Enders Analysis subscribers.

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A14.81 BT Group plc Annual Report 2011 http://www.btplc.com/Sharesandperformance/Annualreportandreview/pdf/BTGroupAnnualReport2011.pdf

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A14.87 Openreach note on 2nd order impacts of LLU and WLR ancillaries, provided 7 October 2011 [Part-Confidential]

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