Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30 – Volume 2: LLU and WLR Charge Controls

Non-confidential Version

Draft Statement

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Contents

Section 1

Summary of approach to setting LLU and WLR Charge Controls

Introduction

1.1 In Volume 1 of the Fixed access market reviews statement (the Statement), we have concluded that in each of the Wholesale Local Access[1] (WLA) and Wholesale Fixed Analogue Exchange Line (WFAEL) markets in the UK, excluding the Hull Area, BT (Openreach)[2] has Significant Market Power (SMP) and that charge controls are necessary as a remedy to address Openreach's ability and incentive to set or maintain prices at an excessively high level for services in the respective markets.[3]

1.2 Section 16 of Volume 1 sets out in summary form our decisions on how the charge controls have been set, including our approach and our decisions on the structure and level of the charges (except for those relating to SFIs and TRCs that apply in these markets).[4] This Volume (Volume 2) of the Statement sets out the underpinning detail those decisions, including the nature, form and duration of the controls and the approach we have taken to setting them.

1.3 In order to assist readers, we have below replicated the substance of Section 16 of Volume 1.[5]

Duration of the charge controls

1.4 The previous charge controls on LLU and WLR services expired on 31 March 2014. The new charge controls will enter into force on 1 July 2014 and cover the period to 31 March 2017 (the Market Review Period).[6]

[1] The supply of copper loop-based, cable-based and fibre-based wholesale local access at a fixed location.
[2] Openreach is the access division of BT established by BT in 2005 in accordance with its Undertakings to Ofcom under the Enterprise Act 2002. While the SMP conditions imposed in this Statement formally apply to British Telecommunications plc, Openreach is the division of BT that provides the LLU and WLR services we are regulating. Therefore, throughout this Volume, we refer to Openreach as the supplier of wholesale LLU and WLR services.
[3] In Sections 3 to 7 of Volume 1 of the Statement, we set out our conclusions that BT has SMP in, among others, the WLA and WFAEL markets in the UK excluding the Hull Area. Then in Sections 13 to 15 we set out in detail the reasoning underpinning, among others, our decision to impose LLU and WLR charge control remedies on Openreach in these markets.
[4] Volume 1 also sets out the nature, form and duration of the charge controls for Special Fault Investigations (SFIs) and Time Related Charges (TRCs), as well as the approach we have taken to setting them.
[5] Unless otherwise stated, references to Sections in this Volume are references to Sections in Volume 2.
[6] See Section 3.

Structure of the charge controls

LLU

1.5 We have decided to:

- set individual CPI-X charge controls for Metallic Path Facility (MPF) rental, Shared MPF (SMPF) rental, and certain key migration services;
- set separate CPI-X basket controls on five defined sets of LLU ancillary services. These group together services which are homogeneous in terms of their characteristics, competitive conditions and costs;
- require BT to ensure that certain charges for analogous services remain aligned;[7] and
- align all migration charges involving jumpering to a volume-weighted average of their incremental costs.

1.6 Based on the policy conclusions and financial modelling explained in this Statement, the new charge controls for LLU services (excluding the alignment of charges obligations, which are explained in Section 19 of Volume 1) are summarised in Table 1.1 below.

Table 1.1: LLU charge controls 2014-17

Service /Basket	2011/12[8] revenues (£m)	Charges at 31 March 2014 (£)	Nominal charges for 2014/15 [9] (£)	Charge control for 2015/16 to 2016/17
MPF Rental	451	83.92	86.10	CPI+0.3%
SMPF Rental	43	9.89	5.54	CPI-33.4%
MPF Single Migration	31	30.65	30.77	CPI-1.7%
MPF Bulk Migration	15	28.42	25.92	CPI-10.9%
SMPF Single Migration	8	30.65	30.77	CPI-1.7%
SMPF Bulk Migration	2	28.42	25.92	CPI-10.9%

[7] In particular, alignment obligations will apply to BT in relation to LLU and WLR enhanced care services and certain comparable MPF and SMPF services (including SFIs and certain other ancillary services). See Section 4: Charge Control Design for more details and Section 18, Volume 1.
[8] Source: External revenues as per BT's 2011/12 RFS, page 55, for all services apart from "MPF New Provides basket", "Hard Ceases basket", "Other LLU ancillaries basket", and "Co-Mingling New Provides and Rentals basket" revenues which are sourced from BT's 2012/13 LLU WLR Compliance Statement.
[9] Charges apply from 1 July 2014 to 31 March 2015. This is also true for all subsequent tables referring to charges set for 2014/15.

Service /Basket	2011/12[8] revenues (£m)	Charges at 31 March 2014 (£)	Nominal charges for 2014/15 [9] (£)	Charge control for 2015/16 to 2016/17
SMPF New Provide	25	30.65	30.77	CPI-1.7%
MPF New Provides basket[10]	✂ [£55m-£65m]	Various	Various	CPI-2.9%
Hard Ceases basket[11]	✂ [£15m-£25m]	Various	Various	CPI+0.4%
Other LLU ancillaries basket[12]	✂ [£50m-£110m]	Various	Various	CPI-5%
Co-Mingling New Provides and Rentals basket[13]	✂ [£30m-£55m]	Various	Various	CPI-3.4%
Tie Cables basket[14]	28	Various	Various	CPI-11.8%

Source: Ofcom (except where otherwise indicated). Current charges available in Openreach price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do. Charge controls from 2014/15 to 2016/17 from Ofcom's Cost Model.

WLR[15]

1.7 We have decided to:

- set individual CPI-X charge controls for the Basic Analogue WLR rental service (WLR Rental),[16] and WLR Transfer;
- introduce a charge control on WLR Conversion and to align the charge for WLR Conversion with the charge for LLU single migration services involving jumpering;[17]

[10] The full list of individual services in this basket and their charge controls is included in Part 3 of the Annex to SMP condition 7A, as set out in Annex 29 of this Statement.
[11] The full list of individual services in this basket and their charge controls is included in Part 2 of the Annex to SMP condition 7A, as set out in Annex 29 of this Statement.
[12] The full list of individual services this basket and their charge controls is included in Part 4 of the Annex to SMP condition 7A, as set out in Annex 29 of this Statement.
[13] The full list of individual services in each one of these baskets and their charge controls is included in Part 5 of the Annex to SMP condition 7A, as set out in Annex 29 of this Statement.
[14] The full list of individual services this basket and their charge controls is included in Part 1 of the Annex to SMP condition 7A, as set out in Annex 29 of this Statement.
[15] In this Volume, the controls we are setting on WLR services apply only to analogue services (within the WFAEL market), and not to ISDN services.
[16] We do not set a charge control on WLR Premium line rental services, i.e., Premium Line, Main Aux or Aux Line Rental terminating on Linebox or NTTP. (For the names of the premium services, see Openreach's price list at: http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=vZC%2BGHIiu80GtUKWLu%2BtzAfqMZEuYNVwUnHGezzgOd1UNeIS4WkJBRh6z%2FRUAIt8maxtgrEro1A7%0Aw5V8nzAZpQ%3D%3D)
[17] WLR Conversion was previously subject to a Basis of Charges obligation, not a specific charge control.

- introduce a discounted charge for WLR Conversion where it is provided in combination with SMPF New Provide to simultaneously transfer a customer from MPF to WLR and SMPF;
- set CPI-X basket controls on a basket of two WLR Connections services;[18]
- introduce a discounted charge for WLR Connections when provided in combination with SMPF New Provide to simultaneously connect a customer to WLR and SMPF; and
- introduce an individual charge control on Caller Display.[19]

1.8 Based on the policy conclusions and financial modelling explained in this Statement, the new charge controls for WLR services are set out in Table 1.2 below.

Table 1.2: WLR charge controls 2014-17

Service/ Basket	2011/12[20] revenues (£m)	Charges at 31 March 2014	Nominal charges for 2014/15 (£)	Charge control for 2015/16 to 2016/17
WLR Rental	2,042	93.32	91.04	CPI-3.0%
WLR Transfer	13	3.39	4.63	CPI+34.4%
WLR Connections basket[21]	27	Various	Various	CPI-8.4%
WLR+SMPF Simultaneous Connections[22]	N/A	Various	Various	Various[23]

[18] WLR Standard Connection and WLR Start of Stopped MPF Line.
[19] This charge control requires the charge for Caller Display to be set and remain (in nominal terms) equal to our estimate of the LRIC for this service from the start of the next charge control. We have decided that the common costs which are currently allocated to Caller Display will be re-allocated to the charge controlled WLR and MPF rentals in an immediate one-off adjustment. See Section 4.
[20] Source: Internal and External revenues as per BT's 2011/12 RFS, page 36; and BT's response to question 1 of the Eleventh LLU WLR BT Information Request, received 18 October 2013 (revenue for Caller Display).
[21] This is a basket of two connection services in BT's price list, see here: http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=ccWy9ZJoVtf1gb2YRVL3pYSkcG%2Bc%2B30URCuKygKmgSNUNeIS4WkJBRh6z%2FRUAIt8maxtgrEro1A7%0Aw5V8nzAZpQ%3D%3D). In particular, see the services "Supply of new Basic line - Per line" which we refer to as "WLR Standard Connection" and "Supply of new line - Per line – using previously stopped LLU MPF line" which we refer to as "WLR Start of Stopped MPF Line".
[22] WLR+SMPF Simultaneous Connection is the term we use in this document to refer to the discounted charge applied to WLR Connections when this service is provided simultaneously alongside SMPF New Provide (see Section 6 for more details).
[23] We impose a charge discount on WLR Connections when provided simultaneously with SMPF New Provide of £12.82 in the first year of the charge control. In subsequent years, we apply a CPI+X% annual change to the charge discount value in the previous year, with the Xs being +74.7% in 2015/16 and +31.1% in 2016/17.

Service/ Basket	2011/12[20] revenues (£m)	Charges at 31 March 2014	Nominal charges for 2014/15 (£)	Charge control for 2015/16 to 2016/17
WLR+SMPF Simultaneous Migration[24]	N/A	65.51	30.77	Same charge as single migrations[25]
WLR Conversion	N/A	34.86	30.77	CPI-1.7%
Caller Display	✂ c.25	6.00	0.45	£0.45

Source: Ofcom (except where otherwise indicated). Current charges available on Openreach price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.

Approach to setting the charge controls

1.9 Given the policy conclusions and financial modelling explained in this Statement, the controls set out in Tables 1.1 and 1.2 will reflect the principles, modelling approach, inputs and adjustments set out below (paragraphs 1.10 to 1.18).

Principles

1.10 **Form of control:** We have set charge controls, indexed by inflation and rounded to 0.1%, which are designed to align current charges to forecast efficient costs.[26] See Section 3 and Annex 11.

1.11 **Cost standard:** Total costs to be recovered from the charge controls will, with the exception of pre-1997 local access ducts, be forecast on the basis of current cost accounting fully allocated costs (CCA FAC). The CCA FAC cost base will be subject to an adjustment in that the regulatory asset valuation (RAV) of the pre-1997 local access duct assets will be based on their historic cost accounting (HCA) value, indexed for inflation (this is referred to as the RAV adjustment). See Section 3.

1.12 **Technology change:** We have used an anchor pricing approach to set charges, based on our view of the efficient on-going costs of providing services over a copper network, excluding all incremental fibre costs. See Section 3.

1.13 **Cost reflective charges:** We have set the charge controls for the key rental services so that the charge differential between WLR+SMPF and MPF will be equal to our estimate of the long run incremental cost (LRIC) differential for providing these services by 2016/17. We estimate this difference to be £1.79. We have also set the SMPF rental charge so that it will be equal to the LRIC of providing that service by 2016/17. This means therefore that common costs will be recovered equally from MPF and WLR lines by 2016/17. See Section 3, Section 6 and Annex 9.

[24] WLR+SMPF Simultaneous Migration is the term we use in this document to refer to the discounted charge applied to WLR Conversions when this service is provided simultaneously alongside SMPF New Provide (see Section 6 for more details).
[25] The charge control on WLR+SMPF Simultaneous Migrations will be aligned with the charge control on single migrations (i.e. MPF Single Migrations, SMPF Single Migrations, SMPF New Provide and WLR Conversions).
[26] With the exception of the Caller Display charge control which is held constant in nominal terms for the Market Review Period.

1.14 **Glide path:** Our general policy is to set charges using glide paths to bring charges into line with projected costs by the end of the control period, rather than imposing one-off changes to charges at the start of the Market Review Period. However, we have decided to make immediate adjustments in a small number of cases where there are particular reasons for doing this, for example where we are removing costs which we do not consider appropriate (see model adjustments below). See Section 6.

Modelling approach

1.15 **Type of model**: We have set the charges using a top-down cost model based on data within and underpinning BT's Regulatory Financial Statements (RFS). The model uses Asset Volume Elasticities (AVEs) and Cost Volume Elasticities (CVEs) to forecast the costs of operating a hypothetical on-going copper network to 2016/17. See Section 5 and Annex 13.

1.16 **Input data**: The Cost Model projects forward from BT's 2011/12 RFS data, using actual 2012/13 data for service volumes, where available. See Annexes 11-13, 22 and 23.

Model inputs

1.17 We have used the following inputs in our charge control cost modelling:

- **Input price inflation**: of 2.8% for pay costs, 3.0% for accommodation costs, specific values for individual non-pay operating cost inputs for which data is available[27], and forecast CPI for other non-pay costs. See Annex 13;
- **Weighted average cost of capital**: pre-tax nominal WACC for the copper access network of 8.6%. See Annexes 14 and 15**;**
- Single **efficiency** target of 5% per annum (net of the costs of achieving the savings). See Annex 16;
- **Minimum service quality standards:** to enable Openreach to recover its efficiently incurred costs associated with delivering to the new minimum service quality standards, we have increased the level of engineering costs for provisioning and fault repair within the model by 3.9%. See Annexes 17 and 18;
- **Service Level costs differential**: we have allocated a higher proportion (21%) of variable fault prevention and repair costs to Service Level 2 products (e.g. MPF and SMPF) compared to Service Level 1 products (e.g. WLR basic). See Annex 19;
- **Fault rates**: We consider that, for the purposes of cost modelling, fault rates should be held constant throughout the charge control period at the level

[27] For example: for electricity we are using the Department of Energy and Climate Change (DECC)'s baseline forecasts of energy cost increases for services users, see DECC, *Energy & Emission Projections*, 17 September 2013, https://www.gov.uk/government/collections/energy-and-emissions-projections, in particular DECC, *Updated energy and emissions projections: 2012. Annex F: Price Growth Assumptions,* 15 October 2012, https://www.gov.uk/government/publications/2012-energy-and-emissions-projections and the specific price projections we intend to use are the 'Retail' price for the 'Services' sector shown; for cumulo we are using RPI.

experienced in 2011/12. We assume equal fault rates for MPF and WLR+SMPF using ratios of 1.00:0.83:0.17 for MPF:WLR:SMPF. See Annexes 20 and 21; and

- **Forecast volumes:** of total lines will be broadly flat, increasing slightly from 24.4m in 11/12 to around 24.8m in 2016/17, with broadband penetration increasing by 16 percentage points to 82% by 2016/17 (from 2011/12), with 4.5m WLR (voice only) lines, 10.6m WLR+SMPF lines and 9.7m MPF lines. See Annexes 24 and 25.

Model adjustments

1.18 We have decided to make the following adjustments to certain RFS costs allocated to LLU and WLR services within the Cost Model (see Annex 13):

- **Price adjustments:** pricing adjustments will no longer be made in respect of line length, pair gain or the cost of Test Access Matrices (TAMs). The cost of TAMs will be recovered solely through MPF rental charges and we have decided that it should be reduced from the costs within the RFS to £5.15 per line;

- **Directories:** to remove with immediate effect the contribution to the cost of printed directories (i.e. the BT Phone Book) from the costs recovered through WLR Rental charges (in 2011/12 this was £1.43);

- **EvoTAMs:** to remove the £0.86 cost of evoTAMs from the SMPF unit cost stack and £0.49 from the WLR unit cost stack, again with immediate effect;

- **DSLAM capital/maintenance:** to remove with immediate effect c.70% of the costs attributed to DSLAM capital/maintenance and allocated to SMPF from the costs recovered through these charge controls. For the c.30% remainder of costs, which we understand relate to broadband fault repairs, we have decided to treat these in the same way as other costs associated with fault repair, and allocate them across the MPF, WLR and SMPF rental charges using the fault rate ratios noted above;[28]

- **Deafness liability costs**: to remove from the 2011/12 base year costs a provision of ✂[£8m to £12m] for deafness liability claims arising from past injuries;

- **Pension liability costs**: to not make an adjustment to allow the recovery of pension liability costs (additional annual payments required to address any funding shortfall in BT's pension scheme);[29] and

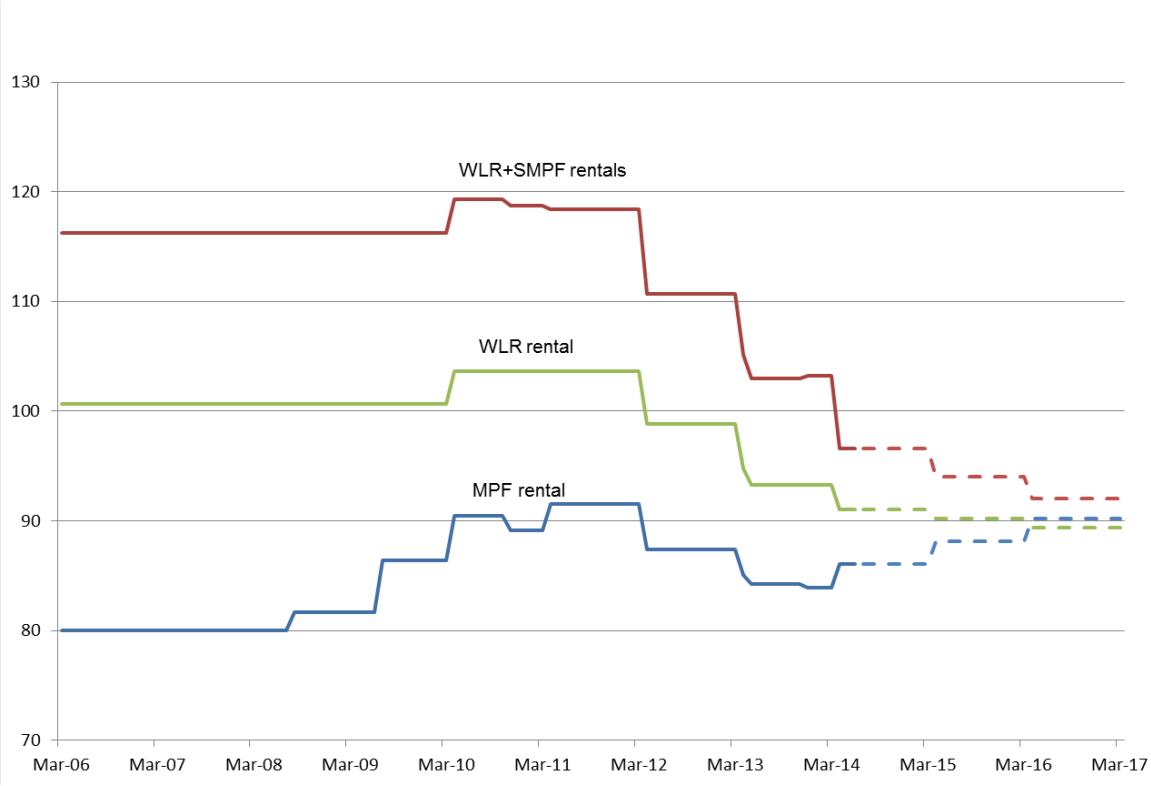
- **Overseas overheads**: to remove from the 2011/12 base year ✂[£5m to £10m] of overheads costs which we consider should have been allocated to overseas divisions within BT Group.[30]

[28] We have decided upon the fault rate ratios in paragraph 1.17 by means of assessing the costs of the totality of BT's fault repair activities. The activities associated with these broadband faults are part of this broader set of activities. The costs within this c.30% of DSLAM capital maintenance are therefore allocated using these same ratios as the overall costs. See Annex 13.
[29] We estimated that the impact of making the adjustment proposed by BT would increase revenue from regulated charges by around £10m per year. At the time of the July 2013 LLU WLR Consultation, we estimated that if this was spread over total copper lines, it would add around £0.40 to the unit cost stacks for MPF Rentals and WLR Rentals in 2016/17.

Impact of the new charge controls

1.19 The overall effect, in real terms, of these new controls is that the MPF Rental charge will rise very slightly over the Market Review Period, the WLR Rental charge will fall slightly and the SMPF rental charge fall significantly. See Figures 1.1 and 1.2 below, which present the nominal and real terms trends in these charges over the period 2006 to 2016/17.

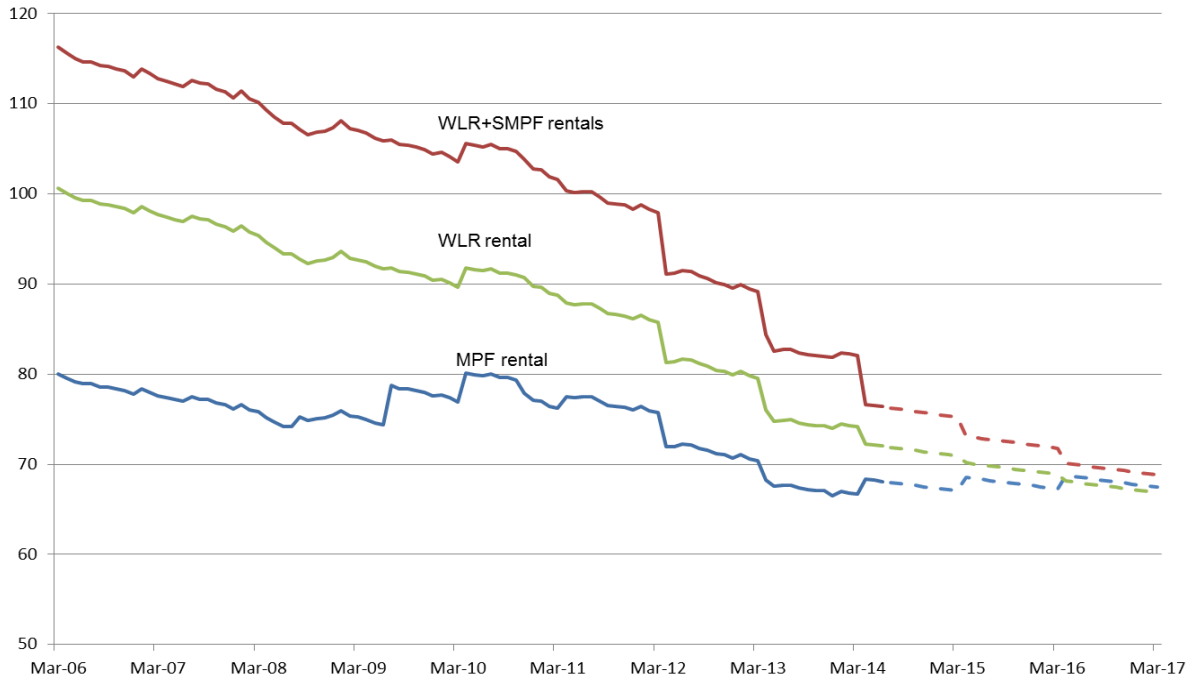
Figure 1.1: Nominal (£) WLR+SMPF, WLR and MPF rental charges from 2006/07 to 2016/17[31]



Source: BT price list (for actual charges to June 2014, and Ofcom analysis for forecast charge controls

[30] In the March 2012 Statement, in A4.151 to A4.156, we noted that BT had stated that it had allocated some overhead and IT costs to overseas divisions. This decision to remove costs is consistent with that stated approach, which we considered reasonable.
[31] Note that BT announced that from 17 May to 30 June 2014, it will put prices for MPF rental up to £96.37, and WLR+SMPF up to £106.96. The effect of this will be smoothed out over the year 2014/15 by BT's voluntary commitment to charge for these rental services as if the 1 July 2014 charge controls had applied since 1 April 2014.

Figure 1.2: Real terms (£) WLR+SMPF, WLR and MPF rental charges from 2006/07 to 2016/17 (March 2006 base)[32]



Source: BT price list (for actual charges to June 2014) and Ofcom analysis for forecast charge controls

1.20 We consider that these charge controls will benefit consumers by:

a) ensuring that charges for wholesale services are not excessive and are set at a level that will enable CPs (other than Openreach) to compete in the provision of downstream services. Previous charge controls for LLU and WLR services have promoted competition in this way to the clear benefit of consumers in respect of choice, price, quality of service and value for money;

b) controlling charges in a way that provides BT with incentives to seek to reduce its costs of providing LLU and WLR services;

c) ensuring that Openreach has the incentives to continue to invest and innovate where it is efficient to do so (by, for example, our adoption of the anchor pricing approach and the fact that, in modelling BT's forecast costs, we have built in a reasonable rate of return on investment);

d) enabling CPs to make efficient choices between the substitute WLR+SMPF and MPF wholesale inputs, based on their LRIC differences. These controls will promote efficient NGA choices on the part of both Openreach in investment in infrastructure and services and of other CPs on the choice of wholesale inputs and associated investment to support retail fibre provision during the period of technology change; and

[32] See footnote 31 above.
The real term charges in Figure 2 have been calculated using CPI. The decline in charges in real terms would be even greater if RPI had been used.

e) reducing the wholesale charges for connecting to WLR+SMPF and switching between MPF and WLR+SMPF to better reflect their efficient costs, enabling stronger retail competition through reducing the transaction costs of WLR+SMPF providers winning customers from MPF or cable providers.

Section 2

Introduction

Scope of this Volume

2.1 This volume sets out the detail of our decision to set new LLU and WLR charge controls, including the nature, form, duration and means of derivation of the controls (except for controls on SFIs and TRCs). In Volume 1 we have set out our decision that charge controls are necessary as a remedy to Openreach's ability to set excessive charges for LLU and WLR services. Volume 1 also covers the charge controls on SFIs and TRCs.

2.2 In this Section we summarise:

- the approach Openreach has taken to pricing during the period between the expiry of the previous charge controls on 31 March 2014 and the introduction of the controls set by this Statement, expected to take place on 1 July 2014;
- the policy objectives we have taken into account during this review;
- developments since the last charge control review, in particular the outcome of the appeal of the 2012 LLU and WLR charge controls; and
- the structure of the remainder of this Volume and associated annexes.

Background and other developments

Previous LLU and WLR charge controls set in March 2012

2.3 The previous LLU and WLR charge controls were set in the March 2012 Statement[33] and came into force on 1 April 2012. They were set following our conclusion in October 2010 that BT had SMP in the WLA[34] and WFAEL[35] markets in the UK excluding the Hull Area, and our subsequent assessment in March 2012 that there had been no material changes in either market since those market power determinations.

Openreach's pricing during the period between charge controls

2.4 The previous charge controls expired on 31 March 2014, and the new controls will come into effect on 1 July 2014. Throughout the period from 1 April 2014 to 30 June 2014 no regulatory charge controls have applied for these services. However, BT's

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[33] Ofcom, *Charge control review for LLU and WLR services – Statement*, 7 March 2012: http://stakeholders.ofcom.org.uk/consultations/wlr-cc-2011/statement-march2012/ (March 2012 Statement).
[34] Ofcom, *Review of the wholesale local access market: Statement on the proposed markets, market power determinations and remedies - Statement*, 7 October 2010, http://stakeholders.ofcom.org.uk/consultations/wla/statement, (2010 WLA Statement).
[35] Ofcom, *Review of the wholesale fixed analogue exchange lines markets: Statement on the proposed markets, market power determinations and remedies - Statement*, 20 December 2010, www.stakeholders.ofcom.org.uk/binaries/consultations/review-wholesale-fixed-exchange/statement/statement.pdf, (2010 WFAEL Statement).

other regulatory obligations in the WLA and WFAEL markets have continued to apply, including that LLU and WLR services be provided on fair and reasonable terms, conditions and charges.

2.5 In terms of its approach to pricing between the expiry of the previous charge controls and the controls imposed by this Statement, Openreach has committed to the principle that, in relation to the main rental services, it and other Communications Providers (CPs) should be in the same overall financial position as if the charge controls had become effective as of 1 April 2014 instead of 1 July 2014. To do this Openreach increased the prices of the LLU and WLR Rental services, effective from 17 May 2014. However, to the extent that these new prices exceeds the prices set by this charge control, Openreach has committed to apply an appropriate rebate by the end of August 2014 such that the weighted average price for each of main rental services for the financial year 2014/15 is the same as if the charge controls had become effective on 1 April 2014.[36]

We have taken into account our specific policy objectives when setting these controls

2.6 The specific policy objectives to which we have had regard in imposing charge controls for LLU and WLR services include the following:

- to prevent BT from setting excessive charges for LLU and WLR services in the UK, excluding the Hull Area, where it has SMP while providing incentives for it to increase its cost efficiency;
- to ensure an efficient structure of charges, including the relationship between alternative wholesale inputs or between wholesale inputs which encompass the same or very similar activities. This should promote efficient and sustainable competition in the delivery of downstream services which rely on LLU and WLR services;
- to ensure that charges are subject to appropriate controls whilst still encouraging BT to maintain service quality and innovation in LLU and WLR services in the UK, excluding the Hull Area;
- to provide regulatory stability for BT and its customers and to avoid undue disruption;
- to encourage investment and innovation in the relevant markets; and
- to ensure that the delivery of the regulated services is sustainable, in that the charge controls provide BT with the opportunity to recover its efficiently incurred costs, including a return consistent with its cost of capital.

2.7 We have adopted these policy objectives when developing the charge control proposals. We believe that these policy objectives flow out of and are consistent with our general duties under Section 3 of the Act and our duties for the purpose of fulfilling our Community obligations as set out under Section 4 of the Act. For more detail on the legal framework please see Annex 1.

[36] See the correspondence published by Ofcom on 21 February 2014, available here: http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/specific-conditions-entitlement/market-power/fixed-access-market-reviews-2014/approach/.

We have taken into account the determinations of the appeals of the March 2012 Statement

2.8 Two appeals were brought to the Competition Appeal Tribunal ("Tribunal") under Section 192 of the Act against our March 2012 decision to set charge controls for LLU and WLR services. Both appeals concerned price control matters and so were referred by the Tribunal to the Competition Commission ("CC") for determination (the "Appeals").

2.9 BT raised nine grounds of appeal relating to the following aspects of Ofcom's approach to setting the charge controls and the modelling: (i) the treatment of efficiency for corporate overheads, (ii) cumulo forecasts, (iii) the treatment of Copper Recovery Income, (iv) a calculation error for migration charges, (v) service levels, (vi) the allocations for "Test Head" equipment, (vii) the price adjustment for line testing equipment, (viii) the RAV adjustment, and (ix) copper work activity units (although this final ground was subsequently withdrawn).

2.10 Sky and TalkTalk (as joint appellants) raised a further six grounds of appeal, relating to the following aspects of Ofcom's approach to modelling: (i) volume forecasts, (ii) fault rates for "young lines", (iii) cumulo rates, (iv) duct indexation, (v) Copper Recovery Income, and (vi) the line length adjustment (although this final ground was subsequently withdrawn).

2.11 EE intervened in support of BT in relation to the grounds of appeal relating to Test Head equipment and the price adjustment and in support of Sky and TalkTalk in relation to the ground of appeal on volume forecasts.

2.12 The CC issued its Final Determination in the Appeals on 27 March 2013.[37] The CC upheld BT's grounds of appeal on: cumulo forecasts, the treatment of Copper Recovery Income, a calculation error for migration charges, and the allocations for "Test Head" equipment. Further, the CC upheld Sky/TalkTalk's grounds of appeal on volume forecasts and fault rates for "young lines".

2.13 On 29 April 2013 the Tribunal made directions requiring Ofcom to make specified corrections to the charge controls for MPF Rental, SMPF Rental, WLR Rental and two migration services. The CC could not specify a remedy in relation to the fault rates for young lines ground of appeal brought by Sky and TalkTalk. This ground of appeal was therefore remitted to Ofcom to investigate and to correct the error identified.

2.14 Ofcom gave effect to the Tribunal's directions on 30 April 2013 and 19 December 2013 by publishing two documents revising the charge controls.[38] These documents

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[37] Competition Commission, *References under section 193 of the Communications Act 2003: British Telecommunications Plc v Office of Communications, Case1193/3/3/12; British Sky Broadcasting Limited and TalkTalk Telecom Group Plc v Office of Communications, Case1192/3/3/12 – Determinations,* 27 March 2013, http://catribunal.org/files/1192-93_BSkyB_CC_Determination_270313.pdf (March 2013 CC Determination).

[38] (1) Ofcom, *Charge control for LLU and WLR services: Adoption of revised SMP* Services Conditions following the *Competition Appeal Tribunal's Directions of 29 April 2013,* 30 April 2013, http://stakeholders.ofcom.org.uk/consultations/wlr-cc-2011/charge-control-april2013/; and
(2) Ofcom, Charge control for LLU and WLR services Adoption of revised SMP Services Conditions further to paragraph 3 of the Competition Appeal Tribunal's Directions of 29 April 2013, 19 December 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/charge-control-december2013/amendment.pdf.

amended the charge controls for the rental services with prospective effect for the remainder of the charge control period (i.e. to 31 March 2014) as set out in Table 2.1 below.

Table 2.1: Amended 2013/14 LLU and WLR charge controls (as of 20 December 2013 to 31 March 2014)

Service	Original 2013/14 charge ceiling (per line)	Corrected 2013/14 charge ceiling (per line)
MPF Rental	£85.04	£83.92
SMPF Rental	£10.40	£9.89
WLR Rental	£94.75	£93.32

Source: Ofcom.

2.15 In reaching the decisions set out in this Statement, we have taken full account of the conclusions reached on the issues raised in the Appeals and the March 2013 CC Determination.

We have taken into account stakeholder responses to consultations

2.16 In reaching the decisions on the LLU and WLR charge controls set out in this Statement, we have also taken account of stakeholder responses to four consultations:

- the 2012 FAMR Call for Inputs (2012 FAMR CFI);[39]
- the July 2013 consultation on the Fixed access market reviews (July 2013 FAMR Consultation);[40]
- the July 2013 consultation on the Fixed access market reviews: Approach to setting LLU and WLR Charge Controls,41 (the July 2013 LLU WLR Consultation); and
- the December 2013 consultation on the Fixed access market reviews: Quality of Service and Approach to setting LLU and WLR Charge Controls (December 2013 LLU WLR Consultation).[42]

[39] Ofcom, *Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30 - Call for Inputs*, 9 November 2012: http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-markets/summary/condoc.pdf. Responses to the 2012 FAMR CFI are available here: http://stakeholders.ofcom.org.uk/consultations/fixed-access-markets/?showResponses=true.
[40] Ofcom, *Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30: Consultation on the proposed markets, market power determinations and remedies*, 3 July 2013: http://stakeholders.ofcom.org.uk/consultations/fixed-access-market-reviews/. Responses to July 2013 FAMR Consultation are available here: http://stakeholders.ofcom.org.uk/consultations/fixed-access-market-reviews/?showResponses=true.
[41] Ofcom, *Fixed access market reviews: Approach to setting LLU and WLR Charge Controls – Consultation,* 11 July 2013; Updated 20 August 2013: http://stakeholders.ofcom.org.uk/consultations/llu-wlr-cc-13/. Responses to July 2013 LLU WLR Consultation are available here: http://stakeholders.ofcom.org.uk/consultations/llu-wlr-cc-13/?showResponses=true.

Structure of document

2.17 The remainder of this volume is set out in the following structure:

- Section 3 - covers the economic and regulatory background to the setting of cost-based charges for LLU and WLR;
- Section 4 - covers charge control design, including basket structure and our proposals to introduce new controls;
- Section 5 - covers charge control cost modelling for the LLU and WLR charge controls, including noting the key inputs and impacts on the charge controls of the outcome of our review of Openreach's quality of service, service level cost differentials and fault rates; and
- Section 6 – covers the speed of adjustment of charges, including our approach to glide paths and moving the differential between the WLR+SMPF and MPF charges to the difference in long run incremental costs between the services.

2.18 The Annexes to Volumes 1 and 2 are consolidated into the following structure:

- Annex 1: Regulatory framework;
- Annex 2: Equality impact assessment;
- Annex 3: Approach to market definition and SMP assessment;
- Annex 4: TRC/SFI ordering steps and processes;
- Annex 5: TRCs and SFIs cost accounting template;
- Annex 6: Copper and duct valuation (Regulatory Asset Value);
- Annex 7: BT RAV model [to be published with final statement];
- Annex 8: Cost modelling for simultaneously provided services;
- Annex 9: Estimation of LRIC differentials;
- Annex 10: Technical requirements of migrations;
- Annex 11: Cost Model documentation;
- Annex 12: Cost Model [to be published with final statement];
- Annex 13: Detailed cost modelling assumptions;

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[42] Ofcom, *Fixed access market reviews: Openreach quality of service and approach to setting LLU and WLR Charge Controls – Consultation,* 19 December 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-llu-wlr-charge-controls/summary/famr-2013.pdf. Responses to the December 2013 LLU WLR Consultation are available here: http://stakeholders.ofcom.org.uk/consultations/fixed-access-market-llu-wlr-charge-controls/?showResponses=true.

- Annex 14: Cost of capital;
- Annex 15: Brattle Group report: Estimate of BT's Equity Beta;
- Annex 16: Efficiency;
- Annex 17: Service Quality Modelling;
- Annex 18: Analysys Mason Comments on QoS Model Consultation Responses;
- Annex 19: Service Level cost differentials;
- Annex 20: Fault Rates;
- Annex 21: Cartesian Updated Fault Rates Report;
- Annex 22: Choice of base year data for cost modelling;
- Annex 23: Correspondence on base year data;
- Annex 24: Volumes forecasting;
- Annex 25: Volumes forecasting model [to be published with final statement];
- Annex 26: Treatment of cumulo rates within the charge control;
- Annex 27: Single jumpered MPF;
- Annex 28: Cost Model results and sensitivities;
- Annex 29: Proposed Legal Instruments;
- Annex 30: Quality of service: Current performance, impact of poor delivery, and establishing a reasonable level of performance;
- Annex 31: Quality of service: Analysis of recent Openreach performance;
- Annex 32: Sources of evidence; and
- Annex 33: Glossary.

Section 3

Economic principles for setting cost-based charges for LLU and WLR

Summary of our decisions

3.1 In this Section we explain the following decisions on our approach to the LLU and WLR charge controls:

- **Form of control:** We are imposing charge controls, indexed by inflation, designed to align current charges to forecast efficient costs. See paragraphs 3.2 to 3.13 below. We explain our approach to the rounding of X for the charge controls we have set in Annex 11;

- **Cost standard:** Total costs to be recovered from the charge controls will, with the exception of pre-1997 local access copper and ducts, be forecast on the basis of current cost accounting fully allocated costs (CCA FAC). The CCA FAC cost base will be subject to an adjustment in that the regulatory asset valuation (RAV) of the pre-1997 local access duct and copper assets will be based on their historic cost accounting (HCA) value, indexed for inflation (this is referred to as the RAV adjustment). See paragraphs 3.14 to 3.39 below;

- **Technology change and anchor pricing:** An anchor pricing approach is used to set charges, based on the efficient on-going costs of providing services over a copper network, ensuring all incremental fibre costs are excluded. See paragraphs 3.40 to 3.66 below;

- **Recovery of common costs and charge differentials:** We consider that ultimately common costs should be recovered equally from MPF and WLR lines, with SMPF making no contribution to common cost recovery. This is to enable both the difference in charges between MPF and WLR and the difference between MPF and WLR+SMPF to be equal to the respective differences in long run incremental costs (LRICs). See paragraphs 3.67 to 3.109 below. We do not consider the speed for adjusting charges to reflect LRIC differences in this section, but do so in Section 6;

- **Inflation:** We are using the Consumer Prices Index (CPI) to index these charge controls, rather than the Retail Prices Index (RPI). See paragraphs 3.110 to 3.164 below; and

- **Duration of the charge control:** We are setting the charge controls for the period to 31 March 2017. See paragraphs 3.165 to 3.178 below.

Form of control

Proposals in July 2013 and December 2013 LLU WLR Consultations

3.2 In paragraphs 3.3 to 3.11 of the July 2013 LLU WLR Consultation, we proposed charge controls based on an inflation indexed cap minus an adjustment necessary to align charges with forecast efficient costs.

Stakeholder responses

3.3 There were few responses on the form of the control, but stakeholders who did comment were in favour of the form of control. For example, EE considered that the use of inflation-indexed price caps was well established and that there was value in regulatory stability.[43]

3.4 BT did not argue that cost-plus regulation or retail-minus regulation were appropriate for LLU and WLR prices, but it did consider that Ofcom's approach to efficiency undermined a key property of an inflation index control.[44] We have addressed its arguments on this when we consider efficiency, in Annex 16. We do not consider that our approach to efficiency undermines our approach to incentive price regulation.

Our analysis

3.5 A price cap that is annually updated for inflation minus an adjustment (the so-called "X" in RPI-X or CPI-X) has been tried and tested over many years for telecoms charge controls. It has a number of desirable properties, as explained below, such that we consider it is the form of control that would be most consistent with our duties. A particular feature of this form of control is that it gives BT incentives to enhance its efficiency and make efficient investments. This is an important consideration for us and something we must consider under section 88 of the Act.

3.6 Price cap regulation (rather than "rate of return" regulation) provides an incentive for the regulated entity to make efficiency gains over and above those forecast as part of the control. If BT is able to deliver the required services at a lower cost than has been forecast, it can keep the profits resulting from these savings. In this way, price cap regulation provides incentives to "outperform" the control and improve efficiency over time. Customers also benefit in the longer term, as they benefit from these additional efficiency gains when the charge control is reset.

3.7 Price cap regulation can also provide incentives for efficient investment. The level of the charge control is set to allow the firm to earn a reasonable rate of return (the cost of capital) if it is efficient, and a consistent approach can be taken over charge control periods to encourage such investment.

3.8 We have also considered whether alternative forms of charge control might be appropriate in the current circumstances. In particular, we have considered whether "cost-plus" or "retail-minus" regulation might be more appropriate.

3.9 Under cost-plus regulation, charges are set equal to actual costs including the allowed rate of return in each year of the control. In theory, this would ensure that BT is able to recover the costs of provision of its services, whilst ensuring that customers are protected from prices being set above costs.

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[43] Page 7, EE, *Fixed access market reviews: Approach to setting LLU and WLR Charge Controls. Consultation on market definition, market power determinations and remedies. Response of EE Limited*, 27 September 2013: http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/EE.pdf (EE Response to the July 2013 LLU WLR Consultation).
[44] Paragraph 176 to 179, Openreach, *Openreach response to questions in Ofcom's consultation document "Fixed access market reviews: Approach to setting LLU and WLR Charge Controls"*, 30 September 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/Openreach.pdf (Openreach Response to the July 2013 LLU WLR Consultation).

3.10 The key concern often identified with a cost-plus control is that it has poor incentive properties, as BT would earn the allowed rate of return regardless of how well it controlled its costs. In particular, BT would have limited incentives for cost minimisation, since any reductions in costs would be passed on directly to customers. Therefore, whilst in theory it would be efficient for prices to reflect actual costs, there would not be an incentive to minimise those costs and bring them to efficient levels.[45]

3.11 Retail-minus regulation controls the margin between the wholesale charge and the relevant downstream prices, rather than the absolute level of charges. The aim of retail-minus regulation is to ensure that charges for wholesale services are set at a level that allows efficient operators to compete in the downstream market using the wholesale input in question.

3.12 However, since the absolute level of wholesale charges would not be controlled, a retail-minus control would normally do little to prevent prices from rising above the efficient level and so is unlikely to be appropriate where upstream market power is entrenched.[46] As a result, we consider that retail-minus based charge controls on MPF, WLR and SMPF services are not appropriate for protecting consumers from excessive prices. This is an important issue in addressing the competition problems we have identified and something that we must consider under section 88 of the Act when imposing charge controls.

Conclusions

3.13 We have decided to impose price regulation based on an inflation indexed cap minus an allowance to align charges with forecast efficient costs (i.e. RPI-X or CPI-X). We consider this best meets our objectives and is most consistent with our duties. In particular, this form of control gives BT incentives to enhance cost efficiency.

CCA FAC with a RAV adjustment as the relevant cost standard

Proposals in July 2013 LLU WLR Consultation

3.14 In paragraphs 3.12 to 3.33 of the July 2013 LLU WLR Consultation, we proposed to use fully allocated cost (FAC) as the basis for forecasting the efficient costs of LLU and WLR services and to value assets on a current cost accounting (CCA) basis, with the exception of pre-1997 duct and copper assets for which we would continue to apply a RAV adjustment.

3.15 We explained that, for economic efficiency reasons, we will generally set charges to reflect forward-looking costs. Forward-looking costs include both incremental costs and common costs. We proposed to use CCA FAC as our measure of forward-looking costs because:

- CCA FAC is more practical than alternative measures of forward-looking costs such as LRIC+equiproportional mark up (EPMU);

[45] See the discussion of the different types of efficiency below.
[46] For further discussion of the circumstances in which a retail-minus approach may be appropriate, see Annex C of Oftel, *Access to Bandwidth: Delivering Competition for the Information Age,* November 1999, http://www.ofcom.org.uk/static/archive/oftel/publications/1999/consumer/a2b1199.htm.

- using CCA FAC would be consistent with previous LLU and WLR and other charge controls; and

- CCA FAC can be reconciled to BT's regulatory financial statements (RFS).

3.16 We also explained that we do not consider CCA FAC to be an appropriate standard for capping individual charges in all cases or for determining relative charges. We said that, in some situations, it might be appropriate to set charges at LRIC without any mark-up, because in those circumstances the efficiency or competition advantages of LRIC outweighed the practical benefits of FAC. In other situations, it might be appropriate to set a control on the average price for a basket of a number of services on the basis of FAC, but to allow freedom for the prices of individual services within the basket to be above or below FAC. We also said that, as in the case of MPF and WLR charges, it might be appropriate to set charges such that the difference between them was equal to LRIC.

3.17 For BT's access copper and duct assets which were acquired before August 1997, we proposed to use the Regulatory Asset Value (RAV) instead of the CCA value. The RAV is based on the historic cost accounting (HCA) value of pre-1997 assets at the end of 2004/05, increased each year by RPI. This is less than the CCA value by an amount known as the RAV adjustment.

3.18 We explained our reasons for making the RAV adjustment in detail in Annex 5 of the July 2013 LLU WLR Consultation. In summary:

- BT's duct assets are unlikely to need replacement in future. This means that the true forward looking costs of duct do not include the cost of replacement and are significantly below their CCA value;

- the RAV adjustment allows BT the opportunity to recover (but not over-recover) the sunk costs of duct. We do not ignore sunk costs for price setting purposes because, if investors believed that their costs, once sunk, would be regarded by the regulator as irrelevant for pricing purposes, they would be reluctant to invest in assets which could be regarded as sunk once the investment had been made;

- if the full CCA value of the pre-1997 assets were used to set charges, BT would over-recover the costs of these assets; and

- making the RAV adjustment is consistent with stable regulation over time and hence with encouraging future investment.

3.19 We also set out in Annex 5 of the July 2013 LLU WLR Consultation some detailed proposals for valuing post-1997 copper and duct assets using CCA. We proposed that, for post-1997 copper assets, the base year value would be that calculated by BT using the absolute valuation method.[47] However, because it is difficult to forecast movements in copper prices going forward, for the purposes of our forecast we proposed to index copper asset values by RPI.

3.20 We proposed to estimate the CCA value for post-1997 access duct on the basis of capital expenditure indexed by RPI, the same approach we took in the March 2012

[47] Under the absolute valuation method, the replacement cost of assets is estimated by multiplying the quantity of assets in place by the estimated current price of the relevant assets – rather than by applying a price trend to previous asset values.

Statement. We said that, in making this proposal, we had taken account of BT's plans to change its duct valuation methodology.

Stakeholder responses to July 2013 LLU WLR Consultation

3.21 We asked the following questions on the use of CCA FAC and the RAV adjustment:

- ***Question 3.2:*** *Do you agree with Ofcom's proposal to use a CCA FAC methodology to establish the cost base for the next LLU and WLR charge controls? Please provide reasons to support your views*; and

- ***Question 3.3:*** *Do you agree with our proposal that, for the purposes of these charge controls, BT's pre-1997 duct assets should continue to be valued on an indexed historic cost (RAV) basis? Please provide reasons to support your views.*

3.22 Most respondents to question 3.2, including Openreach, agreed with the use of CCA FAC.[48] Openreach noted that CCA FAC can be reconciled to the RFS and that it has been "essentially endorsed" by the CC.[49] Virgin also agreed that CCA FAC is preferable to LRIC+EPMU.[50]

3.23 EE noted that use of FAC should not preclude taking account of LRIC differentials when setting relative charges for WLR+SMPF and MPF.[51] EE also expressed concern that, within a charge control basket, some charges could be materially above FAC. It considered that, in the absence of a cost orientation condition and associated reporting requirements, subcaps might not ensure that prices "*stayed within reasonable cost bounds over time*". EE referred to bulk migration charges as an example where flexibility within a basket has allowed competition to be distorted.

3.24 ✂ argued that prices for products in SMP markets should be set at LRIC and "*where possible, any common costs should be recovered from non-SMP products, and when they are recovered from SMP products, this should only be on a very controlled basis*".

3.25 ✂ also argued that pricing above LRIC can result in a margin squeeze or other anti-competitive behaviour as well as reducing incentives to invest in new technologies. It also suggested that it was inconsistent to use FAC to set charge controls whilst DSAC was used to resolve disputes, which it argued "*makes a mockery of regulatory certainty*".[52]

3.26 Similarly, most respondents to question 3.3 supported the RAV approach. Openreach said that it accepted that the CC had decided the RAV issue in favour of

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[48] Question 3.2 concerns the use of CCA FAC for purposes other than the valuation of pre-1997 duct and copper assets.
[49] Paragraph 180, Openreach Response to the July 2013 LLU WLR Consultation.
[50] Page 4, Virgin, *Virgin Media's response to Ofcom's Consultation on the Approach to setting LLU and WLR Charge Controls*, 30 September 2013: http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/Virgin_Media.pdf (Virgin Response to the July 2013 LLU WLR Consultation).
[51] Pages 7-8, EE Response to the July 2013 LLU WLR Consultation.
[52] DSAC stands for Distributed Stand Alone Costs. For further explanation and an example of its use in the dispute resolution context, see Ofcom, *Determination to resolve disputes between each of Cable & Wireless, THUS, Global Crossing, Verizon, Virgin Media and COLT and BT regarding BT's charges for partial private circuits – Determination and Explanatory Statement*, 14 October 2009, http://stakeholders.ofcom.org.uk/binaries/consultations/draft_deter_ppc/PPC_final_determination.pdf.

Ofcom by rejecting BT's appeal of the 2012 LLU WLR charge controls. It said that it no longer contested the RAV adjustment.[53]

3.27 However, ✂ argued that BT's access network would never be replaced in its current form, that many assets were depreciated, and that therefore charges should recover "*the LRIC of their ongoing maintenance, nothing more*".

Our analysis

3.28 We agree with EE that setting charge controls to recover CCA FAC costs does not preclude using other cost standards where these are appropriate. As EE notes, we set differentials between charges for MPF, WLR and WLR+SMPF services to move over time towards the differences in their respective LRICs.

3.29 Question 3.2 relates to the way the control is set at the basket level rather than controls on individual charges within the basket. Question 4.20 of the July 2013 LLU WLR Consultation asked about the need for a cost orientation condition whilst questions 4.6 to 4.8 asked specifically about migration charges. EE's comments on cost orientation, sub-caps and migration charges are considered in Section 4.

3.30 We do not agree with ✂ suggestion that pricing above LRIC can, by itself, result in a margin squeeze or harm incentives to invest in Next Generation Access (NGA) networks. This is because both margin squeeze and incentives to invest in NGA depend on relative prices rather than the price of copper access in isolation. The existence of a margin squeeze depends on the difference between the price for an upstream product, such as MPF, and the price for a downstream service that uses it as an input, rather than the level of the upstream price on its own. Regulation is in place to prevent BT operating a margin squeeze and is discussed in Section 12 of Volume 1 on WLA NGA remedies.

3.31 We discussed the relationship between copper access prices and NGA investment in Annex 5 of the July 2013 LLU WLR Consultation, paragraphs A5.31 to A5.41. There we explained our view that investment in NGA cannot necessarily be increased by either raising or lowering (as suggested by ✂) the copper access price. For both users and providers, it is the incremental benefit of NGA relative to current generation broadband services, and the difference between their prices rather than the level of them, which are likely to matter most. Our reasons for making the RAV adjustment, including its relationship with NGA investment, are also set out in summary form in Annex 7 to this Statement.

3.32 We also note that pricing above LRIC is necessary in most SMP and non-SMP markets in order to allow common costs to be recovered. If common costs could not be recovered through charges, BT's business would not be sustainable. BT would be most unlikely to invest in NGA if it believed that it would not be allowed to recover common costs.[54] However, we are aware that BT may have an incentive to try to recover more common costs in areas where it has market power, reducing the amount to be recovered in more competitive areas. When we set charge controls in

[53] Paragraph 183, Openreach Response to the July 2013 LLU WLR Consultation.
[54] This does not mean that it is necessary to include an allowance for common cost recovery in *all* charges. In some cases setting charges to recover incremental costs only may be appropriate. For an example, see Ofcom, *LLCC PPC points of handover pricing review*. *Proposal for modification of SMP Conditions – Consultation*, 26 January 2011, http://stakeholders.ofcom.org.uk/binaries/consultations/points-handover-pricing/summary/main.pdf.

markets where BT has SMP, we ensure that no more than an appropriate amount of common cost can be recovered through charges for the services in question.

3.33 We also do not agree that use of FAC to set the charge control is inconsistent with the use, in certain circumstances, of DSAC. Where Ofcom has used DSAC, it has usually, though not always, been as a ceiling on individual charges within a charge control basket of a number of services, where the charge control has been set to allow recovery of FAC at the basket level.[55] The DSAC ceiling then allows a degree of flexibility to vary relative charges within the basket, with some charges being above FAC and others below, and the DSAC ceilings are *complementary* to the charge control. This sort of flexibility is often desirable, so that BT can set relative charges to recover common costs efficiently and to respond to changes in demand for services within the basket. Capping individual charges at (projected) FAC may sometimes be justified, but is then likely to be an *alternative* form of charge control to a basket approach.

3.34 The DSAC ceiling has generally been given legal effect using the "cost orientation" or "basis of charges" SMP condition.[56] On occasion disputes have arisen about whether a charge was "cost oriented" and Ofcom has then resolved it consistently with the SMP condition (and Ofcom's guidance about its application). In these circumstances, using DSAC is entirely consistent with regulatory stability.

3.35 Setting MPF and WLR charges at no more than the forward-looking costs of maintaining the access network, as ✂ proposes, would mean that BT would not be able to recover the sunk costs of creating the access network. Whilst this might appear to be consistent with allocative efficiency, since charges could be set close to forward-looking costs, it would be likely to do serious harm to dynamic efficiency. This is because BT (and potentially other CPs operating in markets regulated by Ofcom) would be unwilling to make sunk investments in future, as they could not be confident of recovering these costs in charges affected by regulation. For this reason, we allow BT the opportunity to recover the sunk costs of the access network in charges, and the RAV is consistent with recovery of these sunk costs. At the same time, since the RAV adjustment means that charges are below the full replacement cost of the assets and below the cost which a new entrant would incur to create an alternative network, it is also consistent with the requirement in the 2013 EC Recommendation to "*apply an asset valuation method that takes into account that certain civil infrastructure assets would not be replicated in the competitive process*".[57] By contrast, ✂ proposal would not allow recovery of sunk costs and would be inconsistent with the requirements in the 2013 EC Recommendation for copper access prices to "*remain stable over a long time period*" and for a charge-setting methodology which "*meets the objective of regulatory transparency and predictability as well as the need to ensure price stability*".[58]

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[55] Charge controls of this kind are usually set to bring *projected* basket revenues into line with *projected* basket costs on an FAC basis in the final year of the control.
[56] The DSAC test is not by itself determinative of cost orientation.
[57] Paragraph 40, EC, *Commission Recommendation of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment*, 11 September 2013, http://ec.europa.eu/digital-agenda/en/news/commission-recommendation-consistent-non-discrimination-obligations-and-costing-methodologies (2013 EC Recommendation).
[58] *Ibid.*

3.36 We also note that BT accepts the March 2013 CC Determination in relation to the RAV adjustment following the appeal of the previous charge control and no longer contests the RAV adjustment.

Conclusions

3.37 We have therefore concluded that we should use a use a CCA FAC methodology to establish the cost base for the next LLU and WLR charge controls.

3.38 We have also concluded that, for the purposes of these charge controls, BT's pre-1997 local access duct and copper assets should continue to be valued on an indexed historic cost (RAV) basis.

3.39 We have also decided not to change our approach to valuing BT's post-1997 access assets. We have decided that BT's post-1997 duct assets should continue to be valued on the basis of indexing capital expenditure by RPI. We have also decided that BT's post-1997 copper assets should be valued on the basis of an absolute valuation indexed by RPI going forward. The full reasoning and stakeholder responses on the post-1997 asset valuation are contained in Annex 6: Copper and duct valuation (Regulatory Asset Value).

Technology choice and anchor pricing

Proposals in July 2013 and December 2013 LLU WLR Consultations

3.40 We originally set out our proposal to use anchor pricing in our 2012 FAMR CFI[59] and responses to that proposal were summarised in the July 2013 LLU WLR Consultation.[60]

3.41 In paragraphs 3.49 to 3.62 of the July 2013 LLU WLR Consultation, we proposed to use an anchor pricing approach to set charges, specifically based on the efficient on-going costs of providing services over a copper network, ensuring all incremental fibre costs were excluded.

Stakeholder responses to July 2013 and December 2013 LLU WLR Consultations

3.42 There were few responses to the July 2013 LLU WLR Consultation in relation to anchor pricing.

3.43 Openreach supported the anchor pricing approach, though it urged Ofcom to consider the following points:

3.43.1 *"The observed volumes of WLR/LLU and NGA are likely to be affected by the fibre investment. That is, Openreach will have more working lines because the launch of GEA services makes it more competitive, resulting in less loss to cable and mobile operators.*

[59] Ofcom, *Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30 - Call for Inputs*, 9 November 2012: http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-markets/summary/condoc.pdf (2012 FAMR CFI).
[60] See in particular paragraphs 3.41 to 3.48 of the July 2013 LLU WLR Consultation.

3.43.2 *The anchor pricing approach would result in the removal of fibre deployment costs for NGA. In the absence of NGA, it is very likely that BT would have had to invest in copper-extension technologies instead of NGA."* [61]

3.44 Openreach also had some other concerns about how Ofcom implemented its anchor pricing approach, which we consider from paragraph A11.11 in Annex 11.[62]

3.45 TalkTalk considered that we should not take into account Openreach's argument that volumes would be lower if there was no GEA investment. It considered that Ofcom's approach to forecasting volumes was appropriate, and that "*BT have not shown that Ofcom's approach would lead to BT under-recovering cost or any distortion between CGA and NGA services. In contrast setting prices based on a hypothetical forecast volume of copper lines which is less than the expected number of lines would risk BT over-recovering the cost of the (copper) local access network.*"[63]

3.46 TalkTalk also considered that we should not take account of the cost of the copper-extension technologies in place of NGA. It said "*such hypothetical investments would presumably benefit copper customers, in terms of an improved QoS. As these investments have not been made, there is no improvement in quality of service and it would be unreasonable to charge customers for something they do not receive.*"[64]

3.47 ✂ said that it was vital that the methodology adopted gave appropriate incentives to all parties to invest in infrastructure and to invest in promoting and developing take up of newer technologies. It said that Ofcom needed to set out why its approach provides such incentives.[65]

3.48 As we describe in more detail below, Frontier Economics (in a paper submitted on behalf of Sky and TalkTalk[66]) argued that we should take into account the future scrap value of the copper access network that may be realised when the network is ultimately turned off. In their responses to the July 2013 and December 2013 LLU WLR Consultations, Sky and TalkTalk reiterated this argument. Our response to this point is related to the anchor pricing approach that we have adopted for these controls and, on that basis, we address this proposal in the following section.

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[61] Paragraph 192, Openreach Response to the July 2013 LLU WLR Consultation. See also paragraphs 66 to 72 and 188 to 199.
[62] Paragraphs 195 to 199, Openreach Response to the July 2013 LLU WLR Consultation.
[63] Paragraph 2.5, TalkTalk, *LLU/WLR Charge Control Consultation. TalkTalk comments on BT's response,* December 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/TalkTalk_Group_Comments_on_BTs_Response.pdf (TalkTalk Comments on BT Response to the July 2013 LLU WLR Consultation).
See also paragraphs 2.3 to 2.6.
[64] Paragraph 2.6, TalkTalk Comments on BT Response to the July 2013 LLU WLR Consultation.
[65] ✂
[66] Frontier Economics*, Regulated Costs for BT's Copper Cable. A report prepared for Sky and TalkTalk*, January 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/Sky_and_TalkTalk_Group_Regulated_Costs_for_BTs_Copper_Cable.pdf (Frontier Economics, Regulated Costs for BT's Copper Cable).

Our analysis

Anchor pricing approach

3.49 In general, we prefer to set charges using costs and asset values derived from the most efficient available technology that performs the same function as the current technology. This is sometimes described as the modern equivalent asset (MEA) approach to pricing.

3.50 Although gradual technological change can be addressed by the MEA approach, more radical technological changes may pose significant challenges. When technology is changing rapidly, we also consider (and in some cases, prefer) the adoption of an approach which we refer to as "anchor pricing".[67]

3.51 The anchor pricing approach means that charges may not immediately reflect the costs of a new technology but, for a time, may be based on the costs of the existing technology. We are using this anchor pricing approach (for existing technology services) as well as giving BT pricing flexibility for services delivered over the new technology. Together with pricing flexibility for the new services, this anchor pricing approach is intended to give the regulated company an incentive to invest in new technology when it is efficient to do so, that is, when providing services over the new technology would either lower its overall costs and/or would enable it to provide higher quality services for those consumers that are willing to pay a premium (relative to the price of existing services). At the same time, consumers of existing services are not made worse off by the introduction of new technology.[68]

3.52 We recognise that a potential risk of the approach we are taking (of anchor pricing and pricing flexibility over the level of charges for Virtual Unbundled Local Access, or VULA) is that VULA prices may be higher than the underlying costs. However, we consider that this risk needs to be balanced against the risk of regulatory failure if Ofcom tried to set a cost-based charge control on VULA prices and to set the copper price taking account of the transition to fibre. A particular risk is that we could damage investment incentives in this market and potentially more generally. We discuss whether it is appropriate to set a cost-based charge control on VULA in more detail in Section 12 of Volume 1.

3.53 On balance, for at least the market review period, we consider that anchor pricing based on a hypothetical on-going copper network and pricing flexibility over the level of VULA charges will give the best balance in terms of protecting consumers, while providing incentives to invest in NGA capacity and take up.

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[67] For a more detailed explanation of when we consider it appropriate to move away from the MEA approach see from paragraph 4.54, Ofcom, *Leased Lines Charge Control. Proposals for a new charge control framework for certain leased lines services - Consultation*, 5 July 2012, www.stakeholders.ofcom.org.uk/binaries/consultations/llcc-2012/summary/LLCC_2012.pdf (2012 Leased Lines Charge Control Consultation).

[68] Consumers of existing service might otherwise be made worse off by the expected introduction of the new technology due to, for example, shorter assumed asset lives for existing technology assets. In the case of FTTC, the copper assets between the exchange and the cabinet might otherwise be expected to have shorter asset lives, if voice over fibre was expected in the future that would tend to make the copper between the exchange and the cabinet redundant.

Implementation of anchor pricing approach

3.54 We describe in more detail how we have implemented the anchor pricing approach in our cost modelling from paragraph A11.13 in Annex 11. Here we consider the arguments made by Openreach and TalkTalk (see paragraphs 3.43 to 3.46 above) about how an anchor pricing approach affects the volume forecasts and about taking account of copper-extension costs that might be avoided by investment in fibre.

3.55 Our volume forecasts for copper rentals are on the basis of a hypothetical on-going copper network, and assume that all BT's forecast lines would be provided over copper, including the very small number of Fibre To The Premises (FTTP) lines that are entirely provided over fibre.

3.56 We agree with Openreach that it is possible that its total volume of actual lines could be lower if it had not invested in NGA. Without Openreach's NGA investment, some consumers taking its NGA products might have moved to cable. We have considered whether it would be appropriate to adjust our hypothetical on-going copper volume forecasts downward to take account of this.

3.57 We consider that it would only be appropriate to make a downward adjustment to the volume forecasts for this effect if, firstly, Openreach's incentives to invest in NGA would otherwise be distorted or, secondly, Openreach would not otherwise have a reasonable opportunity to recover total costs, which might undermine its investment incentives more generally. We do not consider that either of these factors applies in this case for the reasons set out below.

3.57.1 **Incentives to invest in NGA could fall with lower copper volumes**: Lower line volumes would tend to result in higher copper prices (due to reduced benefits from economies of scale). This might tend to reduce Openreach's incentive to invest in NGA, as the incremental revenue from investment in NGA would tend to be lower when the copper price is higher. This may not be efficient if the reason for the reducing volumes on Openreach's network was due to consumers being prepared to pay for an NGA service on a cable network. In these circumstances, some consumers would be prepared to pay for NGA services, but Openreach may have little incentive to provide such services, if the copper price were allowed to rise to compensate for lower copper volumes due to migration to cable based NGA. We therefore consider that Openreach's incentives to invest in NGA are likely to be better if we use the volume forecasts we have used and give Openreach pricing flexibility on NGA, rather than assuming lower forecasts because of assumed migration to cable (and potentially mobile).

3.57.2 **We have given Openreach an opportunity to recover total costs**: We also consider that our implementation of anchor pricing is likely to ensure that Openreach has a reasonable opportunity to recover its total costs. In particular, in setting charges we have made various adjustments to Openreach's actual costs to reflect the costs of providing an on-going copper network, when these costs may not actually be incurred by Openreach because it is transitioning towards NGA. In particular, we have assumed higher capital expenditure on copper products than BT is actually likely to incur. We therefore consider that our modelling does already factor in investment in copper-extension technologies, which Openreach may avoid through its investment in NGA. We consider that it is reasonable to include these costs because we are trying to model the hypothetical costs of stable on-going copper network.

3.58 We note that this hypothetical on-going network approach does not necessarily result in higher copper charges compared to setting charges based on actual costs, taking account of the transition to fibre. This is because if we tried to set charges taking the transition to fibre into account, we would need to (a) consider the expected future life of the copper assets, which may be shorter than we have assumed, because of the likely shift to fibre; and (b) declining copper access volumes (because of the shift to fibre) implies rising unit costs given the presence of fixed and common costs.

Anticipating the value of scrap copper when the copper access network is turned off

3.59 On behalf of Sky and TalkTalk, Frontier Economics argued that copper access charges should be set lower in the present charge control in order to take account of the scrap value of the copper network.[69]

3.60 There are two principal aspects of the argument made by Frontier Economics, Sky and TalkTalk. Firstly, there is what Frontier Economics refers to as "business as usual" copper scrap, which relates to copper cable recovered each year in the course of maintenance and repair work. We describe our approach to this in paragraphs A13.276 in Annex 13.

3.61 Secondly, there is a question of whether it would be appropriate to take account in setting charges now of the scrap value of copper that may be realised at some point in the future when the local access network is based on fibre rather than copper (and so the copper network is shut down). Frontier Economics claims that the scrap value of the copper in the local access network is probably over £1bn, so reflecting this sum in the charge controls could have a material impact on copper charges.[70] It also states that approximately 80% of the value of copper cable is in the e-side network between the exchange building and the street cabinets.[71] This copper could potentially be released by a Fibre To The Cabinet (FTTC) deployment, if the copper between the exchange and the street cabinet were no longer used for voice telephony. Frontier Economics said that BT could obtain a windfall gain in the future from copper scrap if an adjustment were not made now. Sky considered that this had the potential to reduce MPF and WLR charges by £4 per annum in 2016/17 if taken into account.[72]

3.62 However, taking account of this potential scrap value from turning off the copper network would be inconsistent with the anchor pricing approach that we have adopted for these controls. Our approach involves setting charges on the basis of a hypothetical on-going copper network, as if there were no deployment of NGA. It would be inconsistent with this approach to incorporate the scrap value of copper that would be made redundant by NGA deployment (and we already take account of 'business as usual' copper scrap, which is not related to turning off the copper network, as explained above).

3.63 An alternative modelling approach to anchor pricing could be for Ofcom to take a view on the timing and path for a transition to fibre, and for replacing the copper

[69] Frontier Economics, Regulated Costs for BT's Copper Cable.
[70] Pages 3 and 4, Frontier Economics, Regulated Costs for BT's Copper Cable.
[71] Footnote 5, page 3, Frontier Economics, Regulated Costs for BT's Copper Cable.
[72] Paragraph 4.6, Sky, *Ofcom's Fixed access market reviews. Sky response to the charge control elements of Ofcom's December 2013 and January 2014 Consultations,* February 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-llu-wlr-charge-controls/responses/Sky_-_FAMR_Charge_Controls.pdf (Sky Response to the December 2013 LLU WLR Consultation).

network. If this approach were appropriate, it might then have been appropriate to take account of the forecast scrap value of the redundant copper network. Other things equal, taking account of this scrap value would tend to lower regulated charges. However, under this alternative approach, it would also be appropriate to take account of the likely reduced life of the copper assets, and hence to accelerate the depreciation of existing and new copper assets to reflect that they may become redundant in less than 18 years (which is the asset life currently assumed for copper cable). Faster depreciation would tend to raise charges. Therefore the net effect would depend on the interplay between (a) how far into the future the copper network is scrapped and the forecast value of scrap copper at that point in time net of the capitalised cost of extracting all copper; and (b) how much the asset lives for existing and future copper lines are reduced by (which increases current and future depreciation charges).

3.64 However, for the reasons described from paragraph 3.49 above, we have rejected this alternative approach. We consider that an anchor pricing approach (combined with pricing flexibility over the level of VULA charges) will give the most efficient pricing signals during the current period of technological change. We therefore do not consider that it would be appropriate to take into account the potential scrap value of the e-side copper network when it is replaced by fibre.

3.65 As we do not consider it would be appropriate to take account of the potential scrap value of the copper network when it is decommissioned, as a matter of principle, we have not scrutinised in detail Frontier Economics' estimate of the future value of the copper in the access network. That said, we consider that there is very considerable uncertainty over how much copper it would be economically viable to extract in the event of the copper network being decommissioned. For example, the open market price for scrap copper has historically been very volatile - in the last five years it has varied between £700 a tonne and £1500 a tonne.[73] In trying to determine the cost of extraction, one important consideration would be whether fibre has already been blown into ducts alongside the copper, and the risk and cost of damaging that fibre if extracting the copper were attempted. Another consideration will be the condition of the ducts. For example, if duct has collapsed it may make it very expensive to extract the copper. The effect of these risks will be to add considerably to the labour and capital costs of extracting any scrap copper from the access network. This coupled with the opportunity cost in terms of directing a finite skilled labour force away from servicing the active network (including provisioning and repair now required by regulation), means that there is very considerable uncertainty over the future net value of scrap copper.

Conclusion

3.66 We have adopted an anchor pricing approach in which regulated charges for Current Generation Access (CGA) services (i.e. MPF, SMPF and WLR) are set as if there were no deployment and take-up of NGA services. In other words, we set these CGA charges as if there were an on-going copper network which will not be partially or wholly shut down at some future point in time.

[73] Insulated Copper Cable scrap prices between March 2009 and March 2014 on the website www.letsrecycle.com/prices/metals/metals-prices-archive/prices.

Recovery of common costs and charge differentials

3.67 In this section we consider how common costs should be recovered from the core rental services of MPF, WLR and SMPF, and hence the appropriate differentials between charges for WLR/WLR+SMPF and MPF. We also consider the related issues of the Test Access Matrices (TAMs) pricing adjustment and the line length adjustment.

3.68 This section considers how common costs should be recovered independently of considering the speed for adjusting charges, which is considered in Section 6.

Proposals in July and December 2013 LLU WLR Consultations

3.69 In the July 2013 and December 2013 LLU WLR Consultations, we proposed that ultimately common costs should be recovered equally from MPF and WLR lines, with SMPF making no contribution to common cost recovery.[74] This would mean that the differences in charges between WLR and MPF and between WLR+SMPF and MPF would be equal to the respective differences in LRICs. Related to this, we proposed not to include a line length adjustment and that there should not be a pricing adjustment for TAMs costs.

3.70 We considered this to be appropriate because WLR/WLR+SMPF and MPF are substitutes that can be used to provide downstream voice and/or broadband services. We considered that where wholesale services are substitutes, price differentials should ideally be equal to incremental cost differences so that purchasers are given incentives to use the service which minimises total costs, and this means that the amount of common costs recovered per line should be the same in each case. We applied a similar analysis to the differential in charges between WLR/WLR+SMPF and MPF in the March 2012 Statement.[75]

Stakeholder responses

3.71 In paragraphs 8.8 to 8.28 of the December 2013 LLU WLR Consultation we summarised stakeholders' responses to the July 2013 LLU WLR Consultation.[76] We have not repeated that summary here, but our analysis below takes account of these earlier responses.

3.72 In its response to the December 2013 LLU WLR Consultation, some respondents reiterated their earlier positions.

3.73 Sky said that if the price differentials were above the true incremental cost differences, then productive inefficiency would be offset to some degree by other efficiency gains.[77] Sky also maintained that Ofcom should "aim up" in its estimation of the LRIC differences as it considered this would be likely to deliver a more efficient outcome.

[74] Paragraphs 3.63 to 3.81 of the July 2013 LLU WLR Consultation and paragraphs 8.31 to 8.51 of the December 2013 LLU WLR Consultation.
[75] Section 7, March 2012 Statement.
[76] This summary of responses also included responses on the speed of adjustment, which we discuss in Section 6 below.
[77] Paragraph 6.3, Sky Response to the December 2013 LLU WLR Consultation.

3.74 TalkTalk said that the key arguments for setting the differences in prices above the LRIC differences were:[78]

3.74.1 even if productive efficiency is maximised by setting price differences in line with incremental cost differences, there will be dynamic efficiency gains from a wider differential;

3.74.2 overall demand can be increased by recovering more common costs from WLR than from MPF, due to different elasticities of demand; and

3.74.3 Ofcom should in any case "aim up", since the harm from setting the price difference too low is greater than the harm from setting the price difference too high.

3.75 TalkTalk also argued that in the December 2013 LLU WLR Consultation Ofcom had misunderstood the point TalkTalk made about the benefits of encouraging deeper competition. TalkTalk said that deeper competition provided greater consumer benefits through reducing the extent of the value chain subject to BT's monopoly power. Even if the effect were only across a small part of the value chain, TalkTalk considered there would still be some consumer gains compared to leaving the full scope of monopoly in place.

3.76 BT submitted a report by Plum Consulting related to the differential between WLR+SMPF and MPF.[79] While this paper is mostly about the speed of adjustment (which we discuss in Section 6), Plum Consulting also argued that LLU competitors no longer needed the cross-subsidy as they were now operating at scale, and that 7.6 million lines had been unbundled by December 2013. It also said that the on-going "cross-subsidy" to promote LLU was not compatible with the policy position in support of fibre roll-out. TalkTalk submitted a further report challenging some of the arguments made in Plum Consulting's paper, which we summarise in Section 6.[80]

Our analysis

Differences in charges that equal LRIC differences promote productive efficiency

3.77 In considering the most efficient allocation of common costs, some respondents considered three aspects of efficiency:

3.77.1 "productive efficiency", which means that the costs of production are minimised;

3.77.2 "allocative efficiency", which is achieved when charges are aligned to forward looking resource costs. Allocative efficiency ensures that

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[78] Paragraphs 6.16 to 6.21, TalkTalk, *Fixed access market reviews: Openreach quality of service and approach to setting LLU and WLR Charge Controls, TalkTalk response*, February 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-llu-wlr-charge-controls/responses/TalkTalk.pdf (TalkTalk Response to the December 2013 LLU WLR Consultation).
[79] Plum Consulting, *Mind the gap: why the MPF vs WLR+SMPF price differential should be aligned with costs immediately. A report for BT*, February 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-llu-wlr-charge-controls/responses/Plum_Report_on_MPF_vs_WLRplusSMPF_price_differential.pdf.
[80] TalkTalk, *LLU charge control. Reply to BT response on price differential and Plum Consulting's report, March 2014,* http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-llu-wlr-charge-controls/responses/TalkTalk_reply_to_BT.pdf.

consumers who value a product at more than its cost are able to purchase it; and

3.77.3 "dynamic efficiency", which means that firms have the correct incentives to invest (e.g. in new infrastructure or lower cost technology for existing services) and to innovate (e.g. to generate new products).

3.78 We consider that setting the charge difference between MPF and WLR/WLR+SMPF equal to the difference in LRIC will promote productive efficiency. This is because the MPF and WLR/WLR+SMPF wholesale products are alternative inputs for the same retail services: broadband and voice services sold to end consumers. Setting the charge differential to be equal to the LRIC differential should induce an efficient choice of wholesale inputs, and so help to minimise overall resource costs.

3.79 This is not just a theoretical consideration. Over the next three years, LLU operators are likely to migrate a large proportion of their existing subscribers served with WLR+SMPF to MPF, and they will also be deciding whether to use MPF or WLR for the provision of voice services when they provide services to consumers using FTTC. These changes, and the important choices to be made, will affect significant numbers of subscribers, and a differential that reflects the underlying differences in costs is more likely to ensure that LLU operators' choices are efficient.

Allocative efficiency and elasticity of voice only services

3.80 Sky, TalkTalk and Frontier Economics argued[81] that setting the charge differential in this way gives weight to productive efficiency but ignores allocative efficiency and dynamic efficiency. We consider the arguments in relation to allocative efficiency first, and then turn to dynamic efficiency.

3.81 Allocative efficiency is generally best promoted by charges in line with marginal (in practice, incremental) costs. When there are common costs to be recovered, setting charges in line with marginal costs is not consistent with overall cost recovery (since common costs are part of total costs for a multi-product firm). Under certain assumptions, in order to recover common cost as efficiently as possible, more common costs should be recovered from products that have relatively inelastic demand (i.e. are not very responsive to increasing charges). Such an approach is often described as Ramsey pricing.

3.82 If WLR were related purely to voice services, and MPF were related purely to broadband services, and if voice and broadband services had very different elasticities, then in principle we would agree with Sky, TalkTalk and Frontier Economics that it would be possible to increase consumer welfare by recovering more common cost from one of the two services, specifically that with the most inelastic demand.

3.83 However, relating the wholesale products to the retail markets is not straightforward. WLR+SMPF is also used to provide broadband and voice services, and WLR is a necessary input in order to be able to buy broadband delivered through fibre (specifically BT's FTTC wholesale product). Indeed, some customers may only take a fixed line (based on WLR) because they want high quality broadband internet

[81] See paragraphs 8.8 to 8.16 of the December 2013 LLU WLR Consultation for a summary of these arguments. TalkTalk and Sky reiterated their arguments in their responses to the December 2013 LLU WLR Consultation.

access. Others may only currently take voice services but recognise that taking a fixed line is giving them the opportunity to upgrade to broadband in future. It is therefore likely that some demand for WLR is derived from retail demand for broadband internet access.

3.84 More fundamentally, we do not consider that it is clear whether (a) voice or (b) voice and broadband has higher elasticity than the other, and whether there is any allocative inefficiency from setting the charge differential to be equal to the LRIC differential. We do not have the robust information needed on the elasticity of demand for voice and for voice plus broadband, and the interactions between the two, to determine how to adjust common cost recovery for greater allocative efficiency.

3.85 We do not consider that the responses by Sky, TalkTalk or Frontier Economics provide any evidence that the elasticity of voice is lower than for voice and broadband. For example, we do not consider that it follows from voice penetration being higher than fixed broadband penetration that voice only consumers have a lower elasticity. Lower broadband penetration might be driven by other factors, such as, for example, some older consumers being less interested in broadband.[82]

3.86 Sky also argued that "*The lower, but growing, level of broadband penetration at a time when retail prices remain low or are falling implies that, for some consumers, price affects their demand, whereas the higher and more stable levels of fixed voice penetration, despite steadily rising line rental prices, could indicate relative price inelasticity*."[83] Even if it is case that fixed broadband prices have fallen over time[84] while penetration has risen, this may not be due primarily to falling charges. Rather, the rise in broadband penetration may be due to broadband providing people with greater benefits over time, including, for example, greater broadband content such as IPTV, and supporting an increasing number of devices in the home. These additional benefits could make broadband less price elastic than voice. This may be especially the case if substitution to mobile were more relevant for voice only consumers than for voice and broadband consumers. Moreover, given that it is not possible to buy broadband independently of voice, it may not be valid to consider only the change in the broadband charge, as it might be the total level of charges (including the rising fixed line rental) that drives broadband demand.

3.87 In any case, we consider that productive efficiency is likely to be a much more important consideration than allocative efficiency in the present context. This is because the large majority of consumers take both fixed voice and fixed broadband, and in respect of supplying these consumers only the productive efficiency

[82] In terms of access to the internet (fixed or mobile), a lower proportion of older households have internet access. See figure 5.51 and figure 5.54, Ofcom, *Communications Market Report 2013*, 1 August 2013, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr13/2013_UK_CMR.pdf (2013 Communications Market Report).
[83] Paragraph 4.14, Sky, *Sky's Response to Ofcom's Fixed access market reviews: Approach to setting LLU and WLR Charge Controls Consultation,* October 2013: http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/Sky.pdf (Sky Response to the July 2013 LLU WLR Consultation).
[84] See figure 5.50 in the 2013 Communications Market Report for average household spend on fixed internet and fixed voice over the period 2007 to 2012. At least over this period, household spend on fixed voice has fallen more than spend on fixed internet. However, this is likely to be driven in part by increases in the quality of fixed internet.

considerations are relevant.[85] For this large majority of consumers, attempting to recover more common costs from one set of wholesale inputs over the other would tend to be undermined by switching at the wholesale (or ultimately retail) level, as well as being productively inefficient.

3.88 We also note that MPF can be used for voice only consumers. So if charges were set such that WLR recovered significantly more common cost than MPF, it is possible that MPF would be used to serve voice only consumers. This would undermine the rationale for recovering more common cost from WLR, because it would be undermined by switching at the wholesale (and ultimately retail) level.

3.89 We therefore consider that even if it were possible to determine the relative elasticities and to optimise for both productive and allocative efficiency, the optimal charge differential is likely to be very close to the LRIC differential, with it being unclear whether it would be slightly less, slightly more or equal to the LRIC differential. Given the informational challenges of determining the elasticities, especially given the interactions between the wholesale products, we do not consider it is realistic to try to take account of these allocative considerations, and that there would be significant scope for error if we tried.

3.90 In summary, our view is that in this case allocative efficiency considerations (related to Ramsey pricing) do not clearly point to setting a differential that differs from that implied by productive efficiency (that is, to a charge differential other than the LRIC differential). This is because the direction of any such adjustment from the LRIC differential is unclear, and because any such adjustment is likely to be small.

The arguments for promoting MPF-based competition

3.91 TalkTalk argued that deeper competition (such as MPF compared to WLR+SMPF) is always preferable to shallower competition, because it involves competition over more of the value chain.[86]

3.92 We disagree and consider that it may not always be desirable. For example, it may not be desirable if promoting deeper competition results in an increase in fixed costs due to duplication that outweighs the benefits to consumers from competition over more of the value chain. Whether it will be appropriate to promote deeper competition therefore depends on the specific case being considered.

3.93 In the case of LLU-based competition (whether based on MPF or SMPF), Ofcom did consider it worth promoting this type of competition and we took actions to help the establishment of LLU operators. For example, in 2006, we welcomed BT voluntary commitments to price floors for wholesale broadband products. Even though price floors tend to increase retail prices for consumers in the short term, because they helped the establishment of credible LLU competitors (both with MPF and SMPF), and were temporary, we considered that they were in the interests of consumers.[87]

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[85] In 2012/13, around 71% of Openreach's lines took broadband and we forecast this to rise to 82% in 2016/17, see Annex 24 for more details.
[86] Paragraphs 6.19 to 6.21, TalkTalk Response to the December 2013 LLU WLR Consultation.
[87] See Letter from the CEO of BT Wholesale to the Partner, Competition Policy, Ofcom, dated 10 November 2006,
http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bb/ceilings.pdf
and Letter from the Partner, Competition Policy, Ofcom to CEO of BT Wholesale, dated 10 November 2006,

3.94 Moreover, we also specifically assisted LLU entrants using MPF because they faced additional challenges in becoming established. For example, while LLU entrants using SMPF could use the existing (low-cost) WLR testing equipment, LLU entrants using MPF could not and faced additional costs related to line testing. These costs included the set up costs of BT developing and rolling out a testing system for MPF lines (using TAMs). In order to stop this being a barrier to LLU entrants using MPF, we decided that initially we should allocate the cost of TAMs across all broadband-capable lines.[88]

3.95 While we consider that it was worth initially providing entry assistance to LLU operators, we regard the use of both MPF and WLR/WLR+SMPF as being effective and valuable for enabling competition for voice and broadband. We do not have a presumption that one of these two forms of competition is better than the other.

3.96 Two of the main competitors to BT at the retail level (i.e. TalkTalk and Sky) use MPF. We consider that they are now established, scale operators, following a number of years during which the differential between WLR/WLR+SMPF and MPF charges has been greater than the LRIC differential.[89] Both Sky and TalkTalk have continued to unbundle ever smaller exchanges, where the business case for doing so is likely to be increasingly marginal. If the business case of using MPF works for these small exchanges, we consider that it is likely to remain profitable for the large majority of the population covered by the MPF footprint, which involves larger exchanges and hence greater benefits from economies of scale. MPF also provides advantages in terms of product differentiation (e.g. call features and other aspects of the consumer usage experience) and allows CPs to avoid call origination charges levied by BT.

3.97 Given this, we do not consider that it is necessary or desirable to set charges to promote MPF-based competition over other forms of competition. On this basis charge differentials based on the absolute LRIC differentials will tend to promote efficient future investment choices. This would mean that charge differentials based on LRIC would provide a level playing field between competitors using different wholesale inputs, or 'competition on the merits' as EE puts it. We therefore consider that one relevant aspect of dynamic efficiency (i.e. promoting competition on the merits and efficient investments by different competitors) points to charge differentials equal to the absolute differences in LRICs.[90]

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http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bb/ofcomresponse.pdf.

[88] Paragraph 4.62, Ofcom, *Local loop unbundling: setting the fully unbundled rental charge ceiling*, 30 November 2005, http://stakeholders.ofcom.org.uk/binaries/consultations/llu/statement/llu_statement.pdf.

[89] The charge differential is likely to have been greater than the LRIC differential since 2005, when BT voluntarily reduced the MPF charge from £105.09 to £80. This was then soon followed by a charge control set by Ofcom, see Ofcom, *Local loop unbundling: setting the fully unbundled rental charge ceiling and minor amendment to SMP conditions FA6 and FB6 – Statement*, 30 November 2005, http://stakeholders.ofcom.org.uk/binaries/consultations/llu/statement/llu_statement.pdf.
LLU operators (using both MPF and SMPF) also benefited for a period from voluntary commitments by BT made in 2006 to maintain wholesale broadband charge floors, see Letter from Paul Reynolds, BT to Sean Williams, Ofcom, dated 10 November 2006, http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bb/floors.pdf. Both Sky and TalkTalk have been active in LLU since 2005 or 2006.

[90] Another aspect of dynamic efficiency relates to providing a stable and predictable regulatory regime to promote investment, which we discuss in Section 6.

Aiming-up on the LRIC differential

3.98 TalkTalk and Sky also argued[91] that the harm of setting the charge differential lower than the LRIC differential was greater than the harm of setting differentials above LRIC. Therefore, they said, it would be more appropriate to 'aim up', and select LRIC estimates at the upper end of the plausible range.

3.99 As we do not have a presumption that MPF-based competition is better for consumers we do not consider that, if there is uncertainty over the precise level of the WLR/WLR+SMPF and MPF LRIC differential, it would be appropriate to "aim up" (and choose a differential near the top of the reasonable range). We recognise that it is difficult to estimate a precise figure for the differential with a high degree of confidence, but do not consider that this justifies the treatment suggested by Sky and TalkTalk.

Incentives to reduce MPF costs

3.100 We note Sky's argument that cost minimisation incentives on Openreach may be weaker for MPF.[92] We note that this argument is only relevant to the differences between WLR/WLR+SMPF and MPF, as the large majority of the inputs going into these services are the same (e.g. copper and duct). In terms of the differences between WLR/WLR+SMPF and MPF, we are able to manage this risk by examining the reasons for the differences in costs. For example, we have investigated TAMs costs in detail, we have considered service level costs in detail and have set out our analysis on other aspects of the differentials in Annex 9.

No line length adjustment

3.101 In paragraphs 3.96 to 3.104 of the July 2013 LLU WLR Consultation, we proposed that an adjustment should no longer be made to reflect a difference in line length between WLR and MPF services. In previous reviews a 'line length adjustment' was made to reflect the fact that MPF lines were likely to be shorter on average than WLR lines. This adjustment was previously applied to reflect the geographic areas in which LLU is used and because of the technical limits on the length of a line which could be used to provide broadband services using MPF. The effect of this line length adjustment was to reduce the costs allocated to MPF and consequently increase the cost allocated to WLR. The adjustment has become smaller over time as LLU roll-out has increased and technology has improved. In the March 2012 Statement, we applied a line length adjustment of 1.6% to D-Side and E-Side copper costs to reflect different line lengths.

3.102 In response to our proposals, Sky argued that the underlying reason for the line length adjustment was a technical one and that Ofcom has not considered whether the underlying reasons for introducing the line length adjustment in 2005 still prevail.[93] TalkTalk argued that not making a line length adjustment would have a distortive impact meaning that the price for MPF lines would be higher than cost and

[91] Paragraph 2.8, TalkTalk, *Approach to setting LLU and WLR Charge Controls. Consolidated version*, October 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/TalkTalk_Group.pdf (TalkTalk Response to the July 2013 LLU WLR Consultation). Paragraphs 4.9 to 4.11 of Sky Response to the July 2013 LLU WLR Consultation.
[92] Sky argued that the scope for productive efficiency would be "tempered" because BT has less incentive to minimise costs for the MPF service, as it does not consume it. See paragraphs 4.20 of 4.23 of Sky Response to July 2013 LLU WLR Consultation.
[93] Paragraphs 10.26 to 10.34, Sky Response to the July 2013 LLU WLR Consultation.

that this would be allocatively inefficient. TalkTalk also said that Ofcom should be very cautious of accepting at face value BT's claims about there being no material difference in line lengths between MPF and WLR.[94]

3.103 We have approached whether to implement a line length adjustment in the controls set by this Statement by considering what will promote efficiency. Consistent with our proposal in the July 2013 LLU WLR Consultation, our view is that continuing with an adjustment to WLR and MPF charges to reflect potential differences in the average line length would not promote efficiency. In particular, it would risk distorting choices between WLR/WLR+SMPF and MPF at the margin, giving too strong an incentive to use MPF. For example, this could mean that it might sometimes be cheaper for a CP to use MPF even though it would be more efficient to use WLR/WLR+SMPF.

3.104 Even assuming the case that, on average, MPF lines are slightly shorter than WLR lines, we have considered whether there is an argument that the line length adjustment should be made on the basis of the "principle of cost causality". We consider that making an adjustment to MPF charges based on the average length of MPF lines is a poor way of signalling cost causation. The length of a customer's line is caused by the customer's distance from the exchange and/or cabinet, not whether the customer is served by WLR or MPF. To put this point another way, switching a customer's line from WLR/WLR+SMPF to MPF does not cause the line to become shorter.

3.105 In any case, the line length differences between WLR and MPF are very small.[95] So even if the view of cost causation advanced by Sky and TalkTalk were preferred, any line length adjustment would be very small.

No Test Access Matrix (TAMs) pricing adjustment

3.106 In paragraphs 3.83 to 3.95 of the July 2013 LLU WLR Consultation, we proposed that a pricing adjustment should no longer be made in respect of the cost of Test Access Matrices (TAMs). We described how we had applied this adjustment since it was originally made in 2004, when competition was at a much earlier stage of development.

3.107 As LLU competition has matured, the case for this adjustment to promote competition (one aspect of dynamic efficiency) has become less strong and hence we have placed more weight on setting charges which give incentives to minimise costs (productive efficiency). As set out above, this requires that the difference between the charges of WLR/WLR+SMPF and MPF be brought into line with their LRIC differences, so that CPs are induced to choose the services which minimise total costs. We have therefore decided not to make a TAMs pricing adjustment. We have allocated TAMs costs only to MPF, for the reasons described from paragraph A13.109 in Annex 13.

[94] Paragraph 2.14 penultimate bullet, TalkTalk Response to the July 2013 LLU WLR Consultation.
[95] We have reviewed information from BT on line length differences from 2012, obtained under our formal information gathering powers. This was the data disclosed in the appeals of the 2012 charge control. BT has also confirmed that it has not prepared a more up to date dataset. This was from the Fourth QoS BT Information Request.

Conclusion

3.108 As set out in paragraph 3.97 above, we do not consider it is necessary or desirable to set charges to promote MPF-based competition over other forms of competition. This means that to promote efficiency the relative charges of WLR/WLR+SMPF and MPF should ultimately reflect the difference in the respective long run incremental costs (LRICs). This implies that MPF and WLR would contribute equally to common cost recovery on a per line basis and that SMPF would be set at LRIC.

3.109 Consistent with this position, we have decided that there should be no reallocation of TAMs costs to WLR and no line length adjustment.

Choice of inflation index for the charge controls

3.110 Inflation features in the setting of charge controls in two ways:

- first, to determine how the limit on charges is updated each year (i.e. in the inflation +/- X formula); and
- second, we may use forecasts of an inflation index to help us forecast certain input costs, if we determine that they are likely to be closely aligned.[96]

3.111 In this Section we are concerned with the first of these. The choice of how different cost items trend over time is a judgment which can only be made by examining individual cost items, as we have discussed in Section 5 and Annex 13.

3.112 The reason for using an inflation index in the charge control formula is to protect the regulated firm and its customers from forecast error.[97] If inflation rises by more than forecast, the inflation +/- X formula protects the firm from the cap becoming tighter than intended. Similarly, if inflation rises by less than forecast, the annual updating of the cap for inflation ensures that customers do not pay more than necessary to compensate the firm for general inflationary pressures.

Regulatory background

3.113 In January 2013 the Office for National Statistics (ONS) announced the outcome of a consultation on the RPI.[98] The ONS concluded that the RPI "*does not meet international standards and recommended that a new index be published*". As a result, the ONS introduced a new index, the RPIJ (using the "Jevons formula", which is based on a geometric average, as opposed to the "Carli formula", which is used to calculate the RPI and is based on an arithmetic average).[99]

3.114 Following these announcements, the UK Statistics Authority (UKSA, for which the ONS is an executive office) cancelled the designation of the RPI, including sub-

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[96] Note that the various input costs will often vary in different ways – e.g. pay related costs may vary differently from asset replacement costs. Therefore it may not be appropriate to use a single inflation index to forecast all types of input costs.
[97] We can expect that firms and their customers will generally be subject to inflationary pressures to a certain extent. We discuss below the importance of the correlation between an inflation index and changes in the costs faced by the regulated firm.
[98] ONS, *National Statistician announces outcome of consultation on RPI*, 10 January 2013, http://www.ons.gov.uk/ons/rel/mro/news-release/rpirecommendations/rpinewsrelease.html
[99] The CPI is also primarily based on the Jevons formula and is designated as a "National Statistic".

indices, as National Statistics.[100] However, the ONS will continue to publish RPI figures, not least since they are important for index-linked government bonds (all of which are currently linked to the RPI).

3.115 The UKSA also announced that the RPIJ can be listed as a National Statistic subject to the ONS implementing some enhancements to the transparency and governance of the RPIJ.[101] These enhancements have now been implemented and, as of 21 November 2013, the RPIJ has been designated as a National Statistic.[102]

Proposal in the July 2013 LLU WLR Consultation

3.116 In paragraphs 3.155 to 3.191 of the July 2013 LLU WLR Consultation we outlined a set of factors that we considered relevant to our choice of inflation index. These were:

- **official status of the index** – is the index compiled by a recognised independent body?
- **cost causality** – to what extent do the costs of the regulated firm move with the index in question?
- **exogeneity** – is the index beyond the control of the regulated firm?
- **availability of independent forecasts** – since charge controls are set over a period of a few years, are independent forecasts available for that period?
- **regulatory predictability** – is the choice of index clearly reasoned?

3.117 Having considered these factors, we proposed to use the CPI as the inflation index for the LLU and WLR charge controls.

Responses to the July 2013 LLU WLR Consultation

3.118 Eight stakeholders responded with comments on our choice of inflation index. All of the respondents focused on the CPI and the RPI and none disagreed with our proposal that these were the main indices to consider for the indexation of the LLU and WLR charge controls.

3.119 Five CPs agreed with our specific proposal to index the charge control using the CPI (Sky[103], TalkTalk[104], Verizon[105], Vodafone[106] and ✂[107]), two disagreed with this

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[100] UKSA, *Assessment of compliance with the Code of Practice for Official Statistics. The Retail Prices Index*, March 2013, http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-246---the-retail-prices-index.pdf.
[101] UKSA, *Assessment of compliance with the Code of Practice for Official Statistics. Statistics on Consumer Price Inflation*, July 2013 http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-257---statistics-on-consumer-price-inflation.pdf.
[102] ONS, *Consumer Price Inflation Detailed Briefing Note*, *December 2013*, 21 January 2014, http://www.ons.gov.uk/ons/dcp171776_349509.pdf.
[103] See Paragraphs 5.1 to 5.11 of Sky Response to the July 2013 LLU WLR Consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/Sky.pdf.
[104] See paragraph 3.31 of Talk Talk's response to the July 2013 LLU WLR Consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/TalkTalk_Group.pdf.

proposal (BT[108] and Virgin[109]) and one did not have a preference between the RPI and the CPI (EE[110]). The remaining respondents to the consultation did not comment on this issue.

3.120 Stakeholders that agreed with our proposals focussed their responses on:

i) the announcements by the ONS and the UKSA;

ii) what these respondents saw as the greater relevance of the CPI; and

iii) the CPI's lower volatility compared to the RPI.

3.121 Verizon and ✂ referred to the concerns about the RPI's robustness raised by the ONS and its subsequent declassification as a National Statistic.

3.122 On the other hand, Sky and TalkTalk did not think that the issues identified by the ONS were critical for our decision.[111] They argued that the important question was not whether RPI was an unbiased measure of inflation, but whether the forecasts of RPI were unbiased. They considered that even if the RPI was upwardly biased, this would not necessarily mean that the independent forecasts of RPI were biased, given that forecasters understand the way in which RPI is calculated.

3.123 Nevertheless, Sky and TalkTalk agreed with our proposals to use CPI because they argued that it more closely reflected changes in BT's costs, in particular its operating costs.

3.124 Sky, TalkTalk and Verizon also referred to the higher volatility of RPI compared to CPI and argued that CPI was more suitable since, unlike RPI, it does not include mortgage interest payments, which are irrelevant for BT.

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[105] See paragraph 27, Verizon, *Verizon Enterprise Solutions response to Ofcom's Fixed Access MR: Approach to setting LLU & WLR Charge Controls consultation,* September 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/Verizon.pdf (Verizon Response to the July 2013 LLU WLR Consultation).
[106] See page 15, Vodafone, *Vodafone's response to Ofcom's consultation "Fixed access market review and charge control",* September 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/Vodafone.pdf (Vodafone Response to the FAMR and the July 2013 LLU WLR Consultation).
[107] See pages 41-42 of ✂ response to the July 2013 LLU WLR Consultation.
[108] See section 5.2 of BT, *BT's response to Ofcom's consultation document "Fixed access market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30" and comments on key charge control issues, including responses to relevant questions in Ofcom's consultation document "Fixed access market reviews: Approach to setting LLU and WLR Charge Controls"*, 30 September 2013, http://projects/sites/lluwlrcc2014/cons/Main%20consultation/Responses/20131105%20BT%20Group%20NON-CONFIDENTIAL.pdf (BT Response to the July 2013 LLU WLR Consultation). Also, see paragraphs 113 to 116, Openreach Response to the July 2013 LLU WLR Consultation.
[109] See pages 5, 8 and 9, Virgin Response to the July 2013 LLU WLR Consultation.
[110] See pages 15-16 of EE Response to the July 2013 LLU WLR Consultation.
[111] See paragraphs 4.8 to 4.29, Frontier Economics, *Ofcom's LLU and WLR Charge Controls Proposals. A report prepared for Sky and TalkTalk*, October 2013: http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/Sky_and_TalkTalk_Group_Frontier_Economics_report.pdf (Frontier Economics, Ofcom's LLU and WLR Charge Controls Proposals).

3.125 ✂ also suggested that the decision to use CPI should be universal and this should be the default position in all future market reviews.

3.126 EE did not express firm views in favour of using either RPI or CPI. However, it agreed with our proposed criteria and understood the reasons for us proposing a move from RPI to CPI, given the emerging view that CPI provides a more robust measure of inflationary pressures in the wider economy. With regard to the criterion of "cost causation", it believed that we should take into account how the costs of the industry as a whole, rather than just the costs of the charge controlled firm, move with the index in question. It also raised concerns about consistency across the charge control, given that certain items (e.g. post-1997 duct assets) would be valued using RPI, whilst charges would be indexed to CPI. It stated that it was not clear how we would take account of differences in the forecasts of CPI and RPI and it urged us to ensure that no distortions would arise as a result of this issue.

3.127 Virgin noted arguments in favour of both the CPI and the RPI, but on balance thought that we should continue to use the RPI to index charge controls. It suggested that we launch an independent project to consider the issue with regard to the next round of charge controls. It considered that the future of inflation statistics remained unclear and that now may not be the correct time to start using the CPI instead of the RPI in this charge control. It also questioned the consistency of using RPI for the RAV adjustment and the indexation of post-1997 assets in our cost modelling whilst using CPI to index the charge control.

3.128 BT made a number of arguments which it considered supported the continued use of RPI to index charge controls. Using some of our proposed criteria and some additional arguments, BT concluded that we should continue to use RPI when indexing charge controls.

3.129 BT argued that:

i) using RPI would be consistent with previous charge controls, including the Network Charge Controls (NCC) and the Leased Line Charge Controls (LLCC);

ii) the choice of inflation would make no real difference, so there was little reason to change approach;

iii) we should use the same index to reflect the level of general inflation when calculating the appropriate nominal cost of inputs (what it referred to as "Stage 1" of the modelling) as we use for "calibrating" the X in the price control formula ("Stage 2");

iv) changes in input costs tend to be better reflected by RPI than CPI; and

v) it would be simpler and more transparent to use a single method in relation to modelling price changes.

Ofcom analysis

3.130 Given that stakeholders agreed that the CPI and the RPI were the main options for indexing the charge controls, we focus our attention on these two indices.[112] Below we compare them against the framework we set out in our July 2013 LLU WLR Consultation, while also assessing the consultation responses.

Official status

3.131 As noted above, the ONS has found that "*the formula used to produce the RPI does not meet international standards*". It also stated that it has a "*propensity to have an upward bias*" and the UKSA has removed the RPI's designation as a National Statistic.

3.132 The CPI is not calculated using the same formula that the ONS identified as problematic in the case of the RPI. The CPI also remains a National Statistic.

3.133 Some respondents to our Consultation (Verizon and ✂) were concerned that the issues raised by the ONS and the UKSA cast doubt on the use of the RPI for the LLU/WLR charge control.

3.134 Whilst some other respondents (in particular, Sky and TalkTalk) did not share these concerns, we note that the announcements made by the ONS and UKSA were not purely semantic. The UKSA explained that its decision to declassify the RPI as a National Statistic was based primarily on:

i) the finding that the methods used to produce the RPI are not consistent with internationally recognised best practices; and

ii) the decision to freeze the methods used to produce the RPI, and only to contemplate "routine" changes.[113]

3.135 The UKSA's Code of Practice for Official Statistics requires that continuous improvement should be sought in statistical processes.[114] Since this will no longer happen in relation to the RPI, it could no longer be classified as a National Statistic.

3.136 We consider that the ONS's conclusion that the RPI does not meet international standards and the subsequent declassification of the RPI as a National Statistic are relevant factors for us to take into account, even if it is the case that forecasters adjust for known biases in the RPI.

Cost causality

3.137 An important part of the rationale behind indexing charge controls is to compensate for forecast error in how costs might evolve over time. As discussed above, the use of an inflation index should protect both the regulated firm and its customers from

[112] The RPIJ has now been designated at a National Statistic, but, as explained in our July 2013 LLU WLR Consultation, the lack of independent forecasts for the RPIJ remains an obstacle to using it to index our charge controls.
[113] UKSA, *Assessment of compliance with the Code of Practice for Official Statistics. The Retail Prices Index*, March 2013, http://www.statisticsauthority.gov.uk/assessment/assessment/assessment-reports/assessment-report-246---the-retail-prices-index.pdf.
[114] Principle 4, Practice 5, UKSA, *Code of Practice for Official Statistics*, January 2009 http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html.

forecast error. To this end, the choice of index should take into account the extent to which the index reflects likely changes in the input costs of the regulated services.

3.138 The relationship with underlying costs is likely to be particularly important when setting cost-based controls – i.e. where charges are controlled to align with end of period costs. In the case of safeguard caps, when costs are not explicitly forecast, then another important consideration may be the affordability of the service(s) in question.

3.139 EE suggested that our choice of index should take into account changes in costs of the industry as a whole, rather than just the costs of the charge controlled firm. The use of an inflation index will prevent the regulated firm being overly compensated for general inflationary pressure and so will offer a degree of protection to other industry participants from over payment. However, our focus when setting a cost based charge control is the costs faced by the regulated firm. The conditions affecting the regulated firm may or may not be different to those it supplies, but the costs it faces are most relevant when setting the control. In practice, by using a general inflation index to update the control each year, this is likely to reflect changes in costs affecting other market participants as well.

3.140 In our July 2013 LLU WLR Consultation, we did not find conclusive evidence that either CPI or RPI more closely reflected changes in underlying costs. In response to our consultation, Sky and TalkTalk argued that CPI was more relevant and more closely reflected changes in BT's operating costs, whereas BT argued that RPI was better in this regard.

3.141 The major cost items in the LLU and WLR charge controls are as follows:

- operating costs, excluding depreciation (approximately 40% of costs);
- depreciation and holding gains (approximately 35% of costs); and
- cost of capital employed (approximately 25% of costs).[115]

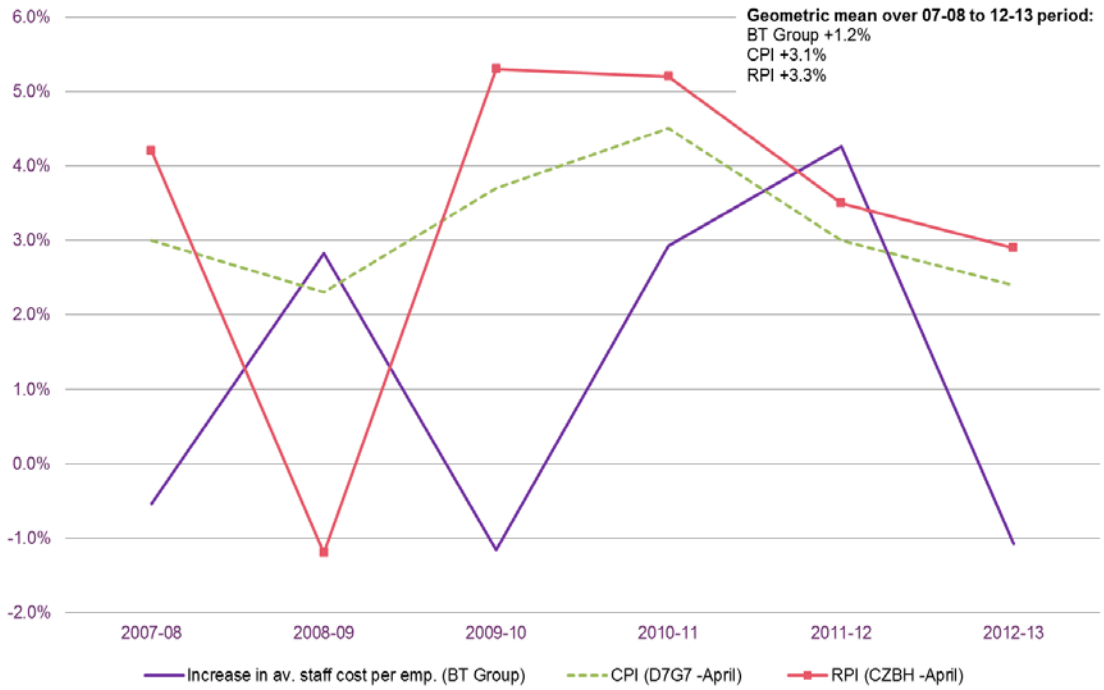
3.142 In terms of operating costs, we have identified only one item as explicitly linked to RPI, namely BT's cumulo payments.[116] For other operating costs, we have looked at how some of these costs have trended over the recent past relative to RPI and CPI. This can only form a high-level view of these costs[117], but the analysis suggests that neither RPI nor CPI is a better predictor of the movement in costs.

3.143 Pay costs, for example, are c.50% of LLU/WLR services' operating costs (excluding depreciation). In our July 2013 LLU WLR Consultation we presented illustrations of the changes in BT Group pay costs per employee compared to both the CPI and RPI

[115] This is based on BT's 2011/12 RFS for the WLA and WFAEL markets combined.
[116] While these are updated annually for RPI, they are also subject to rebates if BT is able to successfully appeal the basis of calculation. Therefore, while the actual liability will reflect an uplift for RPI, the total liability in a given year may be affected by significantly more than this. We note that as an exception the 2014/15 increase in cumulo has been set at 2%.
[117] For example, volume changes, efficiencies achieved and changes in cost allocation would all have an impact on a complete analysis, but such analysis would require strong assumptions to be made that may not be robust and could present a spurious level of accuracy. Our analysis has therefore excluded these factors.

(using the April figure[118]). Below we also present a comparison using Openreach data.

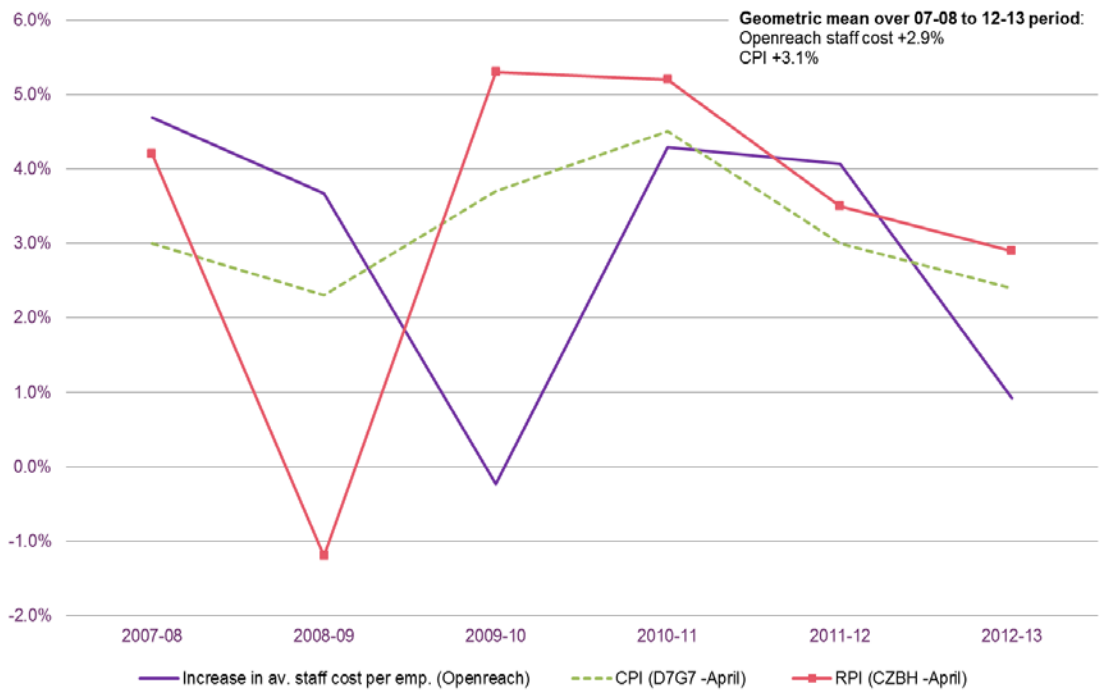
Figure 3.1: BT Group change in cost per employee vs. CPI & RPI



Source: BT Group Statutory Accounts staff costs and average employees, ONS website http://www.ons.gov.uk for inflation indices.

[118] For example, the April 2012 annual rates for RPI and CPI are used as a comparison to the costs of the financial year 2011/12.

Figure 3.2: Openreach change in cost per employee vs. CPI & RPI[119]



Source: increase in av. staff costs per emp. (Openreach) sourced from BT's response to question 5 of the Eleventh LLU WLR BT Information Request, ONS website http://www.ons.gov.uk for inflation indices.

3.144 In its response to our consultation, BT presented figures for its wage settlements with the Communication Workers Union from 2008 to 2013 and argued that they were typically very close to RPI. However, whilst the settlements may have been closer to RPI than CPI in the first two years of this period, since then they have been closer to CPI.

3.145 BT also noted that forecasts made by the Office for Budget Responsibility suggest that wages and salaries across the economy could rise significantly more than CPI from 2014 to 2016, meaning that increases would be closer to RPI than CPI. However, we note that these forecasts concern the economy as a whole, rather than being specific to BT, and they relate only to wages, rather than staff costs more generally, which could be affected by other factors.

3.146 The geometric mean for the change in the BT Group cost per employee over the six year period 2007/08 to 2012/13 was 1.2%, as compared to a higher rate of 2.9% for Openreach. Over the same period the equivalent figures for CPI was 3.1% and RPI 3.3%.

3.147 Accommodation costs account for around 16% of operating costs in the WFAEL and WLA markets.[120] A large element of accommodation costs relates to rents on

[119] The 0.9% for the increase in average staff costs per employee for 2012/13 is sourced from a confidential response to an information request to BT and is derived from comparing the 2012/13 Total Pay/Average FTEs and comparing to the change from the 2011/12 equivalent. However BT believes this figure is misleading.
[120] See page 24, section 6.2, BT's 2011/12 RFS.

properties, a non-pay cost. Under the long term sale and lease back deal that BT agreed with what is now Telereal Trillium in December 2011 these increase at 3% per annum.[121] While this is between the forecasts of RPI and CPI currently projected by independent forecasters for this control period (albeit nearer the RPI forecast) this is largely irrelevant because we are not aware that the accommodation costs will vary by anything other than the fixed 3% p.a. – effectively there is no forecasting uncertainty with this input cost.[122]

3.148 Therefore, we consider that the evidence on whether RPI or CPI might better track operating costs is indeterminate.[123]

3.149 Nevertheless, other important parts of the cost base have linkages to RPI as a result of current and past regulatory practice. These are (i) the valuation of copper and duct assets and (ii) the cost of capital.

3.150 To date we have valued the copper and duct assets which make up approximately 87% of the 2011/12 mean capital employed for WLR and LLU using a RAV approach for pre-1997 assets. As noted above, this has involved valuing copper and duct assets on the basis of their historic cost (with effect from financial year 2004/05), but applying RPI from this date forward. For post-1997 copper and duct assets we have typically forecast their replacement cost and used RPI as a means to proxy the uncertain replacement costs (given the complications of estimating how much it might cost to rebuild the duct network and given the volatility and uncertainty in copper prices).

3.151 For the cost of capital, an important component is the risk-free rate to which we add a premium for the cost of debt and a premium for the cost of equity to build up a weighted average cost of capital. Consistent with past regulatory practice, we start by estimating a real risk-free rate and then applying a forecast for inflation to that real risk-free rate.

3.152 The real risk-free rate that we specify is informed by considering the yield on indexed linked gilts (i.e. government debt). This debt is currently indexed to RPI and is likely to be so for the short to medium term.

3.153 In light of the above, it might be argued that for certain important aspects of capital-related costs, RPI would be more consistent with how we have typically forecast such costs. However our decision to use RPI for valuing post-1997 copper and duct assets has been driven by RPI being a reasonable index to proxy forward looking replacement costs. The continued use of RPI for indexation of RAV assets therefore represents as much a continuation of past regulatory practice – in the interests of regulatory stability and simplicity – than it does our view of how the replacement cost of BT's copper and duct will actually be affected (for example, the cost of copper is driven by global demand and supply, not just domestic inflationary pressures).

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[121] See, for example, BT, *Financial review: Profit on sale of property fixed assets,* http://www.btplc.com/report/financial_fixedassets.shtml.

[122] The annual average of independent forecasts for RPI goes from 2.8% in 2014 to 3.2% in 2017 and for CPI the forecasts go from 2.1% in 2014 to 2.1% in 2017. See page 23, Medium-term forecasts of HM Treasury, *Forecasts for the UK economy: a comparison of independent forecasts*, February 2014, https://www.gov.uk/government/publications/forecasts-for-the-uk-economy-february-2014.

[123] In our analysis we have compared both the Openreach pay movement including and excluding capitalised pay.

3.154 A number of respondents to our consultation (BT, EE, Virgin) raised concerns about the consistency of using different indices or methods to estimate certain costs in our cost modelling (such as the post-1997 assets mentioned above) and for the indexation of the charge control.

3.155 We can confirm that the choice of inflation index to update the control each year would not affect the forecast end point for nominal charges. First, in respect of projected costs (which form the target point for the glide path calculation), we have forecast costs in nominal terms in light of our best view (informed by recent evidence wherever possible) of how nominal costs are likely to evolve. Second, the charge control formula which links current charges to forecast future costs is merely a mapping (in forecast terms) such that if RPI is projected to be above CPI, then a larger X in RPI-X would be required than the X in CPI-X.[124] Third, provided we have unbiased forecasts of both RPI and CPI, in expected terms the nominal charges in each year of the control under either a CPI- or an RPI-based cap would be the same. Differences in actual charges *ex-post*, would therefore only arise to the extent to which actual RPI and the CPI deviate from their forecasts.

Exogeneity

3.156 An important consideration in setting a charge control is that the index cannot be influenced by the regulated firm (or individual customers of that firm). Since the RPI and the CPI are both macroeconomic variables and are calculated by the ONS, each is exogenous to the actions of BT or its customers. No respondent disagreed with this principle.

Availability of independent forecasts

3.157 We typically use forecasts of inflation that are compiled by an independent body. Since the RPI and the CPI are widely used in the UK economy, they are regularly forecast by analysts.

3.158 A useful compilation of such forecasts is that produced by the UK Treasury in its publication "*Forecasts for the UK Economy: a comparison of independent forecasts*". From this publication, the average of the forecasts for 2017 is 2.1% for CPI and 3.2% for RPI.[125]

Regulatory predictability

3.159 Regulatory predictability is important for dynamic efficiency. However, regulatory predictability does not mean doing the same thing at every market review. Instead, it requires that regulatory decisions are clearly reasoned, consulted on, and that stakeholders are given sufficient notice of changes to regulation.

3.160 In its response to our consultation proposals, BT suggested that using RPI for the LLU and WLR charge controls would be consistent with our approach in the recent

[124] For example, today's MPF single migration price is £30.65 and we forecast target costs in 2016/17 to be £31.01 in nominal terms. If RPI is forecast to be 3.03% (on average), the RPI-X cap needs an X of 2.6%. If CPI is forecast to be 2.07% (on average), the CPI-X cap needs an X of 1.7%. By adjusting the value of X, as between RPI and CPI indexation, we should end up at the same nominal cost (in forecast terms).

[125] See page 23, Medium-term forecasts of HM Treasury, *Forecasts for the UK economy: a comparison of independent forecasts*, February 2014, https://www.gov.uk/government/publications/forecasts-for-the-uk-economy-february-2014.

Leased Lines Charge Controls and the Network Charge Controls. However, due to the timing of the announcements by the ONS and UKSA and the timing of our consultation proposals, we did not consider it appropriate to change our approach for the final statements regarding the Leased Lines Charge Controls or the Network Charge Controls.[126]

3.161 BT also argued that it would be simpler and more transparent to use one index, or method, across the charge control (i.e. both for modelling certain input costs and for indexing the control). However, as we have stated above, modelling input cost trends is a separate consideration to the indexation of the charge controls and they do not necessarily require a single approach.

Our decision

3.162 Having compared the CPI and the RPI, we have conclude that, on balance, it would be more appropriate to use the CPI to index these LLU and WLR charge controls. There is little difference in the way that the two indices perform against most of the factors, but in relation to "official status" in particular, we consider that the CPI is preferable.

3.163 In our July 2013 LLU WLR Consultation, we also proposed that CPI should be the default starting point for future controls, subject to a consideration of the five factors discussed above. In response to our consultation, ✂ agreed that our decision should apply across subsequent reviews. Whilst we would expect the framework we have developed to be relevant to future decisions, we recognise that each market review will have to consider the appropriate index for any charge controls necessary based on the circumstances in that particular case.

3.164 Similarly, in response to Virgin's suggestion that we launch a separate project to look at the issue of indexing charge controls, we consider that each market review is the appropriate place to make an assessment appropriate for each relevant market(s) affected and we do not intend to launch a separate project.

Duration of the LLU and WLR charge controls

3.165 In this sub-section, we set out our decision as regards the duration of the LLU and WLR charge controls. We conclude that it would be appropriate for the charge controls to continue until the end of March 2017. We explain in Section 19 of Volume 1 that we consider this to be consistent with the 2013 EC Recommendation.

Proposals in July 2013 LLU WLR Consultation

3.166 In paragraphs 3.127 to 3.138 of the July 2013 LLU WLR Consultation, we proposed a three-year charge control, from April 2014 to March 2017.

[126] See the respective market review statements for a full explanation of our approach to these charge controls: paragraphs 17.22-17.29, Ofcom, *Business connectivity market review*, 28 March 2013: http://stakeholders.ofcom.org.uk/consultations/business-connectivity-mr/final-statement/ (2013 BCMR Statement); and paragraphs 11.74-11.80, Ofcom, *Review of the fixed narrowband services markets. Statement on the proposed markets, market power determinations and remedies – Statement*, 26 September 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/nmr-2013/statement/Final_Statement.pdf.

Stakeholder responses to July 2013 LLU WLR Consultation

3.167 EE[127], Verizon[128], Virgin[129], Vodafone[130] and ✂ agreed with our proposal to set a charge control of three years' duration.

3.168 BT said[131] that it preferred charge control periods to be longer than three years, because the incentive effects of price cap regulation control were best realised through a longer charge control period. However, BT accepted that Ofcom's proposal for a three year duration was consistent with the EU Common Regulatory Framework. BT said that it "somewhat reluctantly" agreed that the controls should expire on 31 March 2017. It also noted that it was "*important that in future Ofcom's timeline should allow subsequent controls to run for at least three years*".

Our analysis

3.169 Under section 88 of the Act, we must take a view on what appears to Ofcom to be appropriate for the purpose of (among other things) promoting efficiency. We have therefore considered what duration of control will best promote efficiency and, in particular, will strike the appropriate balance between dynamic and allocative efficiency.

3.170 The periodic re-setting of new controls allows the regulator to ensure that allocative efficiency objectives are met by setting the new control to bring charges into line with costs. Dynamic efficiency is enhanced by not doing so immediately. All other things being equal, a longer charge control period creates stronger incentives for dynamic efficiency compared to a shorter period because a longer period gives the firm more opportunity to enhance its profitability through innovation and cost reduction.

3.171 Price cap regulation trades-off some allocative efficiency in return for greater dynamic efficiency. The longer the duration of the cap, the greater is the incentive to reduce costs, but the higher is the potential cost in lost allocative efficiency because prices can be out of line with costs for longer and perhaps by a greater amount. Shorter charge controls thus tend to give more weight to allocative efficiency, since prices have less scope to diverge from costs.

3.172 We are concerned that a short period would reduce the incentive on Openreach to innovate and make efficient investments and this could mean that dynamic efficiency was harmed. A short control would also make it more difficult for those using the BT WLR and LLU infrastructure to plan their own investments in capital and business processes/systems.

3.173 Conversely, given the extent of supply-side changes anticipated over this market review period (e.g. NGA investment, investment in systems and processes such as quality of service) as well as potential demand-side changes (e.g. demand for different voice and broadband forms of access) there is a risk of our forecast of efficient costs become outdated.

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[127] Page 14, EE Response to the July 2013 LLU WLR Consultation.
[128] Paragraph 20, Verizon Response to the July 2013 LLU WLR Consultation.
[129] Page 8, Virgin Response to the July 2013 LLU WLR Consultation.
[130] Page 14, Vodafone Response to the FAMR and the July 2013 LLU WLR Consultation.
[131] Paragraphs 220-221, Openreach Response to the July 2013 LLU WLR Consultation.

3.174 With some services having a degree of fixed costs, this means that, with all other things being equal, increased (decreased) volumes will decrease (increase) BT's average, or unit, cost of providing these services. This relationship between movements in costs resulting from volume changes is an important issue and forecast uncertainty would be exacerbated over time, potentially leading to over- or under-recovery of costs.

3.175 This forecast uncertainty would be mitigated by adopting a short charge control period. However, the shorter the control the less price certainty for Openreach and users of its services, which could reduce the strength of investment and efficiency incentives.

3.176 In the July 2013 LLU WLR Consultation, we considered that a three year charge control struck an appropriate balance between different efficiency considerations. This proposed that this ran from 1 April 2014 to 31 March 2017.

3.177 Due to the delay in completing this Statement, the charge controls we are now setting will take effect from 1 July 2014, rather than from 1 April 2014. Nevertheless, we have decided to keep the end date for the charge controls at 31 March 2017, giving a charge control duration of two years and nine months. Given this is only three months shorter than three years we considered in the July 2013 LLU WLR Consultation, we consider that the assessment of the duration is largely unchanged and that this strikes an appropriate balance in terms of the different efficiency considerations. Moreover, we consider that it would be advantageous to retain the end date for the charge controls at 31 March 2017, because this aligns with the financial year for Openreach. This would enable any future charge controls to be set using the financial year used by Openreach, which is likely to improve the transparency and reduce complexity for any such future controls.

Conclusion

3.178 For the reasons set out above we have decided that the LLU and WLR charge controls will have effect from 1 July 2014 to 31 March 2017, a duration of two years and nine months.

Section 4

Charge control design

4.1 In this Section we set out our decisions on the structure of the controls for LLU and WLR charges and related ancillary services. In particular, we set out our decisions with respect to:

- the LLU and WLR rentals;
- the treatment of new connections, single and bulk migrations, ceases, other LLU ancillaries, Co-Mingling New Provides and Rentals, and Tie Cable charges;
- the Enhanced Care services and Expedite Connection charges;
- the Caller Display charge; and
- other charge control related issues.

Summary of our decisions

4.2 For the reasons set out in the rest of this section, we have decided:

LLU and WLR rentals

- to set separate charge controls for MPF, SMPF and WLR rental services (see paragraphs 4.4 to 4.10);

SMPF and WLR Simultaneously provided services

- to set the charge controls so as to require a discount on the simultaneous provision of (i) WLR Conversion[132] and SMPF New Provide[133] (the "WLR+SMPF Simultaneous Migration" service), and (ii) WLR Connections[134] and SMPF New Provide (the "WLR+SMPF Simultaneous Connection" service) such that charges for these services reflect the efficiencies associated with their simultaneous provision (see paragraphs 4.17 to 4.23);
- not to require a charge discount on the simultaneous provision of other WLR and SMPF services which do not involve jumpering activity, as their simultaneous provision does not give rise to efficiencies (see paragraphs 4.24 to 4.25);

[132] This service refers to "Conversion of Local Loop Unbundling (LLU) Metallic Path Facility (MPF) to a single Wholesale Access line" in Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[133] This service refers to "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" in Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[134] This relates to the basket comprising WLR Standard Connection and WLR Start of Stopped MPF Line (see next sub-section).

LLU and WLR New Connections

- to set a charge control for a MPF New Provides basket comprising the following services: MPF Standard New Provide[135], MPF Stopped Line Provide (MPF SLP)[136] and MPF Working Line Takeover (MPF WLTO) (see paragraphs 4.40 to 4.46);

- to set a charge control for a WLR Connections basket comprising the following two WLR Connection Services (offered by Openreach that require engineering work at the exchange): WLR Standard Connection[137] and WLR Start of Stopped MPF Line[138] (see paragraphs 4.47 to 4.57);

- to set the charge controls on either of the two WLR Connection Services when simultaneously provided with SMPF New Provide (i.e. the WLR+SMPF Simultaneous Connections) such that their charges are brought in line with their volume-weighted average FAC by the end of the control period using glide paths (see paragraphs 4.58 to 4.67);

LLU and WLR Migrations

- to control all single and bulk migration charges at incremental cost (see paragraphs 4.83 to 4.89);

- to align the charges of all migration services involving jumpering and bring the aligned charge for these services in line with a target charge based on the volume-weighted average of the LRICs of these services by the end of the charge control period using glide paths (see paragraphs 4.90 to 4.97);

- to align the charges of all single migration services involving jumpering in the exchange (including SMPF New Provides) at the start of the charge control period, implying that we will reduce the current prices of WLR Conversions and WLR+SMPF Simultaneous Migrations to align them to the charges of the other migration services using one-off adjustments (see paragraphs 4.98 to 4.103);

- not to align the charge on WLR Transfers[139] with that of other migration services and instead bring its current price into line with its underlying LRIC by the end of the charge control period using a glide path (see paragraphs 4.106 to 4.110);

- to bring the currently aligned prices of MPF Bulk Migrations[140] and SMPF Bulk Migrations[141] into line with a single target charge based on the volume-weighted

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[135] This service refers to "MPF Connection charge - New Provide Standard" in Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[136] This service refers to "MPF Connection Charge Stopped Line Provide" in Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[137] This service refers to "Supply of new Basic line - Per line" in Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[138] This service refers to "Supply of new line - Per line – using previously stopped LLU MPF line" in Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[139] This service refers to "Line Transfer (inc Working Line Takeover and Starting of Stopped lines) Basic line - Per transfer" in Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[140] This service refers to "MPF Same CP Mass Migration charge - Normal hours" in Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.

average of their LRICs by the end of the charge control period using glide paths (see paragraphs 4.111 to 4.119);

Co-Mingling and Tie Cables

- to divide what was the Co-Mingling basket (in the charge controls we set in the March 2012 Statement) into two[142], by taking the Tie Cables services out of the Co-Mingling basket and placing them in a separate Tie Cables basket. We have renamed the remaining basket as the "Co-Mingling New Provides and Rentals" basket. We have set different Xs for each basket to reflect the differences in the current level of charge relative to costs (see paragraph 4.129);

LLU and WLR Ceases

- to set MPF Cease and SMPF Cease charges at zero (as under the previous charge controls) and recover the FAC of MPF and SMPF ceases from the MPF and WLR line rental charges, on an equal per line basis (see paragraph 4.140);

- to set a charge control for a basket of Hard Ceases services.[143] In addition to this Hard Ceases basket control, we have also decided to impose alignment of charges between MPF and SMPF Hard Ceases requiring similar engineering activity (see paragraph 4.154);

Other LLU ancillaries

- to set a charge control for a basket of "Other LLU ancillaries" [144], with the value of X for this basket set at the efficiency target set by us in our charge control modelling, i.e., 5%. In addition to the basket control, we require that the charges for those MPF and SMPF services that require similar engineering activity are equal (see paragraph 4.165);

Enhanced Care and Expedite Connection services

- to align LLU Enhanced Care service charges with WLR Enhanced Care service charges, but not to impose a cost orientation obligation or charge control on these services. The charges for both LLU and WLR Enhanced Care services must be fair and reasonable (see paragraph 4.185);

- to remove MPF and SMPF Expedite Connection charges from the respective ancillary baskets and not to impose any safeguard cap on MPF, SMPF and WLR Expedite Connection charges. The charges for MPF, SMPF and WLR Expedite Connection services must be fair and reasonable (see paragraph 4.199);

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[141] This service refers to "SMPF Bulk Migrations charge Normal Delivered during a 24 hour period" in Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[142] The full list of individual services in each one of these baskets is included in Annex 29.
[143] The "Hard Ceases" basket comprises MPF and SMPF MDF Remove Jumper Order Singleton Charge and MDF Remove Jumper Order Bulk Charge (as discussed under the heading on "Cease services").
[144] The full list of individual services in this basket is included in Annex 29.

Caller Display

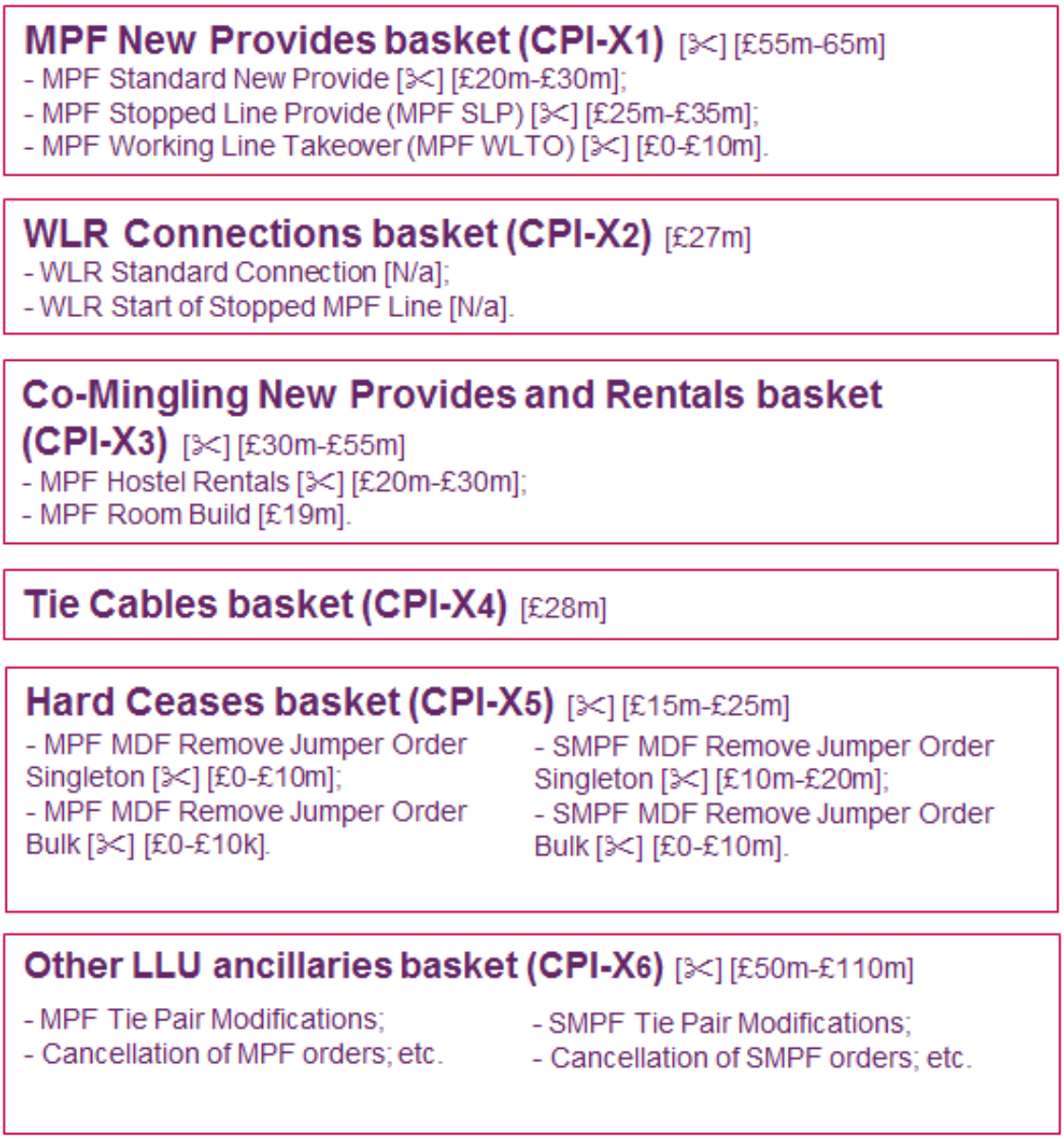
- to set a charge control for the Caller Display service. The wholesale price of Caller Display will be cut at the start of the charge control from £6.00 to £0.45, the level at which Openreach will cover the direct costs of providing the service. Common costs currently allocated to this service will be allocated across MPF and WLR lines as appropriate (see paragraphs 4.200 to 4.257);

Other charge control related issues

- to set prior year weights for basket control compliance (see paragraph 4.280);
- to set a sub-cap on each and every charge within a basket that will be the controlling percentage for the respective basket (CPI-X) plus 7.5% (see paragraph 4.291);
- to require Openreach to automatically make repayments to its wholesale customers of any amounts overcharged by reference to the charge controls (see paragraph 4.298); and
- not to impose cost orientation for services subject to a charge control (see paragraph 4.310).

4.3 Figure 4.1 below sets out the basket design structure diagrammatically. The basket revenue in 2011/12 is shown in square brackets (redacted or ranges provided where confidential). The references to X_1,…, X_6 are to different values of X in the CPI-X control which will be applied to each of the six baskets.

Figure 4.1: The six-basket structure



Note: the complete list of individual charges controlled in Other LLU ancillaries basket is available in Part 4 of Annex to Condition 7A in Annex 29.
Source: 2011/12 revenues in square brackets taken from BT's 2012/13 LLU WLR Compliance Statement and BT's 2012/13 RFS.

LLU and WLR rentals

Proposals in the July 2013 LLU WLR Consultation

4.4 In the July 2013 LLU WLR Consultation we proposed setting separate charge controls for MPF, SMPF and WLR rental services.[145]

[145] Paragraphs 4.28-4.36, July 2013 LLU WLR Consultation.

Stakeholder responses

4.5 Most stakeholders agreed that we should set separate charge controls for MPF, SMPF and WLR rentals, including EE[146], Sky[147], Vodafone[148], Verizon[149] and Virgin.[150]

4.6 Sky noted that core rental services are the most significant cost items and are therefore subject to a greater risk of adverse consequences as a result of excessive or unduly discriminatory pricing.[151] Vodafone did not consider it appropriate to allow Openreach more flexibility in setting the prices for core rental services given the different purchasing patterns of BT and other CPs.[152]

4.7 Openreach expressed its general preference to have broad baskets that provided greater flexibility in setting prices to reflect market demand and to align prices with costs over the charge control period.[153]

Our analysis

4.8 We received broad support from stakeholders for our proposal to set separate controls on MPF, SMPF and WLR rentals.

4.9 We consider that Openreach's proposal to control these services in baskets would be insufficient to protect downstream markets and ultimately consumers. As we explain in Section 3, we consider it important that the differences in charges between WLR/WLR+SMPF and MPF ultimately reflect differences in LRIC, because they are alternative wholesale inputs for the same downstream services. As set out in Section 6, we have decided to place the WLR, SMPF and MPF rental charges on a glide path such that the differences between WLR/WLR+SMPF minus MPF are equal to the differences in LRIC by 2016/17. We consider it important to give CPs clarity over the rate of change for each of these important rental services. This clarity can only be provided if they are individually controlled.

Conclusions

4.10 We have set separate charge controls for MPF, SMPF and WLR rental services.

Simultaneously commissioned and fulfilled services

Proposals in the July and December 2013 LLU WLR Consultations

4.11 In the July 2013 LLU WLR Consultation we proposed to require a discount on the charge of WLR Conversion when it is simultaneously provided with an SMPF New Provide (which we refer to as "WLR+SMPF Simultaneous Migration"). This was to

[146] Page 17, EE Response to the July 2013 LLU WLR Consultation.
[147] Page 19, Sky Response to the July 2013 LLU WLR Consultation.
[148] Page 17, Vodafone Response to the July 2013 LLU WLR Consultation.
[149] Page 5, Verizon Response to the July 2013 LLU WLR Consultation.
[150] Pages 9-10, Virgin Response to the July 2013 LLU WLR Consultation.
[151] Page 19, Sky Response to the July 2013 LLU WLR Consultation.
[152] Page 17, Vodafone Response to the July 2013 LLU WLR Consultation.
[153] Page 45, Openreach Response to the July 2013 LLU WLR Consultation.

reflect the cost savings that could be achieved from the simultaneous provision of these two services, compared to sequential provisioning.[154]

4.12 Following comments from EE, in the December 2013 LLU WLR Consultation we extended the approach adopted for WLR+SMPF Simultaneous Migration to the simultaneous provision of WLR Connections and SMPF New Provide. We noted however that in the case of other services no efficiencies arose when these were provided simultaneously (as there were no synergies in terms of the jumpering work at the exchange). For these, we proposed to continue to rely on the charge controls we had already set on these services when supplied separately.

4.13 In addition, we proposed to re-allocate costs across services involving jumpering work at the exchange to address Openreach's concerns relating to under-recovery of the costs of providing these services, which arose out of our proposals in relation to simultaneously provided services.[155]

Stakeholder responses

Setting a charge control on simultaneously provided services involving jumpering

4.14 Verizon[156], EE[157] and another CP[158] agreed with our proposal to set a charge control to reflect the simultaneous provision of migration and connection services. Verizon considered that such material efficiency savings should be passed on to Openreach's customers and said that Ofcom's proposal ensured this. EE argued that our proposal to charge control WLR Start of Stopped MPF Line supported fair, technology neutral and vigorous competition going forward as the number of MPF lines in the UK grows.[159]

4.15 Openreach did not object in principle to the proposal to control the WLR Standard Connection and WLR Start of Stopped MPF Line when either was provided with SMPF New Provide.[160] However, it disagreed with the way we had defined simultaneous provision in the legal instruments (i.e. "ordered and purchased together"). It argued that there were situations where in spite of CPs ordering and purchasing the two services together they could not be provided simultaneously (e.g. if the CP had requested the two products simultaneously but with different customer required dates). Thus, it requested that we change the definition of simultaneous provision to services that are "delivered" at the same time (rather than just "ordered and purchased").[161]

Treatment of other services with no jumpering activity

4.16 Openreach[162], EE[163],Verizon[164] and another CP[165] agreed that in the case of the simultaneous provision of services that did not involve jumpering there was no rationale to support a lower combined charge because there were no cost savings.

[154] See Section 4 of the July 2013 LLU WLR Consultation.
[155] Paragraphs 6.101-6.127, December 2013 LLU WLR Consultation.
[156] Paragraph 55, Verizon Response to the December 2013 LLU WLR Consultation.
[157] Page 3, EE Response to the December 2013 LLU WLR Consultation.
[158] Question 6.2, ✂ Response to the December 2013 LLU WLR Consultation.
[159] Page 11, EE response to the December 2013 LLU WLR Consultation.
[160] Paragraph 386, Openreach Response to the December 2013 LLU WLR Consultation.
[161] Paragraphs 388-389, Openreach Response to the December 2013 LLU WLR Consultation.
[162] Paragraph 395, Openreach Response to the December 2013 LLU WLR Consultation.

Our analysis

We have decided to set charge controls on the simultaneously provided services that involve jumpering

4.17 As set out in the December 2013 LLU WLR Consultation, there are six possible services that might be required by CPs to connect/migrate to WLR and SMPF depending on the initial state of the line, namely:

- WLR Standard Connection[166] and SMPF New Provide[167];
- WLR Conversion[168] and SMPF New Provide;
- WLR Start of Stopped MPF Line[169] and SMPF New Provide;
- WLR Transfer[170] and SMPF Single Migration[171];
- WLR Start of Stopped WLR Line[172] and SMPF New Provide; and
- WLR Working Line Take Over[173] and SMPF New Provide.

4.18 These six possibilities are shown in Figure 4.2 below.

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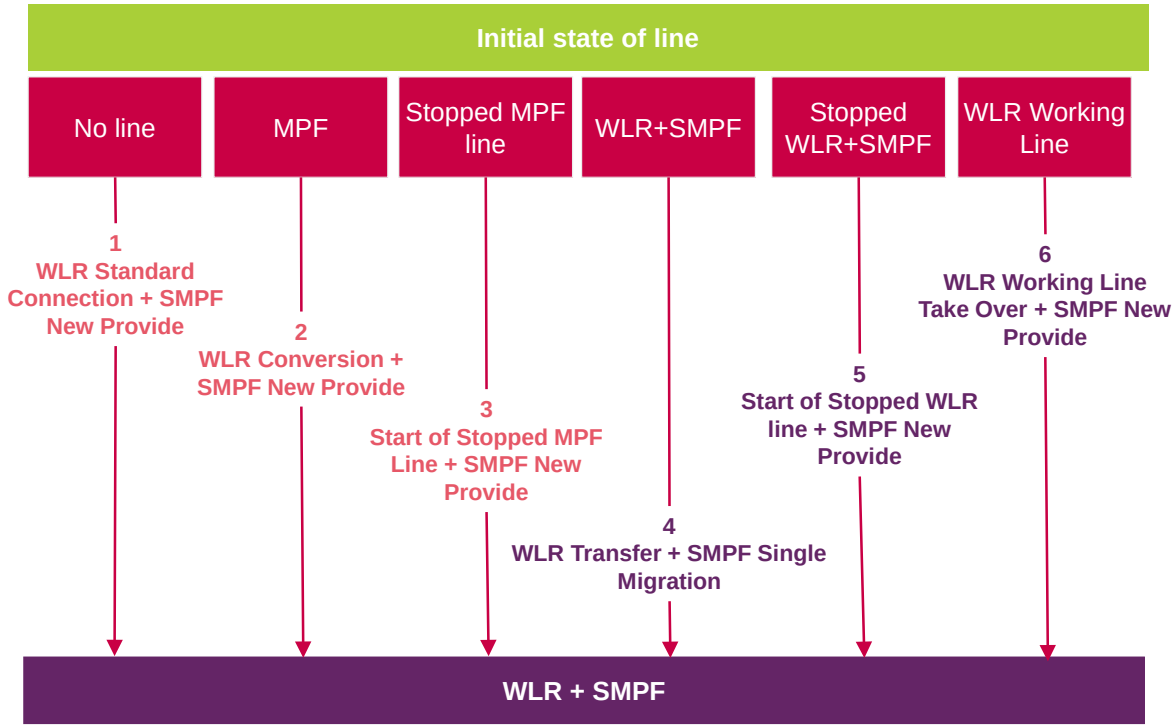
[163] Page 12, EE Response to the December 2013 LLU WLR Consultation.
[164] Paragraph 56, Verizon Response to the December 2013 LLU WLR Consultation.
[165] Question 6.3, ✂ Response to the December 2013 LLU WLR Consultation.
[166] Service "Supply of new Basic line - Per line" in Openreach's price list, http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[167] Service "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" in Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[168] Service "Conversion of Local Loop Unbundling (LLU) Metallic Path Facility (MPF) to a single Wholesale Access line" in Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[169] Service "Supply of new line - Per line – using previously stopped LLU MPF line" in Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[170] Service "Line Transfer (inc Working Line Takeover and Starting of Stopped lines) Basic line - Per transfer" in Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[171] Service "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" in Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[172] Service "Line Transfer (inc Working Line Takeover and Starting of Stopped lines) Basic line - Per transfer" in Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.
[173] Service "Line Transfer (inc Working Line Takeover and Starting of Stopped lines) Basic line - Per transfer" in Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadPricing.do.

Figure 4.2: Services required to migrate or connect a customer to WLR+SMPF



Source: Ofcom.

4.19 All of scenarios 1, 2 and 3 (depicted in pink) involve synergies in the exchanges when the two relevant services are simultaneously provided (e.g. a reduction in the number of jumper movements needed at the exchange compared to the two services being provided separately). We consider that the charges for these services should reflect the cost savings associated with simultaneous provision, as this reflects the underlying costs of provision.[174]

4.20 We have decided to set charge controls so as to reflect the cost savings associated with the simultaneous provision of the services in scenarios 1 to 3, because it:

- provides stronger incentives for cost efficiency than a cost orientation obligation; and
- offers less flexibility to Openreach than a cost orientation obligation and thus will be more likely to result in prices that more closely reflect incremental cost differences.[175]

4.21 We note that all stakeholders that submitted comments supported our approach to these three scenarios.

4.22 We discuss our approach to service 2 (which we refer to as WLR+SMPF Simultaneous Migration) when assessing single migration services below and explain our approach to services 1 and 3 (which we refer to as WLR+SMPF Simultaneous Connections) when discussing our approach to new connections below.

[174] This is what we proposed in the December 2013 LLU WLR Consultation. See paragraphs 6.111-6.115.
[175] Paragraph 6.116, December 2013 LLU WLR Consultation.

4.23 In relation to Openreach's comments on the definition of simultaneous provision in the legal instruments, we note that we have decided to amend the legal instruments to address its concerns. We now make clear that BT can charge separately for the underlying services where the CP requests (either directly or as an indirect consequence of another request) that those services should not be simultaneously provided. We believe that this addresses Openreach's concern.

We are not requiring a discount for simultaneously provided services where there are no synergies in the jumpering activity at the exchange

4.24 In Figure 4.2 above we have shown three additional scenarios (scenarios 4, 5 and 6) where, while the SMPF component requires work in the exchange, the WLR service does not. The WLR service required in each of these three scenarios is as described below:

- **Scenario 4 (migration from WLR+SMPF to WLR+SMPF):** in this case the CP only requires a WLR Transfer to migrate the WLR line;
- **Scenario 5 (provide a WLR+SMPF from a stopped WLR+SMPF line)**: the CP requires a WLR Start of Stopped WLR line; and
- **Scenario 6 (takeover of a WLR working line)**: the CP requires a WLR Working Line Take Over (WLTO).

4.25 In all three of these scenarios, the WLR service required (i.e. WLR Transfer, WLR Start of Stopped WLR line or WLR WLTO) relates to a systems update that Openreach needs to perform to transfer the line from one customer to another (with no jumpering work in the exchange involved). This implies that there will not be cost savings in terms of exchange work associated with simultaneously providing the WLR and SMPF services. For this reason, we have decided not to set charge controls requiring Openreach to provide a discount when these services are provided simultaneously, as proposed in the December 2013 LLU WLR Consultation. We note that all stakeholders that commented on our approach supported the view that we should not charge control the simultaneous provision of these services.

Conclusions

4.26 We have decided to set the charge controls such that Openreach is required to provide a discount on the simultaneous provision of the following WLR and SMPF services:

- WLR Standard Connection and SMPF New Provide;
- WLR Start of Stopped MPF Line and SMPF New Provide; and
- WLR Conversion and SMPF New Provide.

4.27 We discuss our approach to setting the charge controls on the first two sets of services above when addressing new connection services below, and the last service when setting out our approach to single migrations below.

4.28 In contrast, we have decided that we should not require such a discount for the simultaneous provision of the following WLR and SMPF services (which do not require jumpering activity) as they do not give rise to efficiencies when provided simultaneously:

- WLR Transfer and SMPF Single Migration;
- WLR Start of Stopped WLR Line and SMPF New Provide; and
- WLR Working Line Take Over and SMPF New Provide.

4.29 To summarise, Table 4.1 below presents our approach to regulating simultaneously provided WLR and SMPF services.

Table 4.1: Regulation of WLR and SMPF services

From	To WLR+SMPF	Regulation March 2012 to 2014	Regulation from 1 July 2014	
			Individual service	Simultaneous Provision
No line	WLR Standard Connection	charge control	charge control	charge control
	SMPF New Provide	charge control	charge control	
MPF	WLR Conversion	cost orientation	charge control	charge control
	SMPF New Provide	charge control	charge control	
Stopped MPF line	Start of Stopped MPF Line	cost orientation	charge control	charge control
	SMPF New Provide	charge control	charge control	
WLR + SMPF	WLR Transfer	charge control	charge control	no charge control
	SMPF Single Migration	charge control	charge control	
Stopped WLR + SMPF	Start of Stopped WLR line	charge control	charge control	no charge control
	SMPF New Provide	charge control	charge control	
WLR Working Line	WLR WLTO	charge control	charge control	no charge control
	SMPF New Provide	charge control	charge control	

Source: Ofcom.

New connections

MPF New Provides basket

Proposals in the December 2013 LLU WLR Consultation

4.30 In light of the stakeholder responses to the July 2013 LLU WLR Consultation[176], in the December 2013 LLU WLR Consultation we proposed that there should be a

[176] See paragraph 6.12 of the December 2013 LLU WLR Consultation for a summary of what we proposed in the July 2013 LLU WLR Consultation and paragraphs 6.13-6.14 for stakeholder responses.

basket comprising the individual services MPF Standard New Provide, MPF Stopped Line Provide (MPF SLP) and MPF Working Line Takeover (MPF WLTO), which we referred to as the MPF New Provides basket. Our proposal was to set the X for this basket based on the information in BT's RFS for the MPF New Provides service, which is an aggregate comprising the same three individual services as in the proposed MPF New Provides basket. In particular, we proposed a control of CPI-1.75% for MPF New Provides basket.

Stakeholder responses

4.31 Openreach[177] broadly supported the proposed MPF New Provides basket, "giving Openreach the flexibility to set appropriate relative prices".

4.32 TalkTalk[178] said that our approach did not address the fundamental misalignment of prices and costs. The fundamental problem according to TalkTalk is that most of the cost of an engineer visit is recovered via the rental charge (rather than via the provision charge). Also, it said that the new basket approach "*might allow BT to distort charges in the basket to artificially discourage the use of New Provide (where it makes a marginal loss), and provide barriers to competition*".

Our analysis

4.33 We consider that there is merit in putting MPF Standard New Provide, MPF SLP and MPF WLTO together in one basket given that there is a degree of substitution between these services once a MPF line is already installed. This new basket will give Openreach the flexibility to adjust the relative charges of these three services such that they reflect cost differences, whilst having an appropriate charge constraint imposed by the basket control.[179]

4.34 We also note that revenues from MPF SLP and MPF WLTO in 2011/12 were significantly higher than in 2008/09 and 2009/10.[180] The increasing importance of these services is an additional reason to put them in a basket with the MPF Standard New Provide.

4.35 Another benefit from the establishment of the MPF New Provides basket is that the remaining services in the MPF and SMPF ancillaries baskets are largely comparable in terms of engineering activity (see 4.155-4.165 and 4.141-4.154 below for further details).[181]

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[177] Paragraphs 364-365, Openreach Response to the December 2013 LLU WLR Consultation.
[178] Paragraph 7.6, page 41, TalkTalk to the December 2013 LLU WLR Consultation.
[179] In the July 2013 LLU WLR Consultation we proposed an individual control of CPI-10.25% for MPF New Provide, while MPF WLTO and MPF SLP would be in the MPF basket under a charge control of CPI-8.5%. These proposals could decrease the charge differential between MPF New Provide and the potentially substitute services. This may not reflect the cost differences between the services and could potentially drive inefficient behaviour.
[180] See Template 5, BT's response to question 16 of the Eleventh LLU WLR BT Information Request received on 18 of October 2013. In 2008/09 and 2009/10 the total revenue for MPF SLP was less than ✂, while in 2011/12 was higher than ✂. In 2008/09 and 2009/10 the total revenue for MPF WLTO was immaterial ✂, while in 2011/12 was higher than ✂.
[181] In the July 2013 LLU WLR Consultation, the proposed MPF ancillaries basket comprised MPF WLTO, MPF SLP, MPF Hard Ceases and a set of "other MPF ancillaries" for which we do not have cost information, while the proposed SMPF ancillaries basket comprised services related to SMPF Hard Ceases and a set of "other SMPF ancillaries" comparable to "other MPF ancillaries". By

4.36 The creation of the MPF New Provides basket also has the advantage that the available RFS costs used in the calculation of the X for the basket match perfectly the services in the MPF New Provides basket. This is because BT's RFS service "MPF New Provides" exactly comprises the individual services of: MPF Standard New Provide, MPF WLTO and MPF SLP.

4.37 We consider that the constraints we are imposing, i.e., the overall basket control plus a sub-cap on each and every charge within the MPF New Provides basket will operate to prevent Openreach setting inappropriate charge differentials for the following reasons:

- First, services in the MPF New Provides basket are potentially substitutable and if there is a relative increase in the charge for one service, the charges for the alternative services must adjust accordingly so that the overall basket constraint is satisfied.

- Second, we have imposed sub-caps at CPI-X+7.5% (see paragraph 4.291) which will limit the rate of change in individual charges and, coupled with the overall basket control, restrict the scope to game the controls via the differential between charges in the basket.

4.38 We have considered other options to address the concern that Openreach raised in its response to the July 2013 LLU WLR Consultation about CPs using MPF Standard New Provide instead of MPF SLP or MPF WLTO, and giving rise to an unnecessary engineer visit.[182] This included considering individual controls on MPF SLP and MPF WLTO. However, there is no cost (FAC or LRIC) information available at this level of granularity, so it would be difficult to individually charge control these services with any accuracy. Alternatively, we could use MPF Standard New Provide to calculate the appropriate X for MPF SLP and MPF WLTO, however, reducing these service charges by the same percentage would still lead to a reduced charge differential (between MPF New Provide and MPF SLP, and MPF New Provide and MPF WLTO), as pointed out by Openreach.[183]

4.39 TalkTalk argued that the fundamental problem is that most of the cost of an engineer visit is recovered via the rental charge rather than via provision charges. We do not consider this is correct. We have set the MPF New Provides basket (and other provision charges) to recover fully allocated costs, so those charges should recover the cost of an engineer visit, where there is such a visit. We consider that there might be an argument that the costs for provisions would be understated to the extent that Early Life Failures are higher than In Life Failures, but we consider there are particular reasons for not wanting to reflect this in the charge controls we have set, as explained in paragraph A13.26. Moreover, even if it were the case that part of the cost of an engineer visit was recovered through the rental charge rather than the provision charge, charges would still be set to reflect costs when the provisions and rentals were considered together. We therefore do not consider there is any fundamental problem with the way we have set provision charges.

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removing MPF SLP and MPF WLTO from the MPF ancillaries basket, the MPF ancillaries basket becomes more similar to the SMPF ancillaries basket.

[182] See paragraph 6.13 to 6.14 of the December 2013 LLU WLR Consultation for a summary of Openreach's response to the July 2013 LLU WLR Consultation.

[183] Paragraph 277, p. 50, Openreach Response to the July 2013 LLU WLR Consultation.

Conclusions

4.40 We have decided to impose a charge control on a basket of services referred to as the MPF New Provides basket. This will comprise the MPF Standard New Provide, MPF SLP and MPF WLTO services. We have set the basket average charge to align with projected FAC by the end of the charge control period.

SMPF New Provide

Proposals in the July and December 2013 LLU WLR Consultations

4.41 In the July 2013 LLU WLR Consultation we proposed to set a charge control for SMPF New Provides at LRIC to to meet the two constraints from the LRIC differentials comparison (i.e. that the charge differentials between WLR vs MPF and between WLR+SMPF vs MPF each reflected the LRIC differentials).[184] In the December 2013 LLU WLR Consultation we revised our proposal and proposed to set the SMPF New Provide charge at FAC. This was to ensure that our treatment of this service was consistent with our approach to other connection services (charge controlled at FAC). We noted that the level of the resulting control was closer to the control of aligned migration services, addressing TalkTalk's comments to the July 2013 LLU WLR Consultation. In addition, this approach avoided having to re-allocate unrecovered common costs from SMPF New Provides to WLR and MPF rental charges.[185]

Stakeholder responses

4.42 One CP agreed with our approach to the SMPF New Provide service proposed in the December 2013 LLU WLR Consultation. [186]

4.43 Openreach considered that our proposal to set the price of SMPF New Provides at FAC and move away from DLRIC created an inconsistency with the treatment of other potentially substitutable products. It expressed its preference that Ofcom should set prices so that CPs chose the products which minimise Openreach's costs. Openreach was concerned in particular that the price of SMPF New Provide would be below that of SMPF Single Migrations, which in its view would incentivise CPs to cease the previous line and re-provide on a completely new SMPF connection. Thus, it proposed that the price of SMPF New Provides be controlled at the same level of SMPF Single Migrations.[187]

4.44 TalkTalk argued that it was unclear why Ofcom was proposing to set SMPF New Provides at FAC when all other new provide and migration products had been set at LRIC. It argued that this had the potential to distort choices between products, and so lower consumer welfare. Thus, it argued that this service (as with all other new provide and migration products) should be set at incremental cost. However, it considered that on the "*basis of pragmatism [Ofcom's approach] was probably reasonable*".[188]

[184] See paragraphs 4.37-4.43, July 2013 LLU WLR Consultation.
[185] Paragraphs 6.50-6.53, December 2013 LLU WLR Consultation.
[186] Question 6.2, ✂ response to the December 2013 LLU WLR Consultation.
[187] Paragraphs 370-372, Openreach Response to the December 2013 LLU WLR Consultation.
[188] Paragraphs 7.3-7.5, TalkTalk Response to the December 2013 LLU WLR Consultation.

Our analysis

4.45 We agree with Openreach that controlling SMPF New Provides at a lower level than SMPF Single Migrations may distort CPs' incentives. In particular, we are now setting the charge controls such that there is a discount on the simultaneous provision of WLR Connection services and SMPF New Provide (i.e. the WLR+SMPF Simultaneous Connections). This WLR+SMPF Simultaneous Connection is likely to be used when connecting a new customer who wants voice and broadband. This implies that the SMPF New Provide service is only likely to be purchased on its own when CPs upgrade a customer from voice only (using WLR) to voice and broadband. Thus, in some circumstances (e.g. when a CP uses both WLR+SMPF and MPF in an exchange or if the end customer is considering switching to another LLU CP), there will be a choice between either connecting broadband to the WLR voice service using SMPF New Provide or migrate the customer entirely to LLU using MPF Single Migration. Both migration scenarios would require three jumper movements, yet under our December 2013 proposal the price of the SMPF New Provide was likely to be (slightly) below that of MPF Single Migration, meaning that it could distort CPs' choice for WLR+SMPF over MPF.[189] Thus, this would support aligning the control on SMPF New Provides at the same level as that for other migration services (charge controlled at a volume weighted average of their LRICs).

Conclusions

4.46 In light of the above, we have decided to align the control of SMPF New Provides to the same target control level as other migration services by the end of the charge control period. We explain in more detail the treatment of SMPF New Provides when analysing single migrations below.

WLR Connections basket

Proposals in the July and December 2013 LLU WLR Consultations

4.47 In the July 2013 LLU WLR Consultation we proposed to set a charge control on the WLR Standard Connection service (which we then called WLR New Connection) on its own.[190] In the December 2013 LLU WLR Consultation we revised our proposals (consistent with the changes we were introducing to the MPF New Provides) to control an additional WLR connection service within a basket consisting of the two WLR connection services offered by Openreach that require engineering work at the exchange, namely: WLR Standard Connection and WLR Start of Stopped MPF Line.

Stakeholder responses

4.48 Verizon and another CP[191] agreed that we should control the two WLR connection services within a basket, the latter noting that the two services were similar in terms of engineering work required at the exchange.[192]

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[189] This is due to the alignment of the charges of migration services to their volume-weighted average LRIC. As the majority of volumes of migrations relate to services with four jumper movements, this results in an aligned charge that is slightly above the charge of SMPF New Provide (which involves three jumper movements) at FAC.
[190] Paragraphs 4.37-4.43, July 2013 LLU WLR Consultation.
[191] Question 6.1, ✂ response to the December 2013 LLU WLR Consultation.
[192] Paragraph 51, Verizon Response to the December 2013 LLU WLR Consultation.

4.49 In contrast, Openreach said it did not understand the reasoning for including the two WLR Connections in the same basket. It noted that the volumes of WLR Start of Stopped MPF Line were very small compared with WLR Standard Connections. Although it agreed that these volumes were likely to increase in future, it considered that the size of the increase would not be of such a magnitude to warrant the changes to the basket.[193]

4.50 Openreach argued that, under our proposal, if Openreach needed to make a change to the basket in order to comply with the value of X in the legal instrument, it would need to change WLR Standard Connections in order to make a material difference given that changes to WLR Start of Stopped MPF Line would contribute little towards meeting the value of X due to its low volumes. It argued that this would drive down the price of WLR Standard Connections and narrow the gap between the two products, which in its view would incentivise inefficient CP demand towards WLR Standard Connections rather than WLR Start of Stopped MPF Line (even if the latter was more efficient operationally and economically). It therefore supported maintaining separate controls for these two products.[194]

4.51 In addition, Openreach argued that due to the low volumes of WLR Start of Stopped MPF Line the service was billed manually and that the necessary systems to bill this service automatically would not be ready until April 2015. Thus, it would not be possible to comply precisely with the control proposed at this time without a significant amount of manual work.[195]

Our analysis

4.52 Openreach argued that controlling both WLR Standard Connection and WLR Start of Stopped MPF Line within a basket was inappropriate because the differences in the volumes of the two services would force it to narrow the gap between their charges. We disagree with Openreach's view that a basket approach implies that it should necessarily focus price reductions on the service(s) with the highest volumes. A basket approach allows Openreach at least some flexibility to meet the charge controls through different combinations of changes in the prices of the services within the basket. Thus, Openreach will have some freedom (subject to the constraints of the basket control) to set the price differentials between WLR Standard Connection and WLR Start of Stopped MPF Line at the level it deems more appropriate.

4.53 In relation to the differences in the volumes of the two services, we have been unable to assess the differences in the volumes of each service as we requested actual and forecast volumes for WLR Start of Stopped MPF Line from Openreach under statutory information gathering powers[196] but Openreach was unable to provide these. We agree that currently there is likely to be some disparity in the volumes of each service because Openreach introduced the WLR Start of Stopped MPF Line service in November 2012 whereas the WLR Standard Connection service dates back to at least 2006.

4.54 However, we expect that the volumes of WLR Start of Stopped MPF Line are likely to increase quickly over the course of the charge control period, in part due to the increase in MPF lines (as further discussed in Annex 24). In fact, we forecast that the

[193] Paragraph 376, Openreach Response to the December 2013 LLU WLR Consultation.
[194] Paragraph 377, Openreach Response to the December 2013 LLU WLR Consultation.
[195] Paragraph 378, Openreach Response to the December 2013 LLU WLR Consultation.
[196] BT's response to question 12 of the Twelfth LLU WLR BT Information Request.

volumes of this service are likely to increase rapidly and overtake the volumes of WLR Standard Connections over the charge control period. We therefore disagree that to comply with our charge control Openreach would need to concentrate price changes on WLR Standard Connections due to the low volumes of WLR Start of Stopped MPF Line.

4.55 We recognise that our forecasts are assuming a substantial increase in the volumes of WLR Start of Stopped MPF Line. We explain the factors underlying this increase in Annex 24. On this, we note that the MPF Start of Stopped Line, a service similar to WLR Start of Stopped MPF Line, experienced a very substantial increase from approximately ✂ [less than one thousand] connections in 2009/10 to approximately ✂ [more than 600k] in 2011/12.[197] We also note that Openreach has not explicitly disputed our volumes forecast.

4.56 Openreach also argued that the WLR Start of Stopped MPF Line service is currently billed manually and that the systems to automate the billing process will not be available until April 2015. On this, we note that Openreach introduced this service in November 2012, we believe that a year and a half should be sufficient time for Openreach to automate the billing systems of this service and that we should not require its customers to pay higher prices to reflect any inefficiency resulting from a manual billing process.

Conclusions

4.57 In light of the above, we have decided to impose a charge control on the two WLR connection services offered by Openreach that require engineering work at the exchange (WLR Standard Connection and WLR Start of Stopped MPF Line) within a basket. Consistent with our general preference for setting charge controls at FAC (set out in Section 3), as well as our preference for bringing charges into line with their underlying costs through glide-paths (discussed in Section 6), we have decided to bring the charges of these two services in line with the basket's underlying FAC by the end of the charge control period using a glide path.

WLR+SMPF Simultaneous Connections

Proposals in the December 2013 LLU WLR Consultation

4.58 In the December 2013 LLU WLR Consultation we noted that we had proposed to set charge controls for the following two WLR connection services within a WLR Connections basket, namely:

- WLR Standard Connection; and
- WLR Start of Stopped MPF Line.

4.59 We therefore proposed to set the charge controls to reflect a discount associated with the simultaneous provision of either of these two services with SMPF New Provide. We called these services WLR+SMPF Simultaneous Connections. We proposed that the charge controls should be based on FAC and that charges should

[197] We derive these numbers from Openreach's revenue information submitted as part of BT's response to the Eleventh LLU WLR BT Information Request and our estimate of the average price from Openreach's price list for each year.

be brought in line with their underlying costs by the end of the charge control period using a glide path.[198]

Stakeholder responses

4.60 We only received two comments on our approach to WLR+SMPF Simultaneous Connections. EE disagreed that we should use a glide path to bring the charges of connection services to their FAC by the end of the charge control period and proposed instead that the relevant adjustments should be made up-front. It reiterated that a glide-path would result in unnecessary consumer welfare loss and competitive distortion by allowing Openreach to recover unduly high profits for the supply of these services for an unnecessarily extended period, whereas it considered that there were not such detrimental impacts likely to flow if Ofcom made a one-off adjustment at the beginning of the period.[199]

4.61 Openreach noted that Ofcom was proposing that the savings associated with the simultaneous provision of the services should be recognised in the WLR price only. It argued that this could lead to allegations that it was under-recovering its costs against WLR, thus, it requested that Ofcom explicitly assess this arrangement and confirm that we consider the discount to the WLR price to be fair and reasonable.[200]

Our analysis

4.62 In the previous sub-section we explained that we have set the charge controls for WLR+SMPF Simultaneous Connections to reflect the costs of simultaneous provision (for the reasons described in paragraph 4.20).

4.63 Consistent with our proposal in the December 2013 LLU WLR Consultation[201] we remain of the view that it would be preferable to bring WLR+SMPF Simultaneous Connections charges to their FAC by the end of the charge control using glide paths rather than one-off adjustments at the start of the charge control, as suggested by EE. We set out the reasons why we generally prefer glide paths in Section 6.

4.64 As we noted in the December 2013 LLU WLR Consultation, in response to statutory information requests, Openreach has told us that it does not hold information on the costs associated with the simultaneous provision of WLR and SMPF services. In the absence of cost information on simultaneously provided services, we proposed to use other services for which Openreach did report cost information to estimate the costs of those simultaneously provided services.[202] In Annex 8 we have updated our analysis and explain how we have derived the costs for WLR+SMPF Simultaneous Connections.

4.65 In terms of the implementation of the charge controls for these services, we remain of the view expressed in the December 2013 LLU WLR Consultation that it is appropriate to implement this decision by imposing the discount on the WLR service (i.e. either of the WLR Standard Connection or the WLR Start of Stopped MPF Line).[203] We note that our charge control arrangements ensure that charges for these simultaneously provided services are aligned with their underlying costs of supply.

[198] Section 6, December 2013 LLU WLR Consultation.
[199] Page 3, EE Response to the December 2013 LLU WLR Consultation.
[200] Paragraphs 390-391, Openreach Response to the December 2013 LLU WLR Consultation.
[201] Paragraph 6.117, December 2013 LLU WLR Consultation.
[202] Paragraph A11.3, December 2013 LLU WLR Consultation.
[203] Paragraph 6.118-6.121, December 2013 LLU WLR Consultation.

This means that where BT simultaneously provides these services, it is recovering what we have assessed to be the costs of doing so and there is, therefore, no under-recovery.

4.66 Our approach is therefore to forecast aggregate FAC for the WLR+SMPF Simultaneous Connections for the end of the charge control period and to impose annual discounts on the WLR Connection services such that by the end of the control period aggregate charges for WLR+SMPF Simultaneous Connections reflect these projected costs. To do this, we impose a charge discount on WLR Connections when provided simultaneously with SMPF New Provide of £12.82 in the first year of the charge control. In subsequent years, we then apply a CPI+X% annual change to the charge discount value in the previous year, with the Xs being +74.7% in 2015/16 and +31.1% in 2016/17. We present the expected charges for WLR+SMPF Simultaneous Connections following from this approach in Table 4.2 below. These are consistent with the methodology we have used to determine the underlying costs of simultaneously provided services explained in detail in Annex 8.

Table 4.2: Implementation of the charge controls on WLR Standard Connection or WLR Start of Stopped MPF Line when provided simultaneously with SMPF New Provide

	Product Name	Charge controls (£, nominal prices)		
		2014/15	2015/16	2016/17
a	WLR Connections	44.11	41.31	38.72
b	Sum of separate charge controls for WLR Connections and SMPF New Provide	74.89	72.19	69.73
c	WLR+SMPF Simultaneous Connections control	62.07	49.53	39.56
d	Discount needed on WLR Connections charges (b-c)	12.82	22.66	30.17

Source: Ofcom's calculations.

Conclusions

4.67 In line with our proposals in the December 2013 LLU WLR Consultation, we have decided to set the charge controls to reflect the simultaneous provision of SMPF New Provide with either of the two WLR connection services (i.e. WLR Standard Connection or WLR Start of Stopped MPF Line) by bringing their charges into line with their underlying FAC by 2016/17 using a glide path from current charges.

Same common cost recovery across connection services

4.68 In line with our approach in the July 2013 and December 2013 LLU WLR Consultations we make an adjustment to the charge controls on WLR Connections, MPF New Provides and WLR+SMPF Simultaneous Connections to ensure that each recovers the same amount of common costs per line by the end of the charge control period.

Single migration services

Proposals in the July 2013 LLU WLR Consultation

4.69 In the July 2013 LLU WLR Consultation we proposed to set a charge control on WLR Conversions and to reflect the reduced costs associated with the simultaneous provision of WLR Conversion and SMPF New Provides (which we call "WLR+SMPF Simultaneous Migration").[204] We considered that the preferred approach was to align their charge controls with that of other migration services, including MPF and SMPF Single Migrations (whose charges had been aligned since our previous decision in March 2012), from the start of the charge control.

4.70 In contrast, we considered that the control on WLR Transfers should not be aligned with these migration services because, unlike these other migration services, WLR Transfers did not require engineering work at the exchange (meaning that the underlying costs were substantially lower).[205]

4.71 In addition, we proposed that all migration services should be charge controlled at LRIC. In the case of the migration services described above, the aligned control meant that it would reflect the volume-weighted average of the LRICs of these services whereas in the case of WLR Transfers it would reflect the LRIC of this individual service. In both cases, we proposed that charges be brought into line with their underlying LRICs by the end of the charge control using a glide path.[206]

4.72 In the case of MPF and SMPF Bulk Migrations we proposed to take these services out of the ancillary services basket and control them separately. Consistent with the approach to single migrations we proposed that the charges for both services should be aligned and brought in line with their volume weighted average LRIC by the end of the charge control using glide paths.[207]

Stakeholder responses

Controlling migration charges at LRIC

4.73 Sky[208], Virgin[209], Vodafone[210], EE[211], TalkTalk[212], Verizon[213] and another CP[214] agreed that we should set migration charges at LRIC, as this would lower barriers to switching and foster increased retail competition. Sky noted that Ofcom's estimates of the LRICs of migration services were unlikely to be accurate but it nevertheless supported Ofcom's approach. Virgin noted that with a LRIC:FAC ratio of 0.93, setting charges at LRIC resulted in a marginal difference between the FAC and the LRIC. TalkTalk argued that pricing migration charges at LRIC or below was strongly in consumers' interests (and it referred to a third party report that it had commissioned that supported setting GEA Migration charges at or below LRIC).

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[204] Paragraphs 4.44-4.91, July 2013 LLU WLR Consultation.
[205] Paragraphs 4.115-4.131, July 2013 LLU WLR Consultation.
[206] Paragraphs 4.101-4.114, July 2013 LLU WLR Consultation.
[207] Paragraphs 4.132-4.161, July 2013 LLU WLR Consultation.
[208] Paragraph 7.3, Sky Response to the July 2013 LLU WLR Consultation.
[209] Page 10, Virgin Response to the July 2013 LLU WLR Consultation.
[210] Page 15, Vodafone Response to the July 2013 LLU WLR Consultation.
[211] Page 22, EE Response to the July 2013 LLU WLR Consultation.
[212] Paragraphs 5.2-5.3, TalkTalk Response to the July 2013 LLU WLR Consultation.
[213] Paragraph 35, Verizon Response to the July 2013 LLU WLR Consultation.
[214] Page 44, ✂ response to the July 2013 LLU WLR Consultation.

4.74 Openreach argued that the dynamic benefits of setting migration charges at LRIC were modest. It considered that migration services were services in their own right and not strictly speaking incremental to the existing service. Openreach argued that Ofcom's proposal risked users not facing the cost of the migration service in full (as the fixed and common costs of migration services would be recovered via the rental charge). Openreach considered that this risked stimulating inefficient demand for migration services. Openreach said that at a time when expected demands upon BT's engineering resources were expected to increase, setting a price which risked inefficient demand for migration services was against Ofcom's policy objectives of ensuring consistent levels of service.

Alignment of migration charges

4.75 TalkTalk[215], EE[216], Virgin[217], Vodafone[218] and another CP[219] broadly agreed with our approach.

4.76 TalkTalk supported the alignment of prices where services are similar, in particular, because this would eliminate BT's ability to manipulate the allocation of costs between products to meet its own objectives. However, it considered that there were benefits from having MPF connection prices set relatively lower than the WLR/SMPF connection prices, as there were dynamic efficiency benefits from MPF based competition when compared to WLR/SMPF competition (and referred to the third party report by AlixPartners submitted on its behalf supporting this view).[220] It also noted that Ofcom's approach of aligning migration charges penalised MPF (albeit slightly) since some of the MPF Migration services would be priced at the same level as WLR+SMPF in spite of having slightly lower incremental costs.[221]

4.77 EE supported aligning all migration services at the beginning of the charge control period (i.e. in 2014). It considered that this was the best approach to promote the interests of UK consumers, as had been demonstrated by the success of the Special Offer (i.e. Openreach's temporary price discount of the simultaneous provision of WLR Conversion and SMPF New Provide that we described in the July 2013 LLU WLR Consultation). EE said that it generally preferred each charge to reflect LRIC differentials, however, it appreciated that in some cases the estimates of LRIC were only proxies and thus setting charges to equal LRIC differences would only add complexity with not much additional accuracy.[222]

4.78 Virgin supported Ofcom's proposal as long as any reduction to an average LRIC allowed for recovery of common costs previously allocated to migration charges from the line rental cost. It suggested that Ofcom fully explained this in any final decision on the treatment of these charges.[223]

4.79 Vodafone supported a different approach in relation to WLR Transfer. It argued that Ofcom should use an approach similar to that for LLU Ceases whereby the cost was

[215] Paragraph 5.3, TalkTalk Response to the July 2013 LLU WLR Consultation.
[216] Pages 22-23, EE Response to the July 2013 LLU WLR Consultation.
[217] Page 11, Virgin Response to the July 2013 LLU WLR Consultation.
[218] Pages 15-16, Vodafone Response to the July 2013 LLU WLR Consultation.
[219] Page 44, ✂ response to the July 2013 LLU WLR Consultation.
[220] Paragraph 5.3, TalkTalk Response to the July 2013 LLU WLR Consultation.
[221] Paragraph 5.3, TalkTalk Response to the July 2013 LLU WLR Consultation.
[222] Pages 22-23, EE Response to the July 2013 LLU WLR Consultation.
[223] Page 11, Virgin Response to the July 2013 LLU WLR Consultation.

distributed across all users and included in the rental charge. It estimated that this would result in an increase of £0.23 per user.[224]

4.80 Openreach[225] and Verizon[226] disagreed with our proposal to align migration charges. Both expressed a preference for setting the charge controls based on individual costs (rather than aligning all services to a single charge). Verizon argued that the possibility that Ofcom's approach could distort efficient purchasing behaviour (as prices would not exactly reflect underlying costs) should have been sufficient to push Ofcom to favour setting charges based on individual costs. In the case of WLR Transfer, Openreach argued that we should bring the price into line with its incremental cost sooner. It noted that in the FAMR consultation we had proposed to bring down ISDN2 transfer prices to be in line with costs at the beginning of the control whereas in the case of WLR Transfers we had proposed to glide prices up to cost over three years. Openreach considered this inconsistent and suggested that we increase the price of WLR Transfers at the beginning of the charge control period.

4.81 Openreach reiterated that the automation of its billing systems were likely to cost more than its initial estimate of £75-150k and that it was likely to be delayed until 2015/16. Openreach argued that Ofcom had taken this into account when setting the charge control for the WLR+SMPF Simultaneous Connections but not in the case of WLR+SMPF Simultaneous Migrations, as in the case of the latter the discount applied from the start of the control. It considered that this inconsistency had not been properly explained in the December 2013 LLU WLR Consultation.[227]

Our analysis

Description of the services considered under single migrations

4.82 The main difference between the migration services offered by Openreach lies in the technology used by the gaining and losing CPs. In Table 4.3 below we present all single migration services discussed in this sub-section by gaining and losing provider.

[224] Pages 15-16, Vodafone Response to the July 2013 LLU WLR Consultation.
[225] Paragraphs 253-254, Openreach Response to the July 2013 LLU WLR Consultation.
[226] Paragraphs 36-38, Verizon Response to the July 2013 LLU WLR Consultation.
[227] Paragraphs 392-393, Openreach Response to the December 2013 LLU WLR Consultation.

Table 4.3: Types of migration services by gaining and losing provider

	Product Name	Jumper movements	To	From	Price[228]
1	MPF Single Migration	3	MPF	WLR	£30.65[229]
2	MPF Single Migration	4	MPF	WLR+SMPF	£30.65[229]
3	MPF Single Migration	2	MPF	MPF	£30.65[229]
4	SMPF Single Migration	4	WLR+SMPF	WLR+SMPF	£30.65[229]
5	SMPF New Provide	3	WLR+SMPF	WLR	£30.65[229]
6	WLR Conversion	3	WLR	MPF	£34.86[230]
7	WLR+SMPF Simultaneous Migration	4	WLR+SMPF	MPF	£65.51[231]
8	WLR Transfer	None	WLR	WLR	£3.39[232]

Source: Ofcom and BT price list.

We have decided to control migration charges at LRIC

4.83 In the July 2013 LLU WLR Consultation we considered several options for the cost standard to regulate the prices of migration services and ultimately proposed to control migration charges at LRIC.[233] Most stakeholders responding to our consultation have expressed their support for our proposal, with the only exception being Openreach.

4.84 In the July 2013 LLU WLR Consultation we noted that the difference between our estimation of the FAC and LRIC was small, as we obtained LRICs multiplying our forecast FAC by 0.93 (the LRIC:FAC ratio for migration services derived using BT's

[228] Prices as of 26 March 2014.
[229] Openreach price list's "MPF Connection charge - Singleton migrations (Transfer from WLR/SMPF or Change of CP migrations)" (http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=totid5BwFmkf9vLcBITRyZF9loRxWIbIKK6V7YWmlYAlMnGHsqdC0vzO163bJmh34D91D7M0q8u%2F%0AllSgtIFAKw%3D%3D).
[230] Openreach price list's "Conversion of Local Loop Unbundling (LLU) Metallic Path Facility (MPF) to a single Wholesale Access line" (http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=PgMT6eI2nnlo4hhO70Yda27EtHRtVUAuOBA%2F5MusDN1UNeIS4WkJBRh6z%2FRUAIt8maxtgrEro1A7%0Aw5V8nzAZpQ%3D%3D).
[231] This is the sum of the prices of WLR Conversion and SMPF New Provide.
[232] Openreach price list's "Line Transfer (inc Working Line Takeover and Starting of Stopped lines) Basic line - Per transfer" (http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=ccWy9ZJoVtf1gb2YRVL3pYSkcG%2Bc%2B30URCuKygKmgSNUNeIS4WkJBRh6z%2FRUAIt8maxtgrEro1A7%0Aw5V8nzAZpQ%3D%3D).
[233] These options were (i) maintaining the status quo; (ii) setting all migration charges to CCA FAC; and (iii) setting all migration charges at incremental cost, see paragraphs 4.103-4.111 of the July 2013 LLU WLR Consultation.

RFS data).[234] We consider this LRIC:FAC ratio remains valid for all migration services involving jumpering work at the exchange, however, in the case of WLR Transfers we have decided to use a LRIC:FAC ratio of 0.87. The reason for this is that WLR Transfers typically have a lower LRIC:FAC ratio (around 0.87[235]), as a greater share of the FAC of WLR Transfers reflects the costs of systems and overheads (which are shared with other services), while the incremental cost of the service is smaller. In contrast, for the migration services involving jumpering, a greater share of their FAC reflects the costs associated with the engineering work at the exchange (which is mostly incremental to the migration service).

4.85 In Table 4.4 we present the cost basis (FAC vs LRIC) currently used to regulate migration services and compare the final FAC and LRIC estimates from the Cost Model.

Table 4.4: Comparison of current regulation, FAC and LRIC of single migrations in 2016/17 (nominal prices)

	Product Name	Current control basis	FAC	LRIC	LRIC:FAC ratio
1	MPF Single Migration	Volume weighted FAC[236]	33.86	31.49	0.93
2	MPF Single Migration				
3	MPF Single Migration				
4	SMPF Single Migration	Volume weighted FAC[236]	33.14	30.82	0.93
5	SMPF New Provide	Volume weighted FAC[236]	28.59	26.58	0.93
6	WLR Conversion	No charge control	28.59	26.58	0.93
7	WLR+SMPF Simultaneous Migration	No charge control[237]	34.71	32.28	0.93
8	WLR Transfer	Below LRIC	9.90	8.61	0.87

Source: Ofcom.

4.86 In the July 2013 LLU WLR Consultation we noted that the current differences in the treatment of migration charges (as shown in Table 4.4 above) would be inconsistent with our approach, in this review, of aligning differences between charges for substitute services with incremental cost differentials. We also considered that applying the same treatment would simplify the regulation of these services and was also in line with demands from some stakeholders for aligning the charges of

[234] Paragraph 4.110, July 2013 LLU WLR Consultation.
[235] The LRIC and FAC is not available in BT's RFS for 2013 and 2012. The ratio was 0.89 (8.71:9.73) in 2011 and 0.86 (10.09:11.77) in 2010.
[236] Since our March 2012 Statement, the control is currently based on the volume-weighted average FAC of (i) MPF Single Migrations; (ii) SMPF Single Migrations and (iii) SMPF New Provides.
[237] We note however that one of the services underlying the WLR+SMPF Simultaneous Migration (i.e. SMPF New Provide) is currently charge controlled at FAC.

services with similar costs.[238] We remain of the view that it is appropriate to apply the same cost standard to all migration services.

4.87 In terms of the choice of cost standard between FAC and LRIC, we believe it is finely balanced in the case of migration services. Regarding Openreach's argument that CPs would not face the full cost of the migration service and that this may stimulate inefficient demand for migration services, we consider that in principle when prices are at incremental cost, this should stimulate efficient levels of consumption. However, we recognise that with common costs, prices at incremental cost mean that common costs have to be recovered elsewhere – and that this might affect the efficient consumption of these other services. But in this case, we would expect there to be benefits from setting charges closer to these services' incremental costs, i.e. from more effective switching and hence competition.[239]

4.88 However, as we discussed in the July 2013 LLU WLR Consultation[240], we consider that even if we set these charges at FAC we would need to make some adjustment to ensure consistency with our broader policy objective of setting charges that reflect incremental cost differences – i.e. to make sure that the charges for MPF vs WLR and MPF vs WLR+SMPF reflect LRIC differences. Moreover, we wish to address the current disparity in our treatment of migration charges: that is, some migration charges are subject to charge controls based on FAC (i.e. MPF Single Migrations and SMPF Single Migration/New Provide); others are subject to controls with charges below LRIC (i.e. WLR Transfers); and others are not subject to a charge control (i.e. WLR Conversion and WLR+SMPF Simultaneous Provide).

4.89 In light of the above, we have decided to regulate all migration charges on a consistent basis and, on balance, prefer to control all migration charges to LRIC rather than to FAC. In line with our proposals at the time of the July 2013 LLU WLR Consultation, we have decided that the difference between the LRIC and the FAC of migration charges is recovered from MPF and WLR rental charges on an equivalent per line basis. This results in a £0.2 re-allocation to rental charges on a per line basis in 2016/17.

We have decided to align all migration charges involving jumpering activity (including SMPF New Provides)

4.90 In the July 2013 LLU WLR Consultation we considered two options:

- **Option 1**: set individual charge controls for each migration service reflecting the underlying (incremental) cost of that service; and
- **Option 2**: align the charge control for all migration charges that involve jumpering.

4.91 We proposed to align the charge control for all migration services involving jumpering (i.e. Option 2), while we proposed to control the WLR Transfer service separately (as

[238] Paragraphs 4.105-4.106, July 2013 LLU WLR Consultation.
[239] That said, we recognise that the small difference between FAC and LRIC implies that both the benefits and costs of setting migration charges at incremental cost are likely to be modest.
[240] Paragraph 4.113, July 2013 LLU WLR Consultation.

it did not involve any engineering work at the exchange and thus had a much lower cost than the other migration services).[241]

4.92 As shown above, most stakeholders that commented on our proposals agreed with our approach. TalkTalk argued that there are dynamic efficiency benefits from having MPF connection prices set relatively lower than WLR/SMPF to favour competition based on MPF[242], however, it broadly agreed with our approach as it supported the alignment of prices where services are similar.

4.93 Vodafone commented that we should treat WLR Transfers as LLU soft ceases (i.e. re-allocate its cost to the rental charge and thereby distribute it across all WLR users). Contrary to Vodafone's view, we believe that there are important differences between soft cease charges and WLR Transfers. In particular, wholesale cease charges apply to losing providers and consequently these CPs have an incentive to pass-on these costs to their end-users in the form of retail charges if they decide to switch to another CP. In contrast, such an incentive is less prevalent in the case of WLR Transfers because these charges apply to the gaining provider. In addition, as discussed above, we consider it preferable to adopt the same approach for all migration services as this would simplify our treatment of migration services. Furthermore, we believe that applying a different approach for WLR and MPF migration services could distort CPs' choice of these different technologies.

4.94 Openreach and Verizon opposed our approach and supported instead setting the charge controls to reflect the underlying (incremental) cost of the individual service (i.e. Option 1). We continue to believe that Option 2 is preferable for the reasons we set out in the July 2013 LLU WLR Consultation:

- it would result in a simplified set of prices paid by CPs (i.e. two charges) compared to Option 1 (i.e. six charges); and

- it would avoid the risk of spurious accuracy that could arise if we set a target charge for each migration service based on its own individual LRIC.[243] This is particularly the case because we consider that the main driver of the differences between the LRICs of migration services is likely to be the number of jumper movements, yet the differences in costs shown in Openreach's figures are partially driven by other factors.[244]

4.95 We recognise that the main disadvantage of our approach is that migration charges would not precisely reflect the LRIC of each service, as suggested by Openreach and Verizon. However, we do not consider that this is likely to materially distort efficient

[241] We note that in the July 2013 LLU WLR Consultation this involved all migration services except SMPF New Provides, which we proposed to control separately at its individual LRIC (later in the December 2013 LLU WLR Consultation we proposed to control it at its individual FAC, as discussed above). For the reasons considered above in paragraphs 4.45 to 4.46, notably the changes introduced to the simultaneous provision of WLR Connections and SMPF New Provides (i.e. the WLR+SMPF Simultaneous Connections), we have decided to revise our proposals in the July 2013 and December 2013 LLU WLR Consultations and align the control on SMPF New Provides with that on other migration services.
[242] We have set out why do not consider it is necessary or desirable to set charges to promote MPF-based competition in Section 3.
[243] For example, we lack detailed cost information on some of the migration services (namely, WLR Conversion and WLR+SMPF Simultaneous Provide) and have had to use proxies (as described earlier in this section).
[244] Paragraph 4.128, July 2013 LLU WLR Consultation.

purchasing behaviour or competition because the incremental costs of services involving jumpering activity appear to be similar. In fact, Table 4.3 above shows that the largest difference in terms of jumpering movements between migration services is two (albeit in most cases it is limited to a difference of just one jumper movement, given that the majority of services have either three or four jumper movements). In the Single Jumpered MPF Dispute we estimated that the cost associated with a single jumper removal was approximately ✂[£1.5-£3] (see paragraph 4.105 of the Single Jumpered MPF Dispute). Although this difference is not negligible, we do not consider it is sufficient to drive inefficient (e.g. excessive) demand for migration services. In addition, Table 4.3 also shows that the approach is broadly neutral in terms of the choice of technology (i.e. WLR/SMPF vs. MPF), as both WLR/SMPF and MPF have underlying services with three and four jumper movements.[245] Thus, we consider the impact of our approach on competition or choice between technologies is likely to be limited and, on balance, we consider that it is preferable to simplify these charges through their alignment. We also note that most stakeholders have supported this approach.

4.96 In relation to Virgin's comment, we reiterate that we have re-allocated all common costs no longer recovered from migration charges to the MPF and WLR rental charges on a per line basis, as we proposed in the July 2013 LLU WLR Consultation.

4.97 In relation to Openreach's comment that our approach to WLR Transfers is inconsistent with that applied to ISDN2, we have explained the reasons why we believe the charges for ISDN2 should be brought in line with its costs using a one-off adjustment in Section 17 in Volume 1 of the FAMR Statement.

We have decided to align the charges of WLR Conversion and WLR+SMPF Simultaneous Migrations with the other migration services at the beginning of the charge control period using a one-off adjustment

4.98 As shown in Table 4.3 above the charges for some migration services are currently aligned (i.e. MPF and SMPF Single Migrations and SMPF New Provides), whereas others are not (i.e. WLR Conversions and WLR+SMPF Simultaneous Migrations). There is therefore a question as to whether we should apply a one-off adjustment to the prices of WLR Conversion and WLR+SMPF Simultaneous Migrations to align them with the charges for other migration services at the beginning of the charge control period or, instead, align them by the end of the charge control period using a glide-path.

4.99 We remain of the view expressed in the July 2013 LLU WLR Consultation[246] that we should align the prices of all migration services at the beginning of the charge control period. This would imply a one-off adjustment to the price of the WLR Conversion (from £34.86 to £30.77) and the simultaneous provision of WLR Conversion and SMPF New Provide (from £65.51 to £30.77) at the beginning of the charge control to bring the charges of these services into line with the other migration services involving jumpering. We believe that a one-off adjustment (rather than a glide path) would be more consistent with our objective of simplifying the current charges for

[245] All migrations to WLR/WLR+SMPF involve either three or four jumper movements. In the case of MPF Single Migrations, we explained in the July 2013 LLU WLR Consultation that the average number of jumper movements was ✂, showing that most migrations to MPF occur from either of WLR+SMPF (four jumper movements) or WLR (three jumper movements).
[246] Paragraph 4.122, July 2013 LLU WLR Consultation.

migration services (it would result in one single charge – rather than three – from the start of the control).

4.100 In relation to this, Openreach argued that our approach to WLR Conversion and WLR+SMPF Simultaneous Migrations (i.e. a one-off adjustment) is inconsistent with that used for WLR+SMPF Simultaneous Connections. We note that the purpose of the one-off adjustments we have decided to impose on these two migration services is to align their controls with the other migration services from the start of the charge control. The controls on these migration services have been aligned to a single charge based on the volume-weighted average of their FACs since our decision in the March 2012 Statement. We note however that once the controls on migration services involving jumpering are aligned to a single charge at the start of the control, we have decided to bring their charges into line with the volume-weighted average of their LRICs in 2016/17 by means of a glide path (rather than a one-off adjustment). Thus, we still consider that our approach to single migrations involving jumpering is consistent with our preference for bringing charges into line with costs by means of glide paths, as expressed in Section 6.

4.101 In contrast to WLR+SMPF Simultaneous Migrations, in the case of WLR+SMPF Simultaneous Connections we are not aligning the charge control to that of other services. For this reason, we are bringing its charges to the forecast FAC in 2016/17 by means of a glide path. We believe this approach is consistent with our treatment of migration services whereby we bring the aligned charges to the cost target in 2016/17 using a glide path (as described above).[247]

4.102 In addition, Openreach argues that the delay in the automation of its billing systems until 2015/16 justifies delaying the alignment of WLR Conversion and WLR+SMPF Simultaneous Migrations with the charges for other migration services until that date, to allow it to recover the higher costs of a manual billing system (as opposed to an automated system). We estimate that the additional cost from having manual billing rather than automated billing in 2014/15 is likely to be around ✂[£0-300k][248]. We therefore remain of the view that it is preferable to align all migration charges from the start of the control, as any alternative approach would not be consistent with our objective of simplifying migration charges from the start of the charge control period.[249]

4.103 In Table 4.5 we present the expected charges of migration services following our final decision and compare them with their underlying expected costs.

[247] We also note that this approach is consistent with our treatment of WLR Transfers where we are bringing its current charges below LRIC to its individual LRIC by the end of the charge control period using a glide path.
[248] We estimate that there will be 799k WLR+SMPF Simultaneous Migrations in 2014/15 and we estimate that the unit cost difference between a manual and an automated billing is ✂ [£0-£0.50] (this follows our assumptions in Annex 8).
[249] We note that the automated billing will be introduced by Openreach to support both simultaneous migrations and connections, and that we are bringing charges in line with cost through a glide-path in the case of the latter. This means that the charge control on simultaneous connections will be in excess of its underlying FAC in 2014/15. We estimate that this excess revenue will exceed the costs associated with automating Openreach's billing systems for both services, meaning that Openreach will be able to recover these costs fully.

Table 4.5: Expected costs and charges of migration services under Option 2 (nominal prices)

	Product name	Jumpers moved	Price		FAC	LRIC	LRIC:FAC ratio assumed
			(14/15) [250]	(16/17)	(16/17)	(16/17)	
1	MPF Single Migration	3[251]	30.77	31.01	33.86	31.49	0.93
2	MPF Single Migration	4[252]					
3	MPF Single Migration	2[253]					
4	SMPF Single Migration	4			33.14	30.82	0.93
5	SMPF New Provide	3			28.59	26.58	0.93
6	WLR Conversion	3			28.59	26.58	0.93
7	WLR+SMPF Simultaneous Migration	4			34.71	32.28	0.93
8	WLR Transfer	None	4.63	8.61	9.90	8.61	0.87

Source: Ofcom.

Implementation of the charge control on WLR+SMPF Simultaneous Migrations

4.104 We remain of the view expressed in the July 2013 LLU WLR Consultation that, to comply with the charge controls on WLR+SMPF Simultaneous Migrations, Openreach should apply a discount to the charge on WLR Conversion. This is consistent with our approach to WLR+SMPF Simultaneous Connections described above from paragraph 4.65. As noted earlier, the cost modelling used to derive the costs of WLR Conversion and WLR+SMPF Simultaneous Migrations is explained in Annex 8.

4.105 In order to achieve the alignment of the charge of WLR+SMPF Simultaneous Migrations with other migration services from the start of the charge control we propose to require Openreach to discount the price of the WLR Conversion by the price of the SMPF New Provide in each year of the control. This will ensure that the sum of the two prices (i.e. the discounted price of WLR Conversion and the full price of SMPF New Provides) is equal to the charge control on all migration services. In effect, this means setting the WLR Conversion charge to zero when it is simultaneously provided with the SMPF New Provide, as shown in Table 4.6 below.

[250] In the case of Option 2 we show the charge control in 14/15 to reflect that all charges of migration services involving jumpering would be aligned under this option.
[251] Migration from WLR to MPF.
[252] Migration from WLR+SMPF to MPF.
[253] Migration from MPF to MPF.

Table 4.6: Implementation of the charge control on WLR Conversion when provided simultaneously with SMPF New Provide

	Product Name	Charge controls (£, nominal prices)		
		2014/15	2015/16	2016/17
	Aligned price of migration services	30.77	30.88	31.01
a	WLR Conversion	30.77	30.88	31.01
b	SMPF New Provide	30.77	30.88	31.01
c	Discounted price of WLR Conversion (a-b)	0.00	0.00	0.00
d	WLR+SMPF Simultaneous Provide (b+c)	30.77	30.88	31.01

Source: Ofcom's calculations.

We have decided to control WLR Transfers separately and to bring its charges in line with its LRIC by 2016/17 using a glide path

4.106 Our approach to WLR Transfers remains unchanged since the July 2013 LLU WLR Consultation.[254] We have decided not to align the control on WLR Transfers with the other migration services. This is because WLR Transfers do not involve any jumpering activity – it only requires a systems update – meaning that its underlying costs are very different to those of the other migration services (as shown in Table 4.5 above). Thus, the alignment of charges with the other migration services would result in the price of WLR Transfers becoming significantly above its underlying cost.

4.107 Nevertheless, we have adopted a consistent regulatory treatment for all types of migration services in respect of the cost standard and the way we bring charges into line with costs over the control period. In other words, we are bringing the prices of WLR Transfers (which are below LRIC) in line with its LRIC in 2016/17 by means of a glide path. We have also noted above that contrary to our approach in the July 2013 LLU WLR Consultation we are using a LRIC:FAC ratio of 0.87 (rather than the 0.93 used for the other migration services) because, based on the available information for this service, we consider that it better reflects the LRIC:FAC ratio in recent years.

Conclusions

4.108 We have decided to set the charge controls on all migration services on the basis of their incremental cost, which we derive by multiplying the FAC of migration services by their corresponding LRIC:FAC ratio from BT's RFS.

4.109 We have decided to maintain the approach we adopted in the March 2012 Statement to align migration charges involving jumpering work at the exchange (including SMPF New Provide). In addition, we are bringing two additional services which were not

[254] Section 6, July 2013 LLU WLR Consultation.

previously charge controlled into the group of aligned migration services, namely: WLR Conversions and the simultaneous provision of WLR Conversions and SMPF New Provides (WLR+SMPF Simultaneous Migrations). We have decided that their charges should be aligned to the other migration services at the start of the charge control period using a one-off adjustment. From this single starting charge at the beginning of the control period we are bringing the aligned charges of these services into line with their volume weighted average LRIC in 2016/17 using glide paths.

4.110 In contrast, we have decided not to align the charge on WLR Transfers with that of other migration services (for the reasons described above). We nonetheless apply an approach consistent with the other migration services: that is, we will bring WLR Transfers prices (currently below LRIC) to its individual LRIC in 2016/17 using a glide path.

Bulk migrations

Proposals in the July 2013 LLU WLR Consultation

4.111 In the July 2013 LLU WLR Consultation we proposed that MPF and SMPF Bulk Migrations should be subject to a charge control at their incremental cost and that we should align their charges. We proposed that we should bring their charges to their underlying volume weighted average LRIC in 2016/17 using glide paths.[255]

Stakeholder responses

4.112 Openreach considered that Ofcom's proposal to remove MPF and SMPF Bulk Migrations from the ancillary services basket would allow a sufficient price difference between bulk and single migrations so as to encourage efficient choices between the two type of services. It therefore supported Ofcom's proposal to separately control MPF and SMPF Bulk Migrations to align their charges.[256]

4.113 A report submitted on behalf of EE supported the use of one-off adjustments rather than glide paths.[257] EE considered that our proposal to delay the adjustment of bulk migration charges to LRIC by the end of the charge control period was inconsistent with our proposal for single migrations and supported instead making such adjustment at the beginning of the charge control.[258]

Our analysis

4.114 In the July 2013 LLU WLR Consultation we discussed two options:

- **Option 1**: a single MPF and SMPF basket covering New Provides, Migrations and Ancillary services; and
- **Option 2**: to separately control MPF and SMPF Bulk Migrations to align their charges.

[255] Paragraphs 4.132-4.161, July 2013 LLU WLR Consultation.
[256] Paragraphs 255-258, Openreach Response to the July 2013 LLU WLR Consultation.
[257] Competition Economists Group, *Assessing the glide path for the removal of pricing distortions,* 4 September 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/EE_-_Annex_A.pdf.
[258] Page 6 and 24, EE Response to the July 2013 LLU WLR Consultation.

4.115 In the July 2013 LLU WLR Consultation we proposed that we should adopt Option 2 and this has been supported by EE and Openreach, the two stakeholders that commented on our approach. We remain of the view that separately controlling MPF and SMPF Bulk Migrations to align their charges to their volume-weighted average LRIC by the end of the control period is the preferable approach for the following reasons:

- first, it is consistent with our approach to Single Migrations, and we consider that the competition benefits from aligning migrations to LRIC (albeit modest) also apply to bulk migrations;
- second, it will ensure that the price differentials between Single and Bulk Migrations move closer to the difference in their incremental costs of provision by the end of the charge control; and
- finally, it ensures continuity with the way Openreach has priced LLU Bulk Migrations in the past (i.e. it has set the same prices for both MPF and SMPF Bulk Migrations).[259]

4.116 We have therefore decided to remove MPF and SMPF Bulk Migrations from the current ancillary services basket and set a separate control on each with a glide path from the charges in the base year to a single volume weighted average of the LRICs of MPF and SMPF Bulk Migrations.

4.117 In relation to EE's comment that the use of a glide path is inconsistent with our approach to single migrations, we note that, as explained in paragraphs 4.100 to 4.101 above, we are bringing the charges for single migrations from their current aligned charge to our forecast volume weighted average LRIC in 2016/17 using a glide path. Thus, contrary to EE's comment, we consider that our treatment of single and bulk migrations is consistent, and we believe justified because we believe there are good reasons for generally favouring glide paths as set out in Section 6.

4.118 We present the charge ceilings of LLU Bulk Migration services under our approach in Table 4.7 below.

[259] Paragraph 4.159, July 2013 LLU WLR Consultation.

Table 4.7: Charge controls for LLU Bulk Migrations under our approach (nominal prices)

	Charge		FAC	LRIC	LRIC:FAC ratio assumed
	(13/14)	(16/17)	(16/17)	(16/17)	
SMPF Bulk Migration	28.42[260]	21.55	23.06	21.44	0.93
MPF Bulk Migration	28.42[261]		23.17	21.55	0.93

Source: Ofcom and BT price list.

Our conclusions

4.119 Consistent with our proposals in July 2013 we have decided to align the charges of MPF and SMPF Bulk Migrations to their volume-weighted average LRIC in 2016/17 using glide paths.

Co-Mingling basket and Tie Cables basket

Proposals in the December 2013 LLU WLR Consultation

4.120 In the December 2013 LLU WLR Consultation[262] we proposed to divide what was the Co-Mingling basket into two, by taking the Tie Cables services out of the Co-Mingling basket and placing them in a separate basket subject to a charge control. We referred to the basket of remaining services as the "Co-Mingling New Provides and Rentals" basket.

Stakeholder responses

4.121 Openreach[263] said that it broadly supported the separation of the Co-Mingling ancillaries basket along the lines proposed. Also, it said that it was appropriate to include new products in the basket control and to remove those withdrawn from supply.

4.122 TalkTalk[264] considered that our "*move to split co-mingling and tie cables into separate baskets is imperative, and indeed should have been undertaken some time ago*".

4.123 EE[265], Verizon[266] and another CP[267] also broadly supported our proposed basket changes.

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[260] The charge has not changed since 1 April 2013, retrieved on March 2014, http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=LI%2BLzfp8sh2Y2DndjiRMoqOJDXc5GerAOSBb9tNt8RglMnGHsqdC0vzO163bJmh34D91D7M0q8u%2F%0AIlSgtIFAKw%3D%3D

[261] The charge has not changed since 1 April 2013, retrieved on March 2014, http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=totid5BwFmkf9vLcBITRyZF9loRxWIbIKK6V7YWmlYAlMnGHsqdC0vzO163bJmh34D91D7M0q8u%2F%0AIlSgtIFAKw%3D%3D

[262] See paragraphs 6.60-6.66, December 2013 LLU WLR Consultation.

[263] Paragraphs 373-375, Openreach Response to the December 2013 LLU WLR Consultation.

[264] Paragraph 7.4, page 41, TalkTalk Response to the December 2013 LLU WLR Consultation.

Our analysis

4.124 In the light of our proposal in the December 2013 LLU WLR Consultation and the responses received, we remain of the same view as in the December 2013 LLU WLR Consultation. In particular, we have decided to have separate baskets for Tie Cables and Co-Mingling services rather than a single basket (as in the March 2012 Statement) for the following reasons:

- First, from BT's 2012/13 LLU WLR Compliance Statement[268] and BT's 2011/12 RFS, we can see that the RFS service Tie Cables[269] shows an average charge above FAC, whereas the RFS services MPF Hostel Rentals and MPF Room Build show average charges below FAC.[270] This suggests that there is a benefit in having different basket controls to deal with the different charge misalignments between Tie Cables and MPF Hostel Rentals and MPF Room Build.

- Second, this approach separates services that are bought both internally and externally (Tie Cables) from those that are only bought externally (for example, MPF Hostel Rentals and MPF Room Build) as argued for by Sky and TalkTalk. We consider this is an advantage as it reduces the scope for gaming by Openreach (i.e., the risk of concentrating the charge decreases on services that are essentially for internal consumption, as a means for BT to gain a competitive advantage at the retail level).

- Third, a basket control for Tie Cables aligns more closely with the respective cost information available (in BT's RFS).

- Fourth, the revenues from Tie Cables (£28 million in 2011/12, according to BT's RFS 2011/12, page 55) are sufficiently material to suggest that a separate charge control may be appropriate.

4.125 We have calculated the value of X for the Tie Cables basket based on the Tie Cables RFS service. In particular, the value of X is derived from the average charge[271] (across individual services) for the "Tie Cables" service and our forecast of the FACs for 2016/17.

4.126 We calculate the X for the Co-Mingling (New Provides and Rentals) basket based on the costs and revenues for the RFS services of MPF Room Build and MPF Hostel Rentals. However, there is not a perfect mapping between these RFS services and the individual services in the basket (see Figure 4.3 below). While all the revenue related to MPF Room Build is included in our basket control, a significant fraction of

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[265] Page 11, EE Response to the December 2013 LLU WLR Consultation.
[266] Paragraph 51, Verizon Response to the December 2013 LLU WLR Consultation.
[267] See ✂ response to question 6.1 of the December LLU WLR Consultation.
[268] BT, *Openreach compliance statement for the LLU and WLR charge controls for the period 1 April 2012 to 31 March 2013,* 14 June 2013 (BT's 2012/13 LLU WLR Compliance Statement)*;*
[269] In BT's 2011/12 RFS (see p. 55) the average price of Tie Cables is above DSAC. Openreach reduced various Tie Cable prices in 2012/2013 to try to bring prices into line with DSAC, however, they are still likely to remain above FAC.
[270] As per BT's 2011/12 RFS, in 2011/12 the average charge–FAC misalignment for Tie Cables was £86.89-£45.11, for MPF Room Build was £12,793.57-£13,756.18 and for MPF Hostel Rentals was £4,720.79-£6,499.26.
[271] The average charge consists of weighting the charges for individual services comprised in the Tie Cables basket by their respective volumes. The full list of charges for the individual services within the Tie Cables basket can be found in Annex 29.

the revenue regarding MPF Hostel Rentals is not included in our basket control.[272] Given this, we make an adjustment to the revenue and forecast costs for MPF Hostel Rentals for 2016/17 to take into account that only a proportion of the RFS reported revenue is actually controlled in the Co-Mingling (New Provides and Rentals) basket.

Figure 4.3: Co-Mingling basket compared to the set of cost and revenue information for MPF Room Build and MPF Hostel Rentals

Source: Ofcom

4.127 We do not make any adjustment to the revenue or costs for MPF Room Build in 2016/17 as revenue from this service is fully included in the basket.

4.128 We have updated the list of products included in these baskets to include the new relevant products mentioned in Openreach Response to the July 2013 LLU WLR Consultation, while removing from the baskets those withdrawn from supply.[273]

Conclusions

4.129 We have decided to divide what was the Co-Mingling basket into two[274], by taking the Tie Cables services out of the Co-Mingling basket and placing them in a separate Tie Cables basket subject to a charge control. We have renamed the remaining basket as the "Co-Mingling (New Provides and Rentals) basket". We have set different Xs (in CPI-X) for each basket to reflect the differences in the current level of charge relative to costs.

Cease services

4.130 Cease charges are split into two types[275]: (i) soft cease (also known as flexi cease) charges which are charges for record keeping services (software only)[276]; and (ii)

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[272] One important difference is that the electricity revenues are included in the MPF Hostel Rentals RFS category, but are not included in the Co-Mingling New Provides and Rentals basket control. We have imposed a basis of charges obligation that requires BT to set electricity charges based on its relevant electricity purchase costs plus a small mark-up to reflect its own internal costs related to electricity purchasing and electricity charge setting. See "Pricing approach for electricity services" in Section 13 of Volume 1 of this Statement.
[273] Paragraphs 283-284, Openreach Response to the July 2013 LLU WLR Consultation.
[274] The full list of individual services in each one of these baskets is included in Annex 29.
[275] Paragraph 139, Openreach Response to the July 2013 LLU WLR Consultation.
[276] "Soft cease improves upon the previous cease order processes for MPF and SMPF, as it only records the cease and there is no actual removal of MDF jumpering. Soft cease applies to all cease orders placed in LLU, except managed cease orders." (Openreach on Flexi Cease, 2010, available at http://www.openreach.co.uk/orpg/aboutus/saveHitCount.do?data=HK4o86LRVAWuHU0PSfb%2BGT9E6qP%2FsmTAZmpKcyfg9vs2tuf0fhjPrb22lhOXPxqvpKoGTaXJ7Icm%0Asy7sla%2Bg%2BIRLFFokzliRp%2BpmZXrFW0xHzBKLriR%2F6YIBv6cZrks15f6VopYxCVHbQLyZR5wQwp6q%0AOLP3cFcbBZqCldk%2BLy9sT6vV7OQ7I9bUu3T%2FT5hL0KJO%2Bbp18Ca86b3zcCGZ5vfcWRGmt2Q%2BKZtU%0AgkQGefE%3D, login required).

hard cease charges which are charges for jumper recovery (i.e. physical removal of a jumper from the MDF), and should only occur once the respective soft cease has been executed (i.e. the line is ceased via software but jumpers remain in place). The majority of singleton ceases are soft ceases, involving no jumper recovery.[277]

Soft ceases

Proposals in the July 2013 LLU WLR Consultation

4.131 In the July 2013 LLU WLR Consultation we proposed to set both MPF and SMPF soft cease charges at zero (as also under the previous controls, set out in the March 2012 Statement).[278] We proposed to recover the MPF/SMPF soft cease LRICs from the respective line rental charges and their common costs from MPF and WLR line rental charges on an equivalent per line basis.[279]

Stakeholder responses

4.132 Virgin[280] agreed with our proposal and said that "*retaining the status quo in terms of charging is appropriate in relation to cease services*".

4.133 Vodafone[281] also agreed with our proposal.

4.134 Openreach[282] said that this adjustment (i.e., adding up the costs related to MPF and SMPF soft cease charges to the WLR and LLU rental charges) had not been made in our modelling. It said that, "*cease costs should therefore be added to WLR rental and MPF/SMPF rental costs and recovered in the rental prices*." Also, Openreach said that *"[i]n the current charge controls the price adjustment for ceases was approximately £0.30 per MPF (and WLR) Rental*". It estimated that an adjustment of similar monetary value should be made for these Charge Controls.

4.135 Another CP[283] disagreed with our approach. It said that our "*proposal has the effect of imposing a pseudo-minimum term on the wholesale CP purchasing these services at the average length of service over which the cease cost is amortised into the MPF and WLR rental charges and represents cross subsidy in ceases from loyal customers of a CP that don't wish to change service to those that regularly change, for whatever reason*". Also, it said that in order to avoid high Early Termination Charges (ETCs), we were proposing a higher monthly subscription as the consequence of the cross subsidy above.

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[277] See July 2013 LLU WLR Consultation, paragraph 4.165, where we say: *"[a]round 80% of LLU singleton terminations are data only ceases with the remaining 20% jumper removals."*
[278] The MPF and SMPF soft ceases correspond, respectively, to services "MPF Cease charge" and "SMPF Cease charge" as in Openreach's price list (available at http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPrices.do?data=%2Bs55xT91%2FPruY0Pxlyi4HVnqs1m6OcKz301sgolk8P2FdiaKKPEfrCsJCb3sZkzJ).
[279] See above the heading on "LLU and WLR rentals". Our decision on cost recovery for MPF/SMPF Cease is consistent with our proposal regarding cost recovery for rentals.
[280] See Virgin's response to question 4.9 in its Response to the July 2013 LLU WLR Consultation.
[281] See Vodafone's response to question 4.9 in its Response to the July 2013 LLU WLR Consultation.
[282] Paragraphs 29 and 138-142, Openreach Response to the July 2013 LLU WLR Consultation.
[283] See ✂ response to question 4.9 of the July 2013 LLU WLR Consultation.

Our analysis

4.136 We remain of the view that soft cease charges should be set at zero. This is for two reasons:

4.136.1 First, to mitigate the risk that CPs will levy cease charges in retail markets and so raise barriers to switching. The imposition of an LLU cease charge at the retail level may influence consumers to not switch providers. We are concerned that high ETCs could adversely affect competition and consumer switching. In particular, we are concerned that cease charges may not be transparent to consumers when choosing between CPs.[284] We have highlighted the importance of switching costs on competition in previous consultations and statements on consumer switching.[285]

4.136.2 Second, the incremental costs of the cease activity are relatively low.[286]

4.137 We have now included the forecast FAC related to MPF and SMPF soft ceases in the WLR and MPF rental charges on an equal per line basis. We consider this appropriate because any incremental costs involved in the different types of ceases are likely to be broadly similar and relatively low. Recovering the common costs (proxied by FAC as incremental costs are low) allocated to MPF and SMPF soft ceases from both MPF and WLR rentals will therefore be consistent with our decision for the differences between WLR/WLR+SMPF and MPF rental charges to equal the LRIC differences. This adjustment results in an increment of £0.34 per MPF and WLR line rental.

4.138 We acknowledge that there may be a degree of cross-subsidy from longstanding customers to customers that often change CP, and that costs related to ceases may increase in light of a slightly higher churn rate promoted by lower cease charges. However, we consider that this effect is outweighed by gains in terms of a more competitive market at the retail level.

4.139 In relation to the net effect on the monthly subscription price charged to retail consumers, on the one hand, it may increase due to an increase in the recovery of soft ceases from the rentals. On the other hand, there could also be downward pressure on retail monthly charges as cheaper ceases facilitate consumer switching and, ultimately, market competition.

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[284] See Ofcom, *Strategic review of consumer switching: A consultation on switching processes in the UK communications sector - Consultation*,10 September 2010, www.stakeholders.ofcom.org.uk/binaries/consultations/consumer-switching/summary/switching.pdf.

[285] See, for example, Ofcom, *Strategic review of consumer switching: A consultation on switching processes in the UK communications sector - Consultation*,10 September 2010, www.stakeholders.ofcom.org.uk/binaries/consultations/consumer-switching/summary/switching.pdf and Ofcom, *Consumer Switching. A statement on the GPL NoT+ elements – Statement,* 20 December 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/consumer-switching-review/statement/statement.pdf.

[286] As part of its response to question 4 of the Twelfth LLU WLR BT Information Request, BT informed us that the costs related to MPF and SMPF soft ceases only comprise costs related to Sales Product Management, Service Centre Provision and LLU Systems Development. As part of its response to question 5 of the Twelfth LLU WLR BT Information Request, BT informed us that in 2011/12 the LRIC for both MPF and SMPF soft ceases is ✂.

Conclusions

4.140 We have decided to set MPF Cease and SMPF Cease charge controls at zero. We have recovered the FAC of MPF and SMPF ceases from the MPF and WLR line rental charges, on an equal per line basis.

Hard Ceases (singleton and bulk jumper removal)

4.141 Hard ceases involve removing jumpers from the main distribution frame that would otherwise remain in place after consumers switch. Like migration charges, these cease costs can act as a barrier to switching if they are passed through to consumers.

Proposals in the December 2013 LLU WLR Consultation

4.142 In the December 2013 LLU WLR Consultation we proposed to separate out the Hard Ceases services into their own basket.[287] In addition to the basket control, we proposed requiring that charges for MPF and SMPF Hard Ceases (that required similar engineering activity) to be equal.[288] Also, we proposed to set the value of X for the Hard Ceases basket, based on the pooled costs and revenues forecast for MPF and SMPF Hard Ceases.

Stakeholder responses

4.143 In response to our December 2013 LLU WLR Consultation, Openreach[289] said that it was not clear what precise issue our proposal was intended to address. Also, it said that if we proceed with a Hard Ceases basket, the CPI-X control should reflect the operating cost efficiency target set by us in our modelling, provided such a target is achievable.

4.144 TalkTalk[290] said, regarding the recovery of WLR cease/jumper removal costs, that: "*It appears that whilst the cost of MPF ceases is recovered in MPF rental the cost of WLR ceases are recovered in MDF Hardware [cost component] which is then recovered from MPF and WLR (and possibly SMPF). This is not appropriate*."

Our analysis

4.145 According to BT, hard ceases may happen, for example, if "*the CP changes details as part of the order journey; this will always mean a reallocation of CP equipment and a jumper change*".[291] Also, there are 30 exchanges[292] marked as congested by Openreach. "*Any cease orders raised in these exchanges will trigger an internal jumper recovery order. In addition, at some exchanges, as part of a clean-up*

[287] See paragraphs 6.15 and 6.16 in the December 2013 LLU WLR Consultation for a summary of stakeholder responses to the July 2013 LLU WLR Consultation on hard ceases, http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-llu-wlr-charge-controls/summary/famr-2013.pdf.
[288] This is the alignment of charges between MPF and SMPF versions of: MDF Remove Jumper Order Singleton Charge, and MDF Remove Jumper Order Bulk Charge.
[289] Paragraph 366, page 80, Openreach Response to the December 2013 LLU WLR Consultation.
[290] Paragraph 2.71, TalkTalk Response to the July 2013 LLU WLR Consultation.
[291] See BT's response to question 19c of the Eleventh LLU WLR BT Information Request.
[292] See BT's response to question 19a of the Eleventh LLU WLR BT Information Request.

exercise, the system may trigger an internal jumper recovery order." "No charges are payable for the removal of these jumpers".[293]

4.146 As we proposed in the December 2013 LLU WLR Consultation, we have decided to separate out the Hard Ceases services into their own basket. This is partly because of the relative importance of these services in terms of the revenue they generate, which has grown over time.[294] Also, as Hard Ceases have been a growing product, splitting Hard Ceases from other LLU ancillaries should reduce the scope for Openreach to game the basket controls (see paragraphs 4.258-4.280 below for more on gaming prior year weights).

4.147 We also consider that there are no apparent disadvantages from splitting Hard Ceases from other LLU ancillaries. The common costs between Hard Ceases and the other LLU ancillaries appeared to be small.[295] Therefore, no pricing efficiencies should be lost.

4.148 We have decided to set the value of X for the Hard Ceases basket, based on the pooled costs[296] and revenues forecast for MPF and SMPF Ceases, and also to require that charges for MPF and SMPF Hard Ceases that require similar engineering activity are equal. We consider that this is appropriate because the MPF and SMPF charges are currently aligned, and there is a high level of similarity in terms of engineering activity involved in the MPF and SMPF variants of the Hard Ceases and we therefore expect the costs to be similar.[297] Because there is specific information available on the costs of Hard Ceases, we have decided it would not be appropriate to set the value of X based on the efficiency target alone.

4.149 We have considered TalkTalk's argument about the cost of WLR ceases, and whether there is likely to be a material misallocation of costs between MPF and WLR. BT has confirmed that if a CP ceases taking the WLR service on a line (and there is no migration to another Openreach product), that line is usually deactivated but the

[293] See Openreach's web-site on "Flexi Cease" (2010), (http://www.openreach.co.uk/orpg/aboutus/saveHitCount.do?data=HK4o86LRVAWuHU0PSfb%2BGT9E6qP%2FsmTAZmpKcyfg9vs2tuf0fhjPrb22lhOXPxqvpKoGTaXJ7Icm%0Asy7sla%2Bg%2BIRLFFokzliRp%2BpmZXrFW0xHzBKLriR%2F6YIBv6cZrks15f6VopYxCVHbQLyZR5wQwp6q%0AOLP3cFcbBZqCldk%2BLy9sT6vV7OQ7I9bUu3T%2FT5hL0KJO%2Bbp18Ca86b3zcCGZ5vfcWRGmt2Q%2BKZtU%0AgkQGefE%3D, log-in required).

[294] In 2012/13, the revenue for MPF and SMPF Ceases were, respectively, £11m and £3m. See page 78, BT's 2012/13 RFS. See revenues in 2008/09, 2009/10 and 2011/12 for MPF and SMPF MDF Remove Jumper Order Singleton Charge, and MPF and SMPF MDF Remove Jumper Order Bulk Charge in Template 5 of BT's response to the Eleventh LLU WLR BT Information Request. In 2008/09, the revenues for MPF MDF Remove Jumper Order Singleton and Bulk Charges were, respectively, ✂ and ✂. In 2011/12, the figures for the same services were, respectively, ✂ and ✂. In 2008/09, the revenues for SMPF MDF Remove Jumper Order Singleton and Bulk Charges were, respectively, ✂ and ✂. In 2011/12, the figures for the same services were, respectively, ✂ and ✂.

[295] This is evidenced by the LRIC:FAC ratio for both MPF and SMPF Hard Ceases, which in 2012/13 (allocations for 2012/13 are consistent with the allocations applied in the 2011/12 RFS) is approximately 92% (BT's response to question 5 of the Twelfth LLU WLR BT Information Request, received on 15 November 2013).

[296] The forecast Hard Ceases FAC in 2016/17 is adjusted to reflect the simultaneous migrations and connections cost adjustments (as described in Annex 8, paragraphs A8.20-A8.32).

[297] See Table 4.26, page 127 of the July 2013 LLU WLR Consultation for further details on the similarity in engineering activity between MPF and SMPF jumper removals.

jumpers remain in place.[298] This makes it easier to reactivate the line in the future if the WLR service is taken up again.

4.150 However, Openreach has informed us that there are some situations where WLR jumper removal does happen. These are: (i) cease orders from non-standard lines such as site offices; (ii) cease orders raised to relieve exchange congestion and free line plant; and (iii) stopped lines that are sometimes routinely ceased to use the pair at another premises, this can often happen as part of the home move scenarios or where the line technology is changing into the existing premises.[299]

4.151 Our view is that the volume of WLR jumper removals for the first two items is likely to be very small.[300] For the third case, jumpers are removed as part of a provision order, which means that the jumper removal costs will be captured in subsequent WLR or MPF new provision orders.

4.152 We also note that there are some parallels to MPF soft ceases. BT has confirmed that while jumpers are not normally removed when a MPF soft cease is requested, there are circumstances when a jumper is removed even when it is a soft cease.[301] For example, as with WLR, at the small number of congested exchanges, any cease orders raised will involve jumper recovery. The CP that ordered the MPF soft cease would not be charged for this jumper removal.[302] Openreach has told us that it does not have any data to confirm whether WLR soft ceases would be expected to be more, less or equally likely to require a jumper removal compared to a MPF soft cease.[303]

4.153 For these reasons, we consider that there is unlikely to be a materially inappropriate allocation of costs between MPF and WLR.

Conclusions

4.154 We have created a basket to separate out the LLU Hard Ceases from other LLU ancillary services. In addition to the LLU Hard Ceases basket control, we have imposed alignment of charges between MPF and SMPF Hard Ceases requiring similar engineering activity.

Other LLU ancillaries basket

4.155 The "Other LLU ancillaries" basket consists of the following services[304] (both the MPF and SMPF equivalents):

- Tie Pair Modification (three working day lead time Re-termination);
- Tie Pair Modification (Multiple Re-termination);

[298] See BT's response to question 19a of the Eleventh LLU WLR BT Information Request.
[299] See BT's response to question 19a of the Eleventh LLU WLR BT Information Request.
[300] We consider the number of site offices will be relatively small. Also, BT informed us that there are approximately 30 exchanges, out of 5,600, where congestion has been highlighted. See BT's response to question 19a of the Eleventh LLU WLR BT Information Request.
[301] See BT's response to question 19c of the Eleventh LLU WLR BT Information Request.
[302] *Ibid*.
[303] *Ibid*.
[304] Note that the "Other LLU ancillaries basket" also comprises the service "SMPF Flexi Cease Fault Investigation Charges", however, purchases of this service are negligible (revenue of ✂ in 2011/12, see BT's 2012/13 LLU WLR Compliance Statement).

- Cancellation of orders for Provide, Migration, Modification or Amend;
- Amend orders. Allowable change to Order; and
- Standard line test.

Proposals in the December 2013 LLU WLR Consultation

4.156 In order to address stakeholders' concerns in the July 2013 LLU WLR Consultation, in the December 2013 LLU WLR Consultation we proposed that it would be appropriate to divide the MPF and SMPF Ancillary Services baskets that were previously in place as a result of the March 2012 Statement.[305] Given our proposals on the MPF New Provides basket and the Hard Ceases basket, we proposed to put the remaining MPF and SMPF ancillaries services into a basket of "Other LLU ancillaries" (as described in paragraph 4.155). We proposed to set a charge control for that basket, where the value of X was set at the efficiency target proposed by us for our charge control modelling. In addition to the basket control, we proposed alignment of charges between MPF and SMPF services requiring broadly similar engineering activity.

Stakeholder responses

4.157 Openreach[306] supported "*a level of X in line with target efficiency, given the costs for this basket cannot be modelled, and costs are composed of categories that we could expect to be reduced through efficiency gains*". Also, it said that "*combining the remaining LLU ancillaries into a single basket across MPF and SMPF, and the new requirement in the legal instrument to align the price of comparable products seems sensible*".

4.158 Another CP[307] concurred with our new proposed approach.

4.159 TalkTalk[308] noted that "*BT has been unable to provide accurate cost/revenue information and so Ofcom has based the X solely on the efficient gain which is not ideal*". Furthermore, it said that "*it is important that BT does not gain from its inability to provide cost information since doing so would create a moral hazard*".

Our analysis

4.160 Given our decisions on the MPF New Provides basket and the Hard Ceases basket, we have decided to put the remaining MPF and SMPF ancillaries services into a basket of "other LLU ancillaries" services, as proposed in the December 2013 LLU WLR Consultation. The services covered by this basket are listed at paragraph 4.155 above.

4.161 For the MPF and SMPF ancillaries services in the "other LLU ancillaries" basket there is no robust cost information available at a granular level.[309] We do not think it

[305] See paragraphs 6.17-6.20 of the December 2013 LLU WLR Consultation for a summary of stakeholders' responses on other LLU ancillaries.
[306] Paragraphs 367-368, Openreach Response to the December 2013 LLU WLR Consultation.
[307] See ✂ response to question 6.1 of the December 2013 LLU WLR Consultation.
[308] Paragraph 7.8, TalkTalk Response to the December 2013 LLU WLR Consultation.
[309] BT has confirmed that it does not produce cost information to this level of granularity in a readily available format. See: BT's response to the draft Eighth LLU WLR BT Information Request (in particular, letter from Alan Lazarus, Director of Regulatory Affairs, Openreach to David Clarkson,

would necessarily be appropriate to use the same X derived for the Hard Ceases basket for the charges for other MPF and SMPF ancillaries. This is because the other ancillaries may have different misalignments between charges and costs compared to the Hard Ceases. Without any good evidence on the degree of charge-cost misalignment for the other ancillaries, we have decided that the efficiency target set by us in our charge control modelling, i.e. 5%, is the most appropriate value to use for the X for the other LLU ancillaries basket.

4.162 We have also decided to require that charges for MPF and SMPF ancillary services in the "other LLU ancillaries" basket that require similar engineering activity are equal.[310] Charges for these services are currently aligned, and there is a high level of similarity in terms of engineering activity and, as a result, in terms of expected costs.[311] This requirement ensures that Openreach cannot favour SMPF (used by BT downstream) at the expense of MPF.

4.163 As in the December 2013 LLU WLR Consultation, we remain of the view that an 8-basket structure (i.e., creating MPF and SMPF versions of the Hard Ceases basket and the other LLU ancillaries basket) is unnecessary and more complex in terms of compliance.[312]

4.164 We agree with TalkTalk that is not ideal using the efficiency target rather than setting the charge control for this basket based on the specific costs of the products in the basket. In the future, we expect to have cost information on the specific services in this basket (at the basket level, rather than at the individual level) due to revisions to the way the BT's Regulatory Financial Statement is produced. This should reduce the risk of the "moral hazard" in the future that TalkTalk identifies.

Conclusions

4.165 We have decided to create a basket of "other LLU ancillaries" (as described in paragraph 4.155)[313] and set a charge control over that basket where the value of X is the overall efficiency rate we set for Openreach. In addition to the basket control, we require charges between MPF and SMPF services (that involve broadly similar engineering activity) to be equal.

Enhanced Care and Expedite Connection services

Enhanced Care services

4.166 Openreach offers four Service Levels for reported faults (SL1, SL2, SL3 and SL4), with the basic difference between these levels being the time period within which a

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Competition Policy Director, Ofcom, dated 28 May 2013 and entitled "Fixed Access Market Reviews: Approach to setting any future LLU and WLR Charge Controls. 8th Draft Notice requiring the provision of specified information under Section 135 of the Communications Act 2003"); and BT's response to question 3 of the Eighth LLU WLR BT Information Request.

[310] Given the similarity in terms of engineering activity, and likely similarity in terms of costs, we impose the alignment between MPF and SMPF charges for: Tie Pair Modification (3 working day lead time Re-termination); Tie Pair Modification (Multiple Re-termination); Cancellation of orders for Provide, Migration, Modification or Amend; Amend orders. Allowable change to Order; and Standard line test.

[311] See Table 4.28, page 133, in the July 2013 LLU WLR Consultation for further details on the similarity in engineering activity.

[312] See also paragraphs 6.43-6.44 in the December 2013 LLU WLR Consultation.

[313] The full list of individual services in each one of these baskets is included in Annex 29.

fault should be repaired. The SL included in WLR Wholesale Basic line rental is SL1 (repair by the end of the second working day after a fault is reported), while the SL included in the MPF and SMPF line rentals is SL2 (repair by the end of the next working day after a fault is reported). Higher SLs than those included in the respective rental services (i.e., Enhanced Care services) are available as a rental product (upgrade) or "on-demand" (Expedite Repair per occasion).[314] BT Wholesale is the biggest purchaser of Enhanced Care services.[315]

Proposals in the July 2013 LLU WLR Consultation

4.167 In the July 2013 LLU WLR Consultation we assessed Openreach's charges for LLU and WLR Enhanced Care services, and noted that these have not changed since the March 2012 Statement.[316] We proposed that the existing obligation on BT to align LLU Enhanced Care service charges with WLR Enhanced Care service charges should be retained and we considered that it would be unnecessary for a more interventionist approach involving charge controls or cost orientation. We also proposed that SL charges would continue to be required to be fair and reasonable.

Stakeholder responses

4.168 We received five stakeholder responses on Enhanced Care services. Openreach, Virgin and Vodafone agreed with our July 2013 LLU WLR Consultation proposal. TalkTalk and another CP disagreed with our proposal. In particular, TalkTalk proposed cost orientation or a charge control, while another CP proposed that no alignment of charges should be imposed (i.e., it proposed a lighter regulatory intervention on these services).

4.169 Openreach[317] agreed with the alignment of charges proposed. It said that "*[a]s these products have similar costs, Openreach agrees they should have similar prices*".

4.170 Virgin[318] agreed that "*it would be disproportionate to subject this service to a charge control and the current regulatory approach should be maintained*".

4.171 TalkTalk[319] noted that "*there is regulation that requires that prices for Enhanced Care services are aligned as between WLR and LLU*". "*This is welcome as it prevents discrimination*". However, it said that "*it does nothing to prevent excessive prices (for both WLR and MPF)*". TalkTalk expressed concern that charges for Enhanced Care services charges were in excess of cost (both for the rental products and as an Expedite Repair per occasion).

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[314] See Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=o1GUUZA4oSGmoXU5lc%2BgZQD265It6W32TNnfEUU7w1FZ6rNZujnCs99NbIKJZPD9hXYmiijxH6wr%0ACQm97GZMyQ%3D%3D.

[315] Paragraph 4.386, March 2012 Statement. Also, from Template 1 of BT's response to the Fourteenth LLU WLR BT Information Request and Openreach's price list, we concluded that in 2012/13 approximately ✂ of Enhanced Care rental volumes and revenues are internal to BT.

[316] Paragraphs 4.306-4.313, July 2013 LLU WLR Consultation.

[317] See Openreach's response to question 4.16 in its Response to the July 2013 LLU WLR Consultation.

[318] See Virgin's response to question 4.16 in its Response to the July 2013 LLU WLR Consultation.

[319] See TalkTalk, *Price regulation of enhanced services*, December 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/TalkTalk_Group_Price_Regulation_of_Enhanced_Services.pdf .

4.172 TalkTalk said that the fact that charges had not increased did not mean that charges were not excessive. If charges had been static (in nominal terms), they would have increased compared to cost (since costs fall due to efficiency improvements). Furthermore, it said that "*for some customers an enhanced service is not an optional "nice to have" but an essential service*".[320]

4.173 In light of the above, TalkTalk suggested imposing either a charge control or cost orientation. Of these, it considered cost orientation would be more appropriate.

4.174 As part of its response to the December 2013 LLU WLR Consultation, TalkTalk[321] also made the following observations on both Enhanced Care and Expedite Connection services.

a) BT has an incentive to price Enhanced Care/Expedite Connection (upgraded) services at or (due to strategic reasons) above the monopoly price.

b) The degree of substitution between upgraded services and the standard services is low. TalkTalk claimed that the charges for upgraded services are high and, thus, it appeared that this was evidence that there has been no competitive constraint.

c) The cost for upgraded services "*is very low and/or can in fact be derived*".

- In the case of Expedite Repair per occasion/Expedite Connections, these services are not guaranteed in the sense that if BT does not deliver them to the accelerated timescale there is no penalty/SLG (and BT does not collect any additional charge). Thus, BT may choose to only provide the service when there is spare resource that has very low opportunity cost.

- Ofcom has already estimated the costs of higher repair care levels (since this is needed to set the LLU and WLR charges), thus TalkTalk concluded that we should be able to make reasonably robust cost estimates for the upgraded services. If we decline to regulate and constrain charges on the basis that information is not available or it is unreliable, it may create moral hazard.

4.175 TalkTalk did not believe that the fair and reasonable obligation would be an effective constraint on BT's charges.

a) Ofcom proposed a different regulatory approach for upgraded services as compared to electricity, TRCs and SFIs (where we have imposed tighter charge regulation).

b) TalkTalk suggested that putting in place a data collection and monitoring obligation would allow future regulatory reviews to deal with the issue on upgraded services more thoroughly.

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[320] We acknowledge that TalkTalk addressed other secondary considerations, in particular related to arguments around innovation discussed in the March 2012 Statement (see paragraph 2.20, TalkTalk, *Price regulation of enhanced services*, December 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/TalkTalk_Group_Price_Regulation_of_Enhanced_Services.pdf). However, we note that in the July 2013 LLU WLR Consultation we did not use innovation on Enhanced Care services as an argument to sustain our proposals.

[321] Paragraphs 8.1 to 8.13, TalkTalk Response to the December 2013 LLU WLR Consultation.

4.176 Another CP[322] disagreed with our proposal. It said that "*forced alignment of charges can result in the effective cross subsidy between products that should compete with each other naturally*".

Our analysis

Alignment of LLU Enhanced care and WLR Enhanced care services

4.177 We have decided to retain the position as in the March 2012 Statement[323] and July 2013 LLU WLR Consultation[324] and to require Openreach to align LLU Enhanced Care service charges with WLR Enhanced Care service charges.

4.178 The rationale for our decision on alignment is:

- the costs for WLR and LLU enhanced care have the same nature (prioritisation) and are likely to be similar;
- to avoid undue price discrimination between WLR and LLU enhanced care (BT could have an incentive to price discriminate in favour of WLR and against LLU, as this favours BT's downstream divisions); and
- to impose a competitive constraint that limits the extent to which charges can be excessive for external CPs.

No charge control or cost orientation

4.179 Given stakeholder responses, we have reviewed whether existing or future LLU Enhanced Care services should be subject to a charge control or cost orientation obligation. We conclude that these services should be neither charge controlled nor cost orientated. Our reasoning is as follows.

4.179.1 There is currently no robust cost information available on the cost of these services. We have requested from Openreach the cost information for Enhanced Care services for the years 2010/11, 2011/12 and 2012/13. However, Openreach has responded that "FAC, LRIC or DSAC are not produced for these services"[325].

4.179.2 We do not consider it to be surprising that there is currently no robust cost information on the cost of Enhanced Care services. This is because it is not easy to determine the cost (even ex-post) because it is not a case of simply recording the time taken to repair the network. Rather the costs relate to the incremental cost of having a larger workforce to be able to deliver higher SL. This is difficult to estimate accurately.

4.179.3 This complexity is illustrated by our experience with cost differentials for SL1 and SL2.[326] To estimate this SL cost differential, we relied on a Resource Simulation model developed by Openreach for this specific purpose (Openreach claimed that it will use it for its internal management

[322] See ✂ response to question 4.16 of the July 2013 LLU WLR Consultation.
[323] Paragraph 4.398, March 2012 Statement.
[324] Paragraph 4.313, July 2013 LLU WLR Consultation.
[325] See BT's response to question 4 of the Fourteenth LLU WLR BT Information Request.
[326] See Annex 19 on "Service Level cost differentials".

purposes). In our December 2013 LLU WLR Consultation we stated that this was a complex[327] exercise that required estimating the difference in total resources (expressed in Full Time Equivalents, or FTEs)[328] for repairs under different scenarios by varying the proportion of repair jobs that were SL1 as opposed to SL2. In Annex 19, paragraph A19.3, we have also noted that the Resource Simulation Model provides an estimate of the engineering resource differential but does not include other inputs. We note that the above model does not take into account the existing Enhanced Care services SLs 3 and 4. Introducing such SLs would increase the modelling complexity and possibly the margin of error (e.g. the relationship may no longer be linear as in the service quality differential model).

4.179.4 Also, as Enhanced Care services require re-prioritising engineering work, it may be appropriate, at least in the short term, to consider the opportunity cost relating to the other activities the engineer may otherwise have been engaged in, which would be hard to observe or verify.

4.179.5 Enhanced Care volumes, and especially Enhanced Care volumes external to BT, are relatively low. In 2012/13, the proportion of lines with Enhanced Care services (i.e., SLs not included in line rentals) within the total volume of MPF, SMPF and WLR (Basic and Premium) line rentals was ✂ [1.0-3.0%] and the revenue related with external Enhanced Care was slightly less than ✂ [£10-15m].[329]

4.179.6 We are setting minimum standards for Openreach in relation to repairs under SL1 and 2.[330] This, in turn, would be expected to strengthen the constraint that basic line rentals impose on SL3 and 4 and any future Enhanced Care service. CPs always have the option of using these regulated service levels if they do not want to pay for higher levels of care at prevailing prices.

4.180 Given the difficulties in producing cost information, the materiality of Enhanced Care services and the measures we are taking for SL1 and SL2, we have decided that it would not be proportionate to charge control or impose cost orientation on these services. Furthermore, we do not consider that would be proportionate to put in place a data collection and monitoring obligation for Enhanced Care services. The charges will remain subject to the other SMP conditions and so will be required to be fair and reasonable.[331]

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[327] We commented that "[t]*he modelling task necessary to estimate the difference in the average cost per line incurred by Openreach in undertaking repairs under Service Levels 1 and 2 is highly complex*" (paragraph 4.17, December 2013 LLU WLR Consultation).
[328] An FTE is a measure of resources or work, defined by reference to the capacity of a full time employee. An FTE of 1 is equivalent to one full time employee.
[329] See BT's response to question 4 of the Fourteenth LLU WLR BT Information Request (Template 1 contains volumes). Charges can be found on Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=o1GUUZA4oSGmoXU5lc%2BgZQD265It6W32TNnfEUU7w1FZ6rNZujnCs99NbIKJZPD9hXYmiijxH6wr%0ACQm97GZMyQ%3D%3D.
[330] See Section 11, Volume 1 for repair minimum standards.
[331] Given that this alignment obligation only constrains the relative charges between LLU and WLR Enhanced Care services and not the absolute level of charges, we are also applying a fair and reasonable charges obligation in addition to this alignment obligation. Where a charge is subject to an alignment obligation but is not accompanied by a charge control or cost orientation obligation, we

4.181 We have also considered the option of putting standard and enhanced care together in a charge control basket. However, we agree with TalkTalk which said in its response that including the Enhanced Care services in the respective main rental basket could "*change the overall structure of the charge control, make rental services less predictable, possibly be open to gaming and possibly make ensuring consistent enhanced prices as between MPF and WLR more difficult*".[332]

Comparison to approach for other services

4.182 As TalkTalk noted, we are imposing cost orientation obligations or new charge controls for some other services, including electricity services and TRCs and SFIs. However, we consider that the situation for these other services is different to that for Enhanced Care services and that there is no inconsistency in our approach.

4.183 **Electricity services**: in paragraphs 13.50-13.65, Section 13, Volume 1, we set out our decision regarding a Basis of charges (or cost orientation) obligation on Electricity charges in the WLA market. Unlike with enhanced care services, the purchase charges of electricity are negotiated with suppliers and allow for an objective determination of costs. Moreover, in 2012/13, the external revenue for electricity was significantly higher than that for Enhanced Care services.[333]

4.184 **Time related charges (TRCs) and Special Fault Investigations (SFIs)**: in Section 18, Volume 1, we set out why we have decided to impose a charge control on TRCs and SFIs. The nature of costs for TRCs and SFIs is significantly different from Enhanced Care services. While TRCs and SFIs also consist of services involving engineering work[334], Enhanced Care services are essentially a reprioritisation of engineering work, rather than the engineering work itself.[335] Moreover, in terms of revenues, Enhanced Care services have been consistently and significantly smaller than TRCs and SFIs (see Table 4.8 below), making it less proportionate to introduce a charge control.

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consider that it is appropriate to make that charge subject to the fair and reasonable charges obligation. We have therefore decided to make the amendment to the requirement to provide network access condition which we notified in the January 2014 FAMR Consultation to give this effect as set out in Annex 29.

[332] See page 8, footnote 27, TalkTalk, *Price regulation of enhanced services*, December 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/TalkTalk_Group_Price_Regulation_of_Enhanced_Services.pdf.

[333] In 2012/13, the external revenue for Electricity was higher than ✂ [£20-25m] (Template 6, BT's response to question 16 of the Eleventh LLU WLR BT Information Request), while the figure for Enhanced Care services was lower than ✂ [£10-15m] (For volumes see Template 1, BT's response to question 4 of the Fourteenth LLU WLR BT Information Request; charges can be found on Openreach's price list http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=o1GUUZA4oSGmoXU5lc%2BgZQD265It6W32TNnfEUU7w1FZ6rNZujnCs99NbIKJZPD9hXYmiijxH6wr%0ACQm97GZMyQ%3D%3D).

[334] Section 5, January 2014 FAMR Consultation.

[335] See Openreach, *Service maintenance levels,* http://www.openreach.co.uk/orpg/home/products/serviceproducts/serviceharmonisation/serviceharmonisation.do for more on Service Levels.

Table 4.8: Total revenue for TRCs, SFIs and Enhanced Care services over the period 2010/11 to 2012/13

Total Revenue (£m)	2010/11	2011/12	2012/13
TRCs	✂	✂	✂
SFI2s	✂	✂	✂
Enhanced Care services	✂	✂	✂

Source: revenues for TRCs and SFI2s in Tranche 3, BT's response dated 7 November 2013 to questions 5(b) and 5(c) of the Eight FAMR BT Information Request dated 25 October 2013; revenues for Enhanced Care services can be computed from the volumes in Template 1, BT's response to question 4 of the Fourteenth LLU WLR BT Information Request and from charges in Openreach's price list at: http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=o1GUUZA4oSGmoXU5lc%2BgZQD265It6W32TNnfEUU7w1FZ6rNZujnCs99NbIKJZPD9hXYmiijxH6wr%0ACQm97GZMyQ%3D%3D.

Conclusions

4.185 We have decided to require Openreach to align LLU Enhanced Care charges with WLR Enhanced Care charges, but not to impose a cost orientation obligation or a further charge control on these services. Nevertheless, Openreach will be under an obligation to ensure that charges for both LLU and WLR Enhanced Care services are fair and reasonable.

Expedite Connection services

4.186 Expedite Connection services allow CPs to expedite New Provide services, which allows CPs to respond more flexibly to their customers' needs.

4.187 MPF New Provide (MPF provided on a new line involving a visit to the customer's premises) typically takes five working days. Minimum system lead-time is three working days (actual lead-time is dependent on availability of appointments). SMPF Basic Provide (SMPF provide with existing narrowband voice service) takes four working days.[336]

4.188 The Expedite charge is payable in addition to the connection charge for the standard WLR or LLU product. Also, "*[w]hen an end user appointment is expedited that involves more than one product, the charges will be raised per order e.g. if a simultaneous provide of WLR and SMPF is expedited, each order will be subject to*

[336] See MPF and SMPF Lead-Times at https://www.openreach.co.uk/orpg/home/newlogin.do?smauthreason=0&target=http%3A%2F%2Fwww.openreach.co.uk%2Forpg%2Fcustomerzone%2Fproducts%2Fllu%2Fmpf%2Fdescription%2Fleadtimes%2Fleadtimes.do&fromMasterHead=1 (login required).

the expedite charge."[337] However, the Expedite charges are only raised if the revised Customer Committed Date[338] is met.

Proposals in the July and December 2013 LLU WLR Consultations

4.189 In light of the stakeholder responses to the July 2013 LLU WLR Consultation[339], in the December 2013 LLU WLR Consultation we proposed to remove MPF and SMPF Expedite Connection charges from the respective ancillary baskets.[340] Also, we proposed not to impose any safeguard cap on MPF, SMPF and WLR Expedite Connection charges. We noted, though, that Expedite Connection services would be subject to general SMP remedies, i.e., price notification, no undue discrimination, fair and reasonable access including for charges.

Stakeholder responses

4.190 We received four stakeholder responses on Expedite Connection services. Openreach was supportive of our proposals, while EE, TalkTalk and Verizon expressed concerns.

4.191 Openreach[341] considered it was "*correct to remove MPF, SMPF and WLR Expedites from the respective ancillary baskets and not impose a safeguard cap for these products*". It also said that *"[g]iven that these are premium service products, for which Ofcom has no robust cost information, it is not appropriate to charge control these items*".

4.192 EE[342] said that it was concerned "*that removing Expedite Connection services from the ancillary baskets and not imposing any safeguard cap creates a risk that Openreach will seek to use its SMP position to extract supra-normal profits from the supply of these services, resulting in competitive and consumer harm*". Also, it considered that "*it would better further Ofcom's statutory objectives if these services were to be basket charge controlled*".

4.193 TalkTalk[343] said that setting expedite service charges to equal their LRIC differences "*provides significant benefits in allowing consumers better choice, helping the market to work efficiently and driving better service performance*". Also, TalkTalk made further observations on Enhanced Care/Expedite Connection services as listed in paragraph 4.174.

4.194 Verizon[344] said that it was concerned about the proposal not to impose a safeguard cap on WLR Expedite Connection charges. It said that:

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[337] See Openreach's price list at http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=ccWy9ZJoVtf1gb2YRVL3pYSkcG%2Bc%2B30URCuKygKmgSNUNeIS4WkJBRh6z%2FRUAIt8maxtgrEro1A7%0Aw5V8nzAZpQ%3D%3D.
[338] Date which Openreach commits to complete an order.
[339] See paragraphs 4.264-4.290 in July 2013 LLU WLR Consultation for our proposals.
[340] In paragraph 6.45 of the December 2013 LLU WLR Consultation we said that "*we propose to remove MPF, SMPF and WLR Expedites from the respective ancillary baskets*". However, the WLR Expedite Connection service is not charge controlled (in a basket).
[341] Paragraph 369, Openreach Response to the December 2013 LLU WLR Consultation.
[342] Page 11, EE Response to the December 2013 LLU WLR Consultation.
[343] Sixth bullet point in paragraph 6.35, TalkTalk Response to the July 2013 LLU WLR Consultation.
[344] Paragraphs 52-54, Verizon Response to the December 2013 LLU WLR Consultation.

- it was ✂; and
- ✂

Our analysis

4.195 As part of the remedies imposed to address BT's market power identified in the Fixed Access Market Reviews, we have set minimum standards for quality of services in relation to provision.[345] This may incentivise Openreach to decrease the charges of providing the expedited services given that better standard services are likely to provide a tighter constraint on charges for WLR, MPF and SMPF Expedite Connections.

4.196 We do not have cost information regarding Expedite Connection services[346], which makes it hard to estimate LRIC differences for these products (as proposed by TalkTalk), or to set up a charge control (as proposed by EE). Also, as mentioned in the July 2013 LLU WLR Consultation (paragraph 4.288), the primary cost for expediting a service is the opportunity cost with respect to the other activities the engineer may otherwise be engaged in and/or the cost of expanding the workforce to be able to deliver expedites, which is hard to observe and verify.[347]

4.197 Unlike Enhanced Care services, we are not requiring that the charges for LLU Expedite Connections and WLR Expedite Connections be aligned. This is because the engineering requirements for LLU and WLR standard connection services are not identical, and the costs may not be exactly the same.

4.198 The Expedite Connection services will be subject to the general SMP remedies, i.e., price notification, no undue discrimination, fair and reasonable terms, conditions and charges. Given the fact that revenues for MPF and SMPF Expedite were immaterial in 2008/09, 2009/10 and 2011/12 (with the exception of SMPF Expedite in 2011/12) and absent robust cost information by which we might set a charge control, it seems to us that a fair and reasonable charges condition is likely to be the most appropriate form of price regulation. Such an obligation requires Openreach to monitor its charges for WLR, MPF and SMPF Expedite Connection services and ensure that they remain fair and reasonable. Should CPs continue to be concerned with the level or relative charges of expedited connections (currently, WLR and MPF Expedite charges are at £145.00 and SMPF Expedite charge is at £100.10) they are able to challenge Openreach's charges, and absent commercial agreement, raise a dispute with Ofcom.

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[345] See Section 11, Volume 1 for minimum standards for provision.

[346] BT has confirmed that it does not produce cost information to this level of granularity in a readily available format. See: BT's response to the draft Eighth LLU WLR BT Information Request (in particular, letter from Alan Lazarus, Director of Regulatory Affairs, Openreach to David Clarkson, Competition Policy Director, Ofcom, dated 28 May 2013 and entitled "Fixed Access Market Reviews: Approach to setting any future LLU and WLR Charge Controls. 8th Draft Notice requiring the provision of specified information under Section 135 of the Communications Act 2003"); and BT's response to question 3 of the Eighth LLU WLR BT Information Request.

[347] Currently, we do not think that would be proportionate to request BT to produce cost information at this level of granularity. This is because of the likely immateriality of revenues for these Expedite services and due to the complexity in obtaining cost information, which is illustrated by our experience with cost differentials for Service Level 1 and 2. Further details on the complexity in obtaining cost information for different service levels are discussed under the heading on "Enhanced Care Services". See the same heading for the reasons why TRCs, SFIs and electricity charges are subject to different SMP obligations.

Conclusions

4.199 We decided to remove MPF and SMPF Expedite Connection charges from the respective ancillary baskets and not to impose any safeguard cap on MPF, SMPF and WLR Expedite Connection charges. Nonetheless, MPF, SMPF and WLR Expedite Connection services will be subject to the general SMP remedies, i.e., price notification, no undue discrimination, fair and reasonable access including for charges.

Caller Display

Proposals in July 2013 FAMR and December 2013 LLU WLR Consultations

4.200 In the July 2013 FAMR Consultation[348], we proposed not to take into account the revenue that Openreach earns from Caller Display when setting charges for other services. This was consistent with the approach in previous reviews, where we have considered the Caller Display charge independently from other charges. We summarised responses to the July 2013 FAMR Consultation in paragraphs 6.135 to 6.140 of the December 2013 LLU WLR Consultation.[349]

4.201 As a result of responses to the July 2013 FAMR Consultation and our own further analysis, we revised our proposals in the December 2013 LLU WLR Consultation.[350]

4.202 In the December 2013 LLU WLR Consultation, we identified that the current charge for Caller Display of £6 p.a. was significantly above the cost to Openreach of supplying this service. We estimated that a charge of ✂ [£2.50 to £3.50] would be required to cover the FAC, and a charge of about £0.45 would be required to cover the LRIC of Caller Display, based on 2011/12 costs and volumes.

4.203 BT had previously argued that a high charge, relative to cost, was necessary to restrict demand for the service, as there were capacity issues in supplying additional customers with Caller Display and to upgrade capacity would be a costly procedure with long lead times.

4.204 After further investigation of the matter with Openreach, our understanding of the capacity issue was that there was not a physical limit on the number of customers that could subscribe to the caller display service. Rather, there is a trade-off between the number of customers that do subscribe and the reliability of the service that is delivered. There is always the possibility of conflicts in the network, in periods of high demand, and this can result in the Caller Display service not functioning on a specific call. The probability of failure increases not only with call volumes but also with the number of customers that subscribe to the Caller Display service. We therefore have a situation where as more customers subscribe to the Caller Display service the probability of the service failing on any specific call increases.

4.205 However, in the December 2013 LLU WLR Consultation we explained that, in our view, the potential degradation in the quality of service that might result from

[348] Paragraphs 14.51 to 14.74, July 2013 FAMR Consultation.
[349] The section on Caller Display was in the July 2013 FAMR Consultation. However many stakeholders covered the issue of Caller Display in their responses to the July 2013 LLU WLR Consultation.
[350] Paragraphs 6.128 to 6.175, December 2013 LLU WLR Consultation.

significantly higher take up of Caller Display was unlikely to be a major concern. We therefore proposed to impose a charge control on Caller Display.

4.206 We considered that it was appropriate for this service to be priced at LRIC, and therefore proposed to reduce the charge to the level of our estimate for LRIC (or £0.45) and consulted on a range of £0.30 to £0.50.

4.207 We divided the remaining costs (i.e. the difference between FAC and our estimate of LRIC) into those we regarded as common to all WLR lines, and those which are common across all lines (i.e. WLR and MPF). We proposed to recover costs that we regarded as common across all lines on an equal per line basis. This increases the MPF rental charge by about £0.20 and the WRL rental charge by about £0.45.

4.208 We proposed that these changes would take place at the start of the next charge control period.

Stakeholder responses to December 2013 LLU WLR Consultation

4.209 TalkTalk[351] said that the charge for Caller Display should be no higher than FAC. It felt that the rationale for cutting the charge to the level of LRIC was weak. TalkTalk said that although Ofcom said that a charge at the level of LRIC will enhance efficiency, we had failed to consider the distortion of recovering common costs from other products, and pushing their prices further above LRIC. TalkTalk said that our arguments depended on the proviso that customers were fully informed about the benefits of Caller Display in reducing nuisance calls, which it questioned.

4.210 TalkTalk said that it would be more appropriate to have an immediate adjustment to the level of FAC and then a glide path to LRIC. Any common costs that need to be recovered elsewhere should be recovered from WLR only, as only WLR lines take Caller Display. Otherwise, it said, there would be a breach of the principle of cost causality, in that there has been no change in underlying cost drivers but a change in the cost allocations.

4.211 Verizon[352] ✂

4.212 Another CP[353] agreed that Caller Display should be subject to a charge control. It also agreed that the charge should be at LRIC, which it said was consistent with their views that products where there is SMP (or clear and demonstrable societal benefit) should be priced as close to LRIC as possible. In terms of the reallocation of common costs, this stakeholder said that it would prefer them to be recovered from non-SMP retail products, but felt that our approach was “tolerable”.

4.213 Openreach[354] disagreed with Ofcom’s assessment that, without further investment, it could meet the resulting higher demand that would be likely to occur as a result of reducing the Caller Display charge by 90% to 95% at “acceptable service levels”. Openreach believed that it was “*most likely that, without incremental investment, caller display will routinely fail*.” Openreach noted that it was conducting a new study into the increased likelihood of failure affecting end-user experience in the event of an increase in demand for Caller Display, which was expected to be complete in April

[351] Paragraphs 9.1 to 9.4, TalkTalk Response to the December 2013 LLU WLR Consultation.
[352] Verizon Response to the December 2013 LLU WLR Consultation.
[353] ✂ response to question 6.6 of the December 2013 LLU WLR Consultation.
[354] Paragraphs 60 to 61, 333 to 335 and 398 to 414, Openreach Response to the December 2013 LLU WLR Consultation.

2014.[355] Openreach said that the incremental cost of providing Caller Display "*would not be covered by a 35p to 50p price*" because it was likely that significant incremental investment would be needed to deal with increased demand. Openreach also said that it would not be acceptable for Caller Display to intermittently fail.

4.214 BT[356] stressed that it shared Ofcom's concerns about nuisance calls. It noted that the availability of Caller Display was not a 'silver bullet' solution to this problem and that a range of actions were required, involving industry and regulators. BT noted that it had invested in upgrading switches to handle international Calling Line Identifications and in operating the Nuisance Call Bureau and Nuisance Call Advice Line. BT also said that it had launched products which help customers block international, 'withheld' or specific numbers.

4.215 EE[357] welcomed Ofcom's proposal to set a charge control for Caller Display at the level of LRIC, and agreed that this should take place at the start of the next charge control. Based on the evidence set out in the December 2013 LLU WLR Consultation, EE agreed that the potential service degradation which might result from increased take-up was unlikely to be a major concern. EE was surprised at the level of the costs currently allocated to Caller Display, but it supported Ofcom's proposed methodology for re-allocating these common costs.

Our analysis

Openreach's charges for Caller Display are significantly above cost

4.216 In the July 2013 FAMR Consultation, we said that we understood the cost of providing Caller Display was likely to be close to zero. We have since explored the costs of Caller Display in detail with Openreach using our statutory information gathering powers.

4.217 In 2011/12, the FAC (consistent with the cost allocations in the RFS[358]) of Caller Display was [£10m to £15m] ✂[359] and the incremental cost was, we estimate, around ✂[360]. From 2011/12 volumes[361], we calculate that the charge of the Caller

[355] In subsequent discussions, Openreach said that this further study was in fact on the costs and feasibility of upgrading the network to improve the potential capacity to provide Caller Display. BT said that the study would be provided in April 2014. However, we had not yet received it as of 19 May 2014, when the document was prepared for publication, so it was not possible to take it into account. In any case, for the reasons explained above, we do not think it relevant to study the costs and possibilities of upgrading the network to increase the capacity to supply Caller Display.
[356] Paragraphs 33 to 35, BT Response to the December 2013 LLU WLR Consultation.
[357] Page 12, EE Response to the December 2013 LLU WLR Consultation.
[358] In its response to the Thirteenth LLU WLR BT Information Request, question 1, response received 15 November 2013, BT told us that these costs were allocated in the RFS to "Other Openreach markets and activities".
[359] Openreach has provided Caller Display costs to us in response to the Eleventh LLU WLR BT Information Request (question 1, received 18 October 2013) and the Thirteenth LLU WLR BT Information Request (question 1, received 15 November 2013). In these costs, the return on capital employed was calculated at the rate of 9.7%. We have changed this to 8.6% to be consistent with the estimate of pre-tax nominal WACC for Openreach's copper access network, as further discussed in Annex 14.
[360] See below for how we have reached our estimate of incremental cost.
[361] Openreach provided Caller Display volumes in its response to the Thirteenth LLU WLR BT Information Request (question 2, received 15 November 2013). BT has only been able to provide an estimate for 2012/13 revenues and volumes. The revenue estimate is calculated by taking actual Caller Display revenue from 2011/12 and reducing by 5%, taking into account the reduction in the

Display service in 2011/12 would have needed to be [£2.50 to £3.50] ✂ to cover FAC and £0.45 to cover our estimate of the incremental cost, whereas the charge actually levied is £6.00. We discuss Openreach's costs for providing Caller Display in more detail from paragraph 4.253 below.

Lowering the wholesale charge for Caller Display may increase demand

4.218 In the December 2013 LLU WLR Consultation, we discussed Openreach's 2009 price trial in which it cut the charge of Caller Display from £6.00 p.a. to £1.68 p.a. for a period of six months. We also discussed the proposition that because Caller Display is already offered for free by some CPs, a significant fall in the wholesale charge is unlikely to have a significant effect on demand.[362] In its response to the December LLU WLR 2013 Consultation, Openreach said that it believed that lowering the wholesale price would increase demand for Caller Display.[363]

4.219 Currently only [20% to 30%] ✂ of WLR lines take Caller Display.[364] On the information presently available to us, it is not clear how large any increase in wholesale demand for Caller Display would be if the wholesale charge were to fall significantly. We consider that it is likely that demand for Caller Display will increase, to at least some extent, if the charge is reduced significantly. However, for the reasons set out below, we consider that a higher take-up of the service could be supplied with an acceptable service quality under Openreach's current network infrastructure.

Current capacity for Caller Display is likely to be able to cope with higher demand

4.220 While we accept that demand may increase with a lower wholesale charge, we do not agree with Openreach that the existing capacity constraints mean that higher levels of demand cannot be served and that, consequently, a high wholesale charge (relative to cost) must be maintained in order to restrict take-up of Caller Display.

4.221 In its response to the December 2013 LLU WLR Consultation, Openreach said that without incremental investment to increase the capacity of its network to handle the presentation of Calling Line Identification (CLI) information, the Caller Display service would "routinely fail". We consider that Openreach has not presented us with adequate evidence to justify this claim or, more generally, to show that the reliability of the Caller Display service would be unacceptably low.

Understanding the potential capacity constraint for Caller Display

4.222 As we understand it, there is no absolute limit on the number of WLR lines that can be supplied with Caller Display. Rather, the fixed dimensions of Openreach's network mean that any growth in the number of lines that require the Caller Display service may have the effect of increasing the probability that the calling number information will fail to be displayed for any particular call. As we set out below, we consider that the available evidence indicates that there is no meaningful capacity constraint, even at 100% take-up of Caller Display.

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number of total WLR lines. The volume estimate has been obtained by dividing this revenue estimate by the Caller Display charge of £6.

[362] This is summarised in paragraphs 6.143 to 6.147 of the December 2013 LLU WLR Consultation.

[363] Paragraph 400, Openreach Response to the December 2013 LLU WLR Consultation.

[364] This information was provided by BT in its response dated 15 November 2013 to the Thirteenth LLU WLR BT Information request (question 2).

4.223 Based on discussions with Openreach, and information gathered under our statutory powers, our understanding of the capacity constraint in Caller Display is as follows.[365]

4.224 On BT's System X exchanges[366], a Frequency Shift Keying (FSK) sender[367] at the exchange is used to enable Calling Line Identification (CLI) data to be sent down the line to an end-user's telephone (provided they have a suitable handset) or other Caller Display device. For System X exchanges, a maximum of ✂ simultaneous Caller Display FSK deliveries can be made per concentrator, ✂. Each concentrator can service up to 2048 lines, and there will be more than one concentrator in larger exchanges.

4.225 It takes between 1.2 and 1.4 seconds to send the CLI signalling to the customer's telephone. This takes place just prior to ringing the handset. If no FSK sender is available, the handset will ring but the opportunity to present Caller Display information for that call will have been missed.[368] In such cases, the Caller Display service has failed and the end-user will not be able to see the calling number before answering the call.

4.226 The implication of this, therefore, is that there is a probability that more calls than the system can handle will be made simultaneously to the lines on a single concentrator. In such cases, the calling number will not be displayed to the customer. The likelihood of failure will, in the main, depend on the call rate on the lines on an individual concentrator, the number of lines that the concentrator is supporting and the proportion of these lines which subscribe to Caller Display.

4.227 BT has said[369] that it has no data on the actual failure rate for Caller Display under current take-up. However, BT has been able to provide data which maps the probability that CLI information will not be transmitted for a particular call against the number of calls per second which require the Caller Display service.[370] For example, if a concentrator receives 2cps (calls per second) in a given period, and 50% of the lines on the concentrator subscribe to Caller Display, then on average one call per second will require an FSK sender to transmit CLI data.

4.228 In the December 2013 LLU WLR Consultation, we presented Openreach's estimates for the instantaneous failure rate for Caller Display at different levels of take-up. In making these estimates Openreach assumed that the concentrator was operating at its maximum capacity of ✂ and the CLI data took the maximum time (of 1.4s) to be transmitted. In its response to the December 2013 LLU WLR Consultation, Openreach did not provide us with any evidence as to how likely these conditions were to occur in practice, beyond noting that "*BT has captured incoming call rates at*

[365] Based on BT's response of 15 November 2013 to the Thirteenth LLU WLR BT Information Request (question 2), and discussions with Ofcom.
[366] We have focused our analysis on BT's 'System X' exchanges, as it accounts for the majority of lines (over two thirds of Openreach's PSTN network) and our understanding that this is the system which BT has been most concerned about.
[367] A concentrator aggregates telephony traffic for up to 2048 lines before feeding it into the exchange processor. The FSK sender is the part of the concentrator voice platform which sends CLI signalling to the Customer Premises Equipment.
[368] There is some scope for calls to queue, waiting for an available FSK sender.
[369] BT's response to the Sixteenth LLU WLR BT Information Request, question 2, received 5 March 2014.
[370] BT's response of 15 November 2013 to the Thirteenth LLU WLR BT Information Request, question 2.

3cps to 19cps".[371] It is our view that the probability of these conditions occurring simultaneously is very low.

4.229 We consider that this scenario is extreme because if the call rate is greater than ✂[372] [the call loads assumed in this scenario] the System X concentrator cannot connect further calls. That is, in this scenario it is not Caller Display that fails, it is the entire call[373].

4.230 Given that the Caller Display failure rates in the modelling provided by BT depend on call loads, we would ideally have information on average and peak call rates to put these probabilities of failure into context. We have sought this information from BT under our statutory information gathering powers. BT has told us[374] that it does not gather data on call rates in terms of calls per second at the level of disaggregation that we requested, and could not therefore confirm how often peak call rates at or above any given load were observed in practice.

4.231 BT did, however, provide the sum of all incoming and outgoing traffic for all call types[375] on each System X concentrator, over fifteen minute intervals.[376] BT was able to provide, therefore, the average calls per second for each concentrator based on these fifteen minute intervals, and the number of calls per second averaged over the busiest fifteen minute period for each concentrator. We received this data for a seven day period[377] and also for a 31 day period.[378]

4.232 Based on the data provided during the sample 31 day period[379], across all ✂ [roughly 20,000] System X concentrators for which data was available[380], the mean of each concentrator's mean call rate[381] was ✂ [less than 0.2] cps and the mean of each concentrator's peak call rate[382] was ✂ [0.5 to 1] cps. We conclude, therefore,

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[371] Paragraph 402, Openreach's response to the December 2013 LLU WLR Consultation.
[372] This maximum call load includes incoming and outgoing calls, whereas Caller Display is only ever required on an incoming call. In its response of 18 March 2014 to the Eighteenth LLU WLR BT Information Request (question 2b), BT stated that all calls in excess of ✂cps are not connected to end users and that there is no distinction between call types.
[373] BT has informed us that some end-users may choose to set their telephones or other customer premises equipment (CPE) such that they do not receive calls (or may not choose to answer calls) unless the calling number is displayed. In such cases, if a peak call load causes the CLI information not to be displayed then the call will not be connected to the end-users.
[374] BT's response of 18 March 2014 to the Eighteenth LLU WLR BT Information Request, question 2a.
[375] Call types included in the data include WLR Analogue, ISDN and Featureline.
[376] BT's response of 18 March 2014 to the Eighteenth LLU WLR BT Information Request, question 3.
[377] Between 24 February 2014 and 2 March 2014 inclusive.
[378] Between 31 January and 2 March 2014 inclusive.
[379] We have used the 31 day period, rather than the seven day period, as it provides a larger sample size. The results are similar for the data gathered over a seven day period.
[380] We do not, however, consider it appropriate to divide these call rates by two, in order to reflect only the incoming calls as, at moments of peak incoming traffic, e.g. if a "robo-dialler" were to target a concentrator, incoming traffic is likely to dominate. Instead, we consider all calls and note that it may tend to be a high estimate for peak loads of incoming calls.
[381] The mean call rate for each concentrator is calculated by summing all the calls for all 15 minute periods for which there is data (using data for every day in the sample period, including Saturday and Sunday, between 6am to midnight each day), then dividing by the number of periods for which there is data, then dividing by 900 (as there are 900 seconds in 15 minutes) so as to give an averaged calls per second. To give an overall figure for System X, the mean of each concentrator's mean call rate is then taken.
[382] The peak call rate of each concentrator is the number of calls in the busiest 15 minute period (from a measurement period of 6am to midnight each day) over the 31 days divided by 900 to give calls per

that call loads tended to average out at ✂ [less than 0.2] cps. We note that this is for all incoming and outgoing calls for all call types, whereas only the incoming WLR Analogue calls would require use of the FSK senders. Based on the same data, the 99th percentile average call rate and peak call rate over the 31 day period were ✂ [0.4 to 0.7] cps and ✂ [under 3.0] cps respectively.

4.233 We note that it is moments of peak call loads which would put pressure on the Caller Display service. The fact that this data is averaged over fifteen minute intervals means that moments of peak loading may be hidden by the smoothing of the data. For example, 450 calls in 15 minutes will produce an average peak call rate of 0.5cps. However, there may have been moments during the period where the call rate reached higher levels. Given that BT does not collect data in this form, it is impossible to know how often instantaneous peak loads of, for example, 8cps occur. However, we note that if the average peak call rate over all concentrators was ✂ [0.5 to 1.0] over a fifteen minute interval then if call rates of 8cps, say, were achieved, it was unlikely to have been sustained over a prolonged period. The data also shows that, during the 31 days sampled, only ✂ [less than 20] out of ✂ [almost 20,000] concentrators, or less than 0.1%, showed a peak call rate (over a fifteen minute interval) of more than 8cps. We note, again, that this is all call traffic including outgoing calls as well as incoming calls, and non-WLR calls.

4.234 BT also provided us[383] with data on the number of calls per second recorded on its Pathfinder network. This data is for incoming calls only and is counted over five minute periods. The Pathfinder network uses Voice Access Gateways (VAGs), which, in this context, can be considered as analogous to concentrators as they can connect a similar number of lines)[384] Of the ✂ [50 to 75] VAGs for which there is data, ✂ [less than five] ever experienced a five minute period from January 2014 to March 2014 where the average incoming calls per second exceeded 1 cps, and none exceeded 3 cps. Looking over the longer time period of 2012 and 2013, for the ✂ [50 to 75] Voice Access Gateways for which data is available, we note that ✂ [less than five] VAGs had five minute call periods that exceeded 3cps, and just ✂ [less than five] had any five minute periods with more than 8cps. We consider, therefore, that data gathered in five minute rather than fifteen minute intervals also demonstrates that high peaks of incoming call rates are rare.

4.235 BT provided[385] an example of an event that created a high peak load on a particular Digital Local Exchange (DLE).[386] The event occurred on 5 December 2013 and was caused by ✂ "*pushing over 100cps of incoming traffic to a Local exchange* ✂. BT states that network controls were put in place to throttle back the demand to reduce the impact of route congestion and switch overload. By this we understand that BT attempts to effectively cancel the very high peaks of call setup requests within its core network before they reach the concentrators, as the calls would fail at the concentrators, or the routes to them, anyway. BT have told us that this data from the ✂ DLE is an example of the high instantaneous peaks of call volume that can be hidden by the averaging within the fifteen minute periods of call data gathered at

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second. To give an overall figure for System X, the mean of each concentrator's peak call rate is then taken.

[383] BT's response of 18 March 2014 to the Eighteenth LLU WLR BT Information Request, question 2a.

[384] BT has told us that Pathfinder is representative of the BT network in that these customers use their service in exactly the same way as all other analogue customers and are subjected to the same type of network high calling rate events. However, we understand that on average each VAG has ✂ [10% to 20%] more active analogue lines than an average System X concentrator.

[385] BT's response of 18 March 2014 to the Eighteenth LLU WLR BT Information Request, question 2a.

[386] A DLE is typically connected to, and therefore carries the traffic to, a number of concentrators.

individual concentrator-level. However we note that the high demand in this example lasted for longer than the fifteen minute period which was sampled. During the sample period, calls that were passed to the concentrators would have been captured as a period of high demand within the concentrator-level statistics. While these events may occasionally occur, we consider that they are likely to be highly infrequent events. We note that they involve the failure of the voice service as well as the failure of caller display.

4.236 According to the modelling of failure rates provided to us by BT, the average probability of Caller Display failure on System X concentrators during the busiest contiguous 15 minute period of each month, assuming that the concentrator is receiving ✂ [less than 1] cps[387] and also assuming that it takes the maximum time of 1.4s for the CLI data to transmit to the end-user), is less than 0.1%, even at 100% take-up of Caller Display. This equates to a service success rate of over 99.9% in peak call rate periods.[388] We recognise that, within the 15 minute intervals, there are likely to be moments of higher peak loading, but we consider that the available information suggests that very high peak call loads will occur infrequently. We also note that it is possible for Caller Display take-up to increase significantly from its current level (of ✂ [20% to 30%]) and yet to remain considerably below the situation where 100% of all calls requiring CLI to be displayed. In such cases, the probability of failure would be lower than that under the assumption of 100% take-up.

4.237 BT has not raised the concern that the probability of Caller Display failure is likely to be higher for AXE10 exchanges than for System X exchanges in its responses to either our statutory information requests nor our December 2013 LLU WLR Consultation. We understand that the situation with AXE10 exchanges, which account for a smaller proportion of lines (around a third of Openreach's PSTN network) may be slightly different from that of System X. On AXE10, ✂ rather than ✂ calls can transmit CLI data simultaneously, so the failure rate is likely to be higher (assuming that AXE10 exhibits the same distribution of lines per concentrator and call rates as System X). Given that the probability of instantaneous failure of Caller Display on System X is very small, even at 100% take-up, we do not consider that higher take-up of Caller Display is likely to give rise to unacceptable levels of service on AXE10.

An acceptable level of failure of the Caller Display service

4.238 In its response to the December 2013 LLU WLR Consultation, Openreach said that it did "*not want to degrade the quality of the Caller Display service*" and that "*those customers who place a high value on the service when the instantaneous fault rate is low (as at present) would find that their service is being crowded out because customers who have a lower value for Caller Display are being supplied instead*".[389]

4.239 We do not wish to see any significant degradation in the quality of the Caller Display service. Given the way that the Caller Display service is provided, there will always be a finite probability that it will fail, even at the current level of take-up. If take-up of Caller Display were to increase to 100%, this would be an approximately four-fold

[387] We consider this to be broadly representative of the mean monthly peak 15 minute period call rate for System X concentrators. However, we note that the data includes all call types, and outgoing calls as well as incoming, so it may exaggerate the call load in terms of incoming analogue calls.
[388] This uses the mean peak call rate calculated over 15 minute intervals, as this is the only information available on System X at concentrator-level.
[389] Paragraph 410, Openreach response to the December 2013 LLU WLR Consultation.

increase in demand. We consider that the benefit of a wider take-up of Caller Display will outweigh the costs of a very small increased probability of failure.

Conclusion on the capacity constraint and failure rates

4.240 We consider that BT has shown us no convincing evidence that increased take-up of Caller Display would result in an unacceptable degradation of service quality.

4.241 Indeed, having compared the model of the probability of failure of Caller Display (as provided by BT) with BT's data on mean peak call loads, we consider that, even if take-up were to increase to 100%, the overall probability of the service failing is extremely low. We do not therefore consider that there is a meaningful capacity constraint for Caller Display.

The cost of expanding capacity for Caller Display

4.242 In its response to the December 2013 LLU WLR Consultation, Openreach said that it was "*investigating how higher demand could be met by some incremental investment*".[390] We consider that the costs and feasibility of expanding capacity are not yet fully clear.

4.243 However, for the reasons explained above, we consider that it is not necessary to expand capacity to provide a Caller Display service at acceptable service levels. We therefore do not consider it necessary for us to assess Openreach's cost estimates or its investigation into incremental investment.

We have set a charge control for caller display at the level of LRIC

4.244 For the reasons set out above, we do not believe that it is appropriate for Openreach to set a charge for the Caller Display service significantly above cost. On that basis we therefore consider that it is appropriate and proportionate to set a charge control for this service.

4.245 A number of Openreach's wholesale WLR customers have argued that being able to provide CLI to end users, which is made possible using Openreach's wholesale Caller Display service, is important to them in competing effectively at the retail level. For example, in its response to the July 2013 FAMR Consultation, EE said, *"Caller ID has become an essential feature for most landline users, with Sky, TalkTalk and BT Retail all offering it for free. In order to credibly compete, EE likewise bundles Caller ID free of charge with its broadband and landline package."*[391] It was therefore a concern for some WLR users that the wholesale charge would be above costs in the period to 2016/17 under the proposals in the July 2013 LLU WLR Consultation.

4.246 There is also an important link between the availability of Caller Display functionality and Ofcom's wider policy concerns regarding unwanted or nuisance calls. We remain concerned at the number of unwanted or nuisance calls received by UK households, particularly more vulnerable consumers. Caller Display helps consumers to choose whether to answer a phone call by identifying the caller's number and thereby shield

[390] Paragraph 406, Openreach response to the December 2013 LLU WLR Consultation.
[391] Page 18 to 19, EE Response to the July 2013 FAMR Consultation. EE noted in footnote 5 that BT Retail and TalkTalk offer Caller ID on an opt-in basis, and that BT Retail customers must make a minimum of two outgoing calls per month to qualify for the free service.

themselves from nuisance calls, report nuisance calls and effectively use the call blocking services that rely on Caller Display to block and filter calls.

4.247 Consistent with our approach to other services subject to a charge control, we have therefore considered Openreach's costs of providing this service and the extent to which these should be recovered in any controlled charge for Caller Display (e.g. on an FAC basis) or whether it would be appropriate to recover an element of those costs across other regulated charges (e.g. recovering only the LRIC of Caller Display from that service and common costs from other services). We note that TalkTalk and another stakeholder ✂ said in their responses to the December 2013 LLU WLR Consultation that the charge for Caller Display should be set at FAC rather than LRIC, with an appropriate proportion of common costs allocated to it. TalkTalk also said that, if the charge were to be set at LRIC, it was more appropriate for there to be an immediate one-off adjustment to the level of FAC, and then a glide path to the level of LRIC.

4.248 In general, we believe that it is most efficient to set charges to reflect the LRIC of providing the service. When a service shares common costs with other services, it is typically necessary to include a mark-up above LRIC so that total costs can be recovered. However, in the case of the Caller Display service, we believe that it is more appropriate for the charge to reflect LRIC and for common costs to be recovered from other services. This is because we consider that it will promote productive efficiency (and competition on the merits) if the differential between WLR (including those services that can purchased as any add-on or buy-through such as Caller Display) and MPF reflects the LRIC differential for these services. We therefore do not agree with TalkTalk that we have failed to consider the implications of recovering more common cost from other services.

4.249 We also believe that setting a charge for Caller Display at LRIC will promote allocative efficiency. Remedies in the wholesale market will best promote allocative efficiency if they induce efficiency in the retail market.

4.250 End-users suffer a detriment (or cost) from unwanted nuisance calls and subscribing to the Caller Display service may reduce the level of such calls, but the provision of Caller Display itself incurs a cost. A trade-off therefore needs to be made between these two costs. An efficient structure of retail charges would be one that allowed consumers to make this trade-off in an efficient way, that is if consumers were able to choose between either accepting the detriment caused by nuisance calls or paying the incremental costs of the service that led to the elimination of those calls. Provided consumers are fully informed about the potential benefits of Caller Display in helping to deal with nuisance calls, this implies that an efficient retail price would be one that reflected closely the incremental cost of the provision of the Caller Display service. Accordingly, an efficient charge at the wholesale level is likely to be one that would induce a retail price that reflected the incremental cost of Caller Display.[392]

4.251 For these reasons, we consider that the charge for Caller Display should reflect LRIC, and not be used to recover common costs. This would result in a significantly lower charge for Caller Display, whilst maintaining BT's ability to recover common

[392] TalkTalk said that Ofcom's arguments for setting Caller Display at LRIC depended on the proviso that customers were fully informed about the benefits of Caller Display in reducing nuisance calls, which it questioned. However, the productive efficiency and competition on the merits reasons apply even if all consumers were not fully informed. Also, pricing the service at incremental cost may give CPs a greater incentive to inform consumers about the potential benefits of Caller Display in addressing nuisance calls.

costs (given our proposal that common costs are instead recovered from the main rental charges).

4.252 The current charge for Caller Display of £6 p.a. is considerably above incremental cost. Therefore, consistent with our established approach to considering one-off reductions under certain circumstances, we have made an immediate one-off adjustment to reduce the charge for Caller Display to the level of LRIC.[393]

Costs associated with Caller Display

4.253 We have requested cost information from Openreach, using our statutory information gathering powers to inform our assessment of the costs associated with the Caller Display service. We were not able to precisely estimate the level of LRIC for Caller Display. We therefore propose to use, as a proxy, the costs which Openreach describes as 'direct' costs of Caller Display. In 2011/12, these costs were around ✂. Based on 2011/12 estimated volumes for Caller Display, a charge at the level of LRIC would entail a charge of £0.45 p.a.

4.254 We have divided the remaining ✂ of costs (i.e. the difference between FAC and 'direct' costs) into those that we regard as common to all WLR lines, and those which are common across all lines (i.e. WLR and MPF). The costs which we regard as common to all lines include electricity, computing, management pay, rent and rates and facilities management. These were ✂ in 2011/12. We propose to recover these costs across all MPF and WLR lines. We propose to do this on an equal per line basis, in line with our proposed approach of setting WLR and MPF such that the differentials between them ultimately reflect LRIC differences.[394] We have assumed that these costs are constant in nominal terms over the period we are considering, so that ✂ is added to the WLR and MPF rentals in each year, which is equivalent to £0.20 per line p.a. in 2011/12.[395]

4.255 The costs which could be regarded as common to all WLR lines include core routing maintenance, depreciation of nodes used only for voice customers and other costs, and were ✂ in 2011/12. We propose to recover these costs across all WLR lines, increasing WLR rental charges by an additional £0.25 p.a., making a total uplift of £0.45 p.a. in 2011/12 when added to the common cost mark-up across all lines (i.e. both MPF and WLR) in 2011/12.

4.256 We recognise that future volumes are uncertain. Caller Display volumes could potentially rise considerably compared to 2011/12 given the reduction in the

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[393] In Ofcom, *Charge control review for LLU and WLR services –Consultation*, 31 March 2011: http://stakeholders.ofcom.org.uk/binaries/consultations/wlr-cc-2011/summary/wlr-cc-2011.pdf (March 2011 LLU WLR Consultation), we outlined circumstances under which we would consider one-off reductions in charges. We note that one circumstance is when "*the previous charges were unregulated or are not subject to charge control and where Openreach's charges are high relative to costs*" (paragraph 3.96).

[394] TalkTalk said that any common costs that need to be recovered elsewhere should be recovered from WLR only, as only WLR lines take Caller Display. Otherwise, it said, there would be a breach of the principle of cost causality. However, we are only increasing MPF for costs that are common between WLR and MPF. Therefore there is not breach of the principle of cost causality.

[395] By assuming that costs are constant in nominal terms, we are effectively assuming that any upward pressure from input price inflation is just offset by efficiency gains. Given that these costs relate to old PSTN technology, we consider that both input price inflation and efficiency gains are likely to be limited. We do not consider it proportionate to explore in detail the likely input price inflation or efficiency trends, given the relatively small amount of these costs.

wholesale charge proposed, meaning that Openreach's future revenue from Caller Display may exceed the current level of costs. But there may also be some offsetting reduction of Caller Display levels due to the expected general decline in WLR and voice call termination volumes. Given the relatively small size of the Caller Display costs and revenues compared to other services within this charge control, we have not sought to develop a more sophisticated approach to forecasting the costs and volumes associated with Caller Display and therefore propose to assume that the relevant costs are constant in nominal terms over the period of the charge control.

Conclusion

4.257 We have decided to impose a charge control on Caller Display immediately. The charge will be £0.45, to reflect our estimate for the LRIC of this service. In order to enable BT to recover costs which are currently allocated to Caller Display, £4.8m will be re-allocated to all rentals, and £5.0m will be re-allocated to WLR charges.

Weighting price changes and consideration of additional controls within baskets

Prior year weights

4.258 The basket control limits the maximum weighted average increase in prices in any given year. When Openreach sets prices each year we need to consider how the weights should be determined, e.g., whether they should be based on the previous year's revenues or a forecast of the current year revenue weighting.

Proposals in the July 2013 LLU WLR Consultation

4.259 In the July 2013 LLU WLR Consultation we considered three different approaches to set basket weights: prior year weighting, current year weighting, and the "snapshot" approach.[396]

4.260 Under the **prior year weighting approach**, basket weights are set equal to the proportions of basket revenues accruing to the relevant services in the year prior to the one in which the price change occurs. Under the **current year weighting approach**, the weights are set equal to the proportion of current year basket revenues accounted for by each service as a proportion of total current year revenues. A variant of the former is the **snapshot approach** which consists in changing the definition of prior year revenue so that it is calculated as a "snapshot" using actual volumes at a suitably recent point in time multiplied by average price during the 12 months prior to the start of the charge control year.[397]

4.261 We proposed that prior year weights should be used for basket control compliance.

Stakeholder responses

4.262 Openreach[398] agreed with our proposal to use prior year weights, while Sky and TalkTalk preferred current year weights.

4.263 Sky[399] said that:

[396] See the full analysis in paragraphs 4.221-4.250 of the July 2013 LLU WLR Consultation.
[397] Paragraph 18.154, 2013 BCMR Statement.
[398] Pages 54-56, Openreach Response to the July 2013 LLU WLR Consultation.

- prior year weights allow for under- or over-shooting in one year of the control period to be carried forward into the following year. Therefore, it argued that this feature of prior year weights reduces pricing certainty for CPs. Moreover, it said that if we consider that certainty in pricing is important for CPs, then it suggested greater disclosure regarding the carry-over provisions each year, when we review charge controls compliance with Openreach;

- the proposal to set individual controls for bulk migrations will do most to mitigate the risk of BT gaming the basket controls. This is because these volumes, usually planned well in advance as part of major acquisitions or network migration programmes, are often predictable;

- there is still too much scope for BT to focus price changes on services within the baskets such that it can earn returns in excess of its costs; and

- it preferred current year weights.

4.264 TalkTalk[400] appreciated that the potential gaming by BT that would result from the use of prior year weights has been reduced by removing bulk migrations from broad baskets. However, it considered current year weights a superior method to prior year weights. TalkTalk[401] also considered that the following reporting obligations would be helpful:

- comparison of the average change in prices of products "purchased" internally vs products sold externally;

- comparison of the average basket price change based on both current and prior year weights; and

- report mark-ups on different products.

4.265 It said that "*[r]eporting would provide indications of whether BT is gaming the flexibility or not. This could provide evidence for tighter (or looser) constraints to be imposed in the next charge control*."

Our analysis

Current year weights

4.266 We have decided not to use the current year weights approach because it can also involve risks of gaming, potential volatility in charges and administrative burden.

4.267 We consider that if Openreach sets charges based on forecasts of current year volumes it should be able to recover any over- or under-charging which results from divergence between forecast and actual volumes in subsequent periods. However, as a result, it could therefore have an incentive to overcharge in the short term and repay the "overcharge" in subsequent periods – and there may be a cash flow incentive to do so unless interest is due on any "overcharge". It is also possible that some CPs could try to game the control and try to influence Openreach's pricing

[399] Paragraphs 7.6-7.10, Sky Response to the July 2013 LLU WLR Consultation.
[400] Section 6.1.3 "Proposed individual pricing constraints" and paragraph 6.31, fourth bullet, page 51, TalkTalk Response to the July 2013 LLU WLR Consultation.
[401] Pages 42-43, TalkTalk Response to the December 2013 LLU WLR Consultation.

decisions by providing misleading forecasts. If CPs were able to influence Openreach in this way it could increase volatility in price setting. In principle an appropriately set interest rate would reduce or remove any incentive for Openreach to "overcharge" or for CPs to try to influence Openreach's pricing to "undercharge". However, such a mechanism would add further complexity.

4.268 An alternative way to mitigate the risk of this type of gaming would be for us to review Openreach's volume forecasts. However, we are not well placed to know the extent to which Openreach's forecasts are accurate. Furthermore, this would impose a significant administrative burden on us and CPs as the necessary information would need to be gathered on an on-going basis to enable us to review the forecasts.

4.269 Using forecast current year volume weightings could lead to volatile movements in prices as charges are set, then later adjusted for over- and under-recovery against the controlling percentage for the cap. This is because demand for ancillary services is volatile and forecast volumes are likely to vary from actual volumes. Changes in demand that are *unforeseen* by Openreach are likely to have a big impact on variation between outturn and forecast volumes and hence are likely to have a significant impact on whether the price changes meet the basket control. For example, as can be seen from Table 4.9 below, BT's forecasts for 2011/12 were 75% higher for MPF single migrations than actually occurred; and a slight decline in actual volumes of SMPF single migrations was forecast between 2010/11 and 2011/12, whereas in fact there was a 33% decrease.

Table 4.9: Volume of LLU services

	2010/11 Actual	2011/12 Forecast	2011/12 Actual
MPF single migrations	1,223,557	1,341,000	768,307
SMPF single migrations (external)	293,181	280,000	195,157

Source: Actual data in BT's 2011/12 RFS (pages 55 and 56), forecast data provided by BT for the previous charge controls (BT's response dated 31 August 2010 to question 3 of the First LLU WLR BT Information Request dated 16 July 2010).

4.270 As set out above, the magnitude of volatility could be increased if Openreach's customers try to game the process of price setting.

4.271 The volatility in wholesale charges caused by the use of forecasts of current year volume weightings could ultimately be harmful to consumers. It would create uncertainty for CPs using inputs from Openreach and limit their ability to plan.

Snapshot approach

4.272 We have decided not to use the snapshot approach[402] as it does not seem appropriate for ancillary services where volumes can be volatile. If volumes are volatile the latest volume information is unlikely to be the most representative. In the

[402] The snapshot approach is useful if different products in the same basket have stable volume trends and volatility is small.

case of the LLU ancillaries considered in the baskets there is a significant degree of revenue and, likely, volume volatility.[403]

Prior year weights and sub-caps

4.273 We have decided to use prior year weights as this enables Openreach to plan its charges in a given year with confidence that it will meet the overall basket control.[404] The main disadvantage of a prior year weights approach is that it is vulnerable to a particular form of gaming. This gaming involves targeting price increases on services whose weights in the basket are growing over time, so that the prior year revenue weight understates the effect of the price increase on actual revenues. Partly to mitigate this disadvantage, we have decided to use a sub-cap on each and every charge in a basket (see paragraphs 4.281-4.291 below).

4.274 We have also decided to introduce a clause in which Openreach is required to automatically make repayments to its wholesale customers of any amounts overcharged by reference to the charge controls. Also, the clause does not operate if Openreach over-complies with the controls (see paragraphs 4.292-4.298). We consider that this clause may not fit well with current year weights. This is because Openreach would be subject to uncertainty when forecasting the current year volumes, and thus subject to a risk of being unable to recover the allowed revenues (and hence potentially costs) of a basket in that period or subsequent ones.

4.275 We also considered (i) prior year weights and removing pricing flexibility (either by setting additional controls on services within baskets or requiring all items to move in line with the basket control)[405], and (ii) prior year weights and tighter overall basket controls.[406] However, approach (i) would remove one of the main benefits of basket controls, i.e., allowing Openreach to adjust charges to recover costs efficiently. We do not consider that this is an appropriate and proportionate approach to mitigate the risks inherent with prior year weights. Approach (ii) would be a complex[407] approach to setting the sub-caps which we consider are not appropriate or proportionate. Moreover, approach (ii) would not prevent gaming though it could redistribute the benefits of it to (some) CPs.

4.276 TalkTalk said that if we did not wish to adopt current year weights, then we should consider that the RFS should report the average basket price change based on both current year weights and prior year weights. In TalkTalk's view "*[t]hat way all parties*

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[403] We can illustrate this with three examples. Revenue from SMPF tie pair modification (3 working day lead time) was £✂ in 2008/09 and £✂ in 2009/10. Revenue from MPF mass migrations (normal hours) was ✂ in 2008/09 to £✂ in 2009/10. Revenue from MPF standard line test was £✂ in 2008/09 to £✂ in 2009/10. See Template 7, BT Response to Third s.135 to BT.

[404] In practice Openreach (and KCOM) must notify CPs 90 days in advance for price increases, and 28 days in advance for price decreases to existing WLA network access inputs. Therefore, when setting prices at the start of the new control year Openreach relies on revenue data from the first nine months of the year and forecasts for the final three months. However, if forecast current year weights were used it would base prices on forecasts up to fifteen months in advance. See paragraph 4.33 of the March 2011 LLU WLR Consultation and page 179 of the March 2012 Statement annexes. Also, we set out in paragraphs 10.306-10.308, Section 10, Volume 1 of this Statement that BT (and KCOM) will be required to give 28 days' notice for price changes to all WFAEL services, except WLR rental.

[405] See paragraphs 4.232-4.236 in the July 2013 LLU WLR Consultation.

[406] See paragraphs 4.237-4.239 in the July 2013 LLU WLR Consultation.

[407] This option would require accurate volume forecasts (on an individual product basis) and demand elasticity information, which may be gamed by both Openreach or CPs in order to influence the basket controls.

will be better able to understand whether BT is gaming CYW [ie Current Year Weights] to "outperform" the intended control".[408]

4.277 We have published a Statement setting out our revised cost accounting condition.[409] We will subsequently be issuing cost accounting Directions pursuant to the Regulatory Financial Reporting Statement setting out the form of reporting for the Regulatory Financial Statements. Information will be published annually and will enable CPs to see compliance with the charge controls. This information will be based on prior year weights as this is the basis on which compliance is monitored.

4.278 We will consider further ways of reviewing whether BT has gamed the basket controls for the next charge control, potentially including TalkTalk's first two suggestions (that is, comparing internal revenues vs external revenues, and comparing current and prior year revenue weights). But we note that concerns about internally vs externally sales are addressed to a considerable extent by our six-basket structure.

4.279 Also, we consider it would be complex and disproportionate to forecast the actual cost of each individual ancillary product and set sub-caps accordingly. Similarly, we consider that to require reporting of mark-ups on LRIC for every product within the baskets (as proposed by TalkTalk) would be disproportionate (given some of the services have very low volumes).

Conclusions

4.280 We have decided that prior year weights will be used for the basket charge controls.

Sub-caps at CPI-X+7.5%

Proposals in the December 2013 LLU WLR Consultation

4.281 In light of the stakeholder responses to the July 2013 LLU WLR Consultation and our new basket design[410], we proposed a sub-cap at CPI-X+7.5% on each and every charge within a basket in the December 2013 LLU WLR Consultation.

Stakeholder responses

4.282 Openreach[411] broadly supported a sub-cap of 7.5% (i.e., it considered 7.5% acceptable but would prefer a sub-cap of 10%).

4.283 TalkTalk[412] agreed in principle with the use of price caps set in advance since this will improve predictability. However, it also said that sub-caps cannot prevent excessive charges (or charges from being set above DSAC), "*all they can do is limit the rate at which prices can increase*". In light of this, TalkTalk proposed the following regulation to prevent excessive charges:

[408] Paragraph 6.31, TalkTalk Response to the July 2013 LLU WLR Consultation.
[409] http://stakeholders.ofcom.org.uk/consultations/regulatory-financial-reporting/
[410] See paragraphs 6.75-6.85 in Section 6 of the December 2013 LLU WLR Consultation.
[411] Paragraphs 379-382, Openreach Response to the December 2013 LLU WLR Consultation.
[412] Section 6.1.3, TalkTalk Response to the July 2013 LLU WLR Consultation.

- understand the current costs of individual products and then set one or more sub-caps that would ensure that individual product charges could not become excessive;

- require that the outturn mark-ups were the same (or less) for external sales than for internal sales; and

- design the baskets so that they were much more homogeneous (and have a sub-cap but nearer to the overall basket cap).

4.284 Virgin[413] said that the underlying logic that a sub-cap on each charge is likely to prevent very rapid reductions in other charges in the basket if BT is to price up to the overall cap, appears sound, but considered that we "*should ensure that this is tested for the baskets concerned before making a decision to change from inertia clauses to sub-caps*".

4.285 Another CP[414] said that, in general, it welcomed sub-caps. However, it had no view either way as to whether or not the pricing freedom this affords fulfils the anti-gaming objective.

Our analysis

4.286 We have decided to impose sub-caps rather than inertia clauses.[415] First, we consider there is likely to be greater risk of Openreach pricing too high rather than too low in these markets. Second, given that overall basket controls are likely to be binding[416], a sub-cap on each and every charge prevents very rapid reductions in charges by limiting the ability to offset them with increases on other services within the basket.

4.287 We consider that a sub-cap has some benefits in restricting Openreach's ability to game the basket formula because:

- it is easy to understand and set; and

- it mitigates the risks of gaming whilst allowing some pricing flexibility.

4.288 We consider that a sub-cap on each charge should be less restrictive than the overall basket control.[417] Given that the sub-caps are designed to apply to every service in the basket, a sub-cap as tight or tighter than the basket cap would defeat the objective of pricing flexibility within the basket (and compromise forecast cost recovery given the basket controls were calculated, as far as possible, to recover projected costs by the end of the control period).

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[413] Page 12, Virgin Response to the July 2013 LLU WLR Consultation.
[414] See ✂ response to question 4.12 of the July 2013 LLU WLR Consultation.
[415] An inertia clause limits the maximum annual increase or decrease of a charge, whereas a sub-cap only limits the charge increase. In the March 2012 Statement the percentage change for each and every service within the MPF, SMPF and Co-Mingling baskets was set to be no more (less) than the basket control increased (reduced) by 7.5%. See March 2012 Statement annexes (page 180, condition FAA4(A).6).
[416] See BT's 2012/13 LLU WLR Compliance Statement. In 2012/13 the controls for MPF and SMPF baskets were ✂. The control for the Co-Mingling ancillary services basket was ✂.
[417] Paragraphs 4.251-4.254, July 2013 LLU WLR Consultation.

4.289 Our revised basket proposals in the December 2013 LLU WLR Consultation mean that the services in each basket are more homogeneous in terms of competitive conditions. In particular, services consumed primarily by BT downstream are either no longer in baskets of services consumed primarily by other CPs (e.g., proposed separation of Tie Cables from MPF Room Build and MPF Hostel Rental services) or, if MPF and SMPF services are in the same basket (Hard Ceases basket and other LLU ancillaries basket), we will impose alignment of charges between MPF and SMPF comparable services. Also, we have sought to create baskets of services which are more homogenous in their characteristics and likely costs (e.g., separating MPF Stopped Line Provide and MPF Working Line Takeover from MPF Hard Ceases).

4.290 Setting the appropriate level of sub-caps on individual charges requires the exercise of regulatory judgment to balance the benefits of allowing some flexibility to change charges against the risk of gaming. Given the new and more homogeneous 6-basket structure and the alignment of charges between MPF and SMPF comparable services in the same basket, we consider that a sub-cap on each and every charge at CPI-X+7.5% will limit to a significant extent the possibility of gaming by Openreach. [418] In particular, the alignment of charges will prevent Openreach from concentrating price increases on products heavily used by external CPs, while the 6-basket structure together with sub-caps will limit the capacity of Openreach from targeting price increases on services whose weights in the basket are growing over time.

Conclusions

4.291 In light of the analysis above, we have decided to impose a sub-cap of CPI-X+7.5%. This means that the maximum increase under the cap will be the controlling percentage for the basket (CPI-X) plus 7.5%.

Compliance with the charge controls

Proposals in the December 2013 LLU WLR Consultation

4.292 In the December 2013 LLU WLR Consultation we proposed including a further clause in the legal conditions which required Openreach to automatically make repayments to its wholesale customers of any amounts overcharged by reference to the charge controls. This provision also covered the basket controls. The clause provided:

4.293 "*For each of the categories of products and/or services specified in condition 7C.1(a) to 7C.1(d), where the Percentage Change in any Relevant Year is more than the Controlling Percentage, the Dominant Provider shall, to the extent reasonably possible, and as soon as reasonably practicable, repay the Relevant Excess Revenue to the relevant Affected Communications Provider*." (Annex 15, 7C.6, e of the December 2013 LLU WLR Consultation)

[418] See Figure 4.1 for an overview on our basket structure. We are imposing alignment of charges between MPF and SMPF comparable services when in the same basket. This is the case for the "Hard Ceases" basket and the "Other LLU ancillaries" basket.

Stakeholder responses

4.294 Openreach[419] said that we should not impose this new clause in the legal instrument because it is:

- **impractical** to implement, i.e. it is impossible to say what products in the basket would be subject to price changes that should or would have been implemented in order to comply;
- **disproportionate**, i.e. the level of over- or under-compliance carried forward has been small compared with the level of total basket revenues; and
- **discriminatory**, i.e. it is asymmetric, it does not operate if Openreach over-complies with the control.

Our analysis

4.295 We do not agree with the points on practicality and proportionality raised by Openreach. We consider that these concerns are adequately addressed in the text of the clause itself, which imposes the obligation "*to the extent reasonably possible, and as soon as reasonably practicable*". By way of example, in practice, Openreach may not need to determine which products should have had a lower price, it could simply determine the amount of cost over-recovered and split it among CPs (e.g. according to the revenue share that each CP had in the basket where over-recovery occurred).

4.296 The clause is indeed asymmetric. However, given the use of prior year weights, Openreach should be able to accurately forecast the percentage changes and thus avoid any repayments. Also, symmetry would create uncertainty for CPs purchasing services from Openreach in the sense that CPs would have to purchase products without knowing whether they would have to repay Openreach, i.e., without knowing the actual final prices. In any event, we consider that this asymmetry creates an incentive for Openreach to comply with the charge controls, while simultaneously protecting CPs from price uncertainty.

4.297 Finally, a clause in these terms is included in the legal instruments related to the charge controls imposed in the Narrowband Market Review published in September 2013.[420] We consider that it is an advantage for the charges controls to be consistent as far as possible.

Conclusions

4.298 We have decided to impose the repayment clause set out in paragraph 4.292.

[419] Paragraphs 356-359, Openreach Response to the December 2013 LLU WLR Consultation.
[420] Paragraphs 11.71 to 11.73, Ofcom, *Review of the fixed narrowband services market*, 26 September 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/nmr-2013/statement/Final_Statement.pdf

No cost orientation obligation for services that are subject to a charge control

Proposals in the July 2013 LLU WLR Consultation

4.299 In the July 2013 LLU WLR Consultation, we proposed not to impose cost orientation for services included within charge controls.[421]

Stakeholder responses

4.300 Seven stakeholders responded on cost orientation. Openreach and Vodafone were broadly supportive of not imposing cost orientation, while Sky, TalkTalk, Virgin, EE and another CP were supportive of cost orientation.

4.301 Openreach[422] agreed "*both in general and in this specific case that where there is a basket control there is no need to also have a cost orientation obligation*". Openreach said that our proposal not to impose cost orientation alongside a charge control meets the regulatory principles in the EU and UK law of only imposing proportionate and necessary regulatory burdens, as well as providing maximum certainty and predictability.

4.302 Vodafone[423] agreed with our charge control approach. It said that it was appropriate assuming that "*any particular concerns about the level of individual charges could be progressed via the fair and reasonable pricing obligation that exists*".

4.303 Sky[424] said that we should retain a cost orientation condition in addition to the charge control for each of the services. "*Sub-caps, sub-baskets and inertia clauses can only restrict the rate at which the relative prices of services within a basket can change. Only a cost orientation condition can orientate prices to their costs and, for this reason, Sky considers it appropriate to impose a concurrent cost orientation condition."* Sky said that the imposition of a charge control alone may not prevent BT from setting excessive pricing for certain products within a basket.

4.304 TalkTalk[425] disagreed with our approach not to impose cost orientation. It said that "*sub-caps (and similarly inertia clauses) cannot prevent excessive prices*". TalkTalk set out alternatives to prevent Openreach from pricing excessively. First, to "*properly understand the current costs of individual products and then set one or more sub-caps that would ensure that individual product prices could not become excessive*". Second, to "*require that the outturn mark-ups on products was the same (or less) for external sales than for internal sales*". Third, "*design the baskets so that they were much more homogeneous (and also have a sub-cap but much nearer to the overall basket cap)*".

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[421] Paragraphs 4.329 to 4.348, July 2013 LLU WLR Consultation.
The July 2013 FAMR Consultation considered that a small number of products should be under cost orientation, including Time-Related Charges (TRCs), Special Fault Investigations (SFIs) and electricity charges. See paragraphs 12.55 to 12.84 of the July 2013 FAMR Consultation for a discussion of electricity charges for a discussion of TRCs and SFIs, and paragraphs 12.85 to 12.49 of the July 2013 FAMR Consultation for a discussion of electricity charge.
[422] Paragraphs 339-349, Openreach Response to the July 2013 LLU WLR Consultation.
[423] Page 16, Vodafone Response to the July 2013 LLU WLR Consultation.
[424] Paragraphs 1.6 and 7.12, Sky Response to the July 2013 LLU WLR Consultation.
[425] Paragraphs 6.17-6.30, TalkTalk Response to the July 2013 LLU WLR Consultation.

4.305 Virgin[426] disagreed with our approach not to impose cost orientation. It did "*not agree that sub-caps in themselves provide the same level of the protection as cost orientation and, as such, cost orientation would remain a useful complementary remedy to the charge control*".

4.306 EE[427] agreed "*with the responses to the Call for Inputs by Sky, TalkTalk and Virgin on this issue*" in favour of cost orientation, summarised in paragraphs 4.334-4.340 of the July 2013 LLU WLR Consultation.

4.307 Another CP[428] also disagreed with our approach. It said that basket controls with sub-caps set today may not prevent Openreach from earning super-normal profit over the period of three years, given that things can change over the charge control period. Moreover, this CP said that "there is no harm in an additional cost orientation obligation, yet there can be adverse consequences from not applying one". It concluded that "it would be safest to impose one".

Our analysis

4.308 We acknowledge the argument made by some CPs that the imposition of a charge control alone may not prevent BT from setting excessive prices for certain products within a basket. We accept that there could be a risk of allocative inefficiency without cost orientation, since charges may fall out of line with actual costs.

4.309 However, we consider that it would be disproportionate to impose a cost orientation obligation alongside the charge controls. This is because:

- we have imposed sub-caps to constrain the pricing of individual services, and these have the advantage of giving a greater degree of pricing certainty to stakeholders;
- we have designed a new basket structure such that the services in each basket are fairly homogeneous in terms of characteristics, competitive conditions and likely costs, as described in paragraph 4.289;
- cost orientation would give stakeholders relatively little certainty, as the levels of charges at which cost orientation is satisfied would be known to Openreach and its customers only with a lag; and
- the likely absence of actual cost data for ancillary services would make it difficult to verify compliance with cost orientation for individual ancillary services. The six baskets cover a large number of individual services, and it would be burdensome for Openreach to ensure that each one of them is fully cost orientated. Also, we note that the total revenue for many of those individual ancillary services covered in basket controls is immaterial.[429]

[426] Page 13, Virgin Response to the July 2013 LLU WLR Consultation.
[427] Page 26, EE Response to the July 2013 LLU WLR Consultation.
[428] See ✂ response to question 4.20 of the July 2013 LLU WLR Consultation.
[429] Template 5, BT's response to question 16 of the Eleventh LLU WLR BT Information Request.

Conclusions

4.310 We have decided not to impose cost orientation for any services subject to a charge control – whether individually controlled or as part of a basket control.[430]

Services which can also be used for leased lines

4.311 In the July 2013 LLU WLR Consultation we noted that the proposed new charge controls for Co-Mingling products will effectively apply regardless of whether they are used by CPs for leased line products or for LLU by virtue of an obligation imposed in the 2013 BCMR Statement which required BT to price accommodation products used for leased lines purposes the same as for LLU Co-Mingling products.

4.312 We identified 22 accommodation products offered by Openreach that CPs may also use for leased lines and that have been included now in the Co-mingling (New Provides and Rentals) basket. These overlapping products are identical except that under the terms for "Access Locate" CPs can house a wider range of equipment than under LLU.[431]

4.313 In the 2013 BCMR Statement[432] we noted that the leased line volumes and revenues associated with these overlapping products were captured in the compliance assessment of the Co-Mingling basket for the LLU charge controls.[433] This means that the accommodation products for leased lines are already part of the LLU charge control. We have not imposed any charge control on these overlapping products as part of the 2013 BCMR Statement. In the 2013 BCMR Statement we required Openreach to price accommodation products used for lease lines the same as for when used for LLU Co-Mingling.

4.314 By virtue of an obligation imposed in the 2013 BCMR Statement which required BT to price accommodation products used for leased lines purposes the same as for LLU Co-Mingling products, the new charge controls for the Co-Mingling (New Provides and Rentals) basket will effectively apply regardless of whether they are used by CPs for leased line products or for LLU.

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[430] In Volume 1, we have decided that the following three products should be subject to cost orientation: Sub-Loop Unbundling ("SLU"), Physical Infrastructure Access ("PIA") and electricity charges. None of these products is within a charge control. Refer to Section 12 of Volume 1 for the reasons why we consider SLU and PIA should be subject to cost orientation and Section 13 of Volume 1 for why we consider electricity charges should be cost orientated.

[431] "Overlapping Accommodation Services" used for leased lines listed under Annex to Condition 5.5, Section 2, pages 205-208 of the 2013 BCMR Statement annexes. The "Access Locate" consists in "Contract conversion From RANF to Access Locate. Administration charge (3)" (*ibid*). Note that a number of "Overlapping Accommodation Services" have been withdrawn since the 2013 BCMR Statement.

[432] See paragraph 22.105, 2013 BCMR Statement.

[433] See page 179 of the March 2012 Statement annexes, where we say "*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*".

Section 5

Charge control cost modelling

5.1 In this Section, we outline our approach to modelling the costs of the LLU and WLR services to 2016/17 for the purposes of setting charge controls.[434]

5.2 We explain how we have built a top-down charge control model and have populated it with cost data based on BT's 2011/12 RFS. We also summarise our decisions on the key modelling inputs (such as: WACC, volumes, efficiency, inflation, quality of service, service level cost differentials, fault rates and cumulo costs). The detail on these points is addressed in a number of annexes, which we signpost in this Section.

Summary of our decisions

5.3 This Section sets out our decisions to:[435]

- use a top-down model based on cost components contained in BT's RFS that are relevant to the services that are subject to the charge controls ("the Cost Model");
- forecast copper and duct assets on an aggregate basis using the RAV model, rather than by applying the Asset Volumes Elasticities (AVEs). This is consistent with the approach taken in the March 2012 Statement. We use the resulting copper and duct capital costs as inputs into the Cost Model;
- project BT's costs (excluding copper and duct costs[436]) forward in the Cost Model for the period 2014 - 2017 by applying the AVE and Cost Volume Elasticities ("CVEs") to the RFS cost components and multiplying through the forecast volumes for each service;
- adjust base year costs to reflect the increases in resources required to achieve the minimum quality of service standards that we have imposed;
- adjust usage factors to reflect service level differentials and relative fault rates;
- project costs using a 5% efficiency forecast applied to operating cost (opex) and capital costs (capex);
- use a 8.6% pre-tax nominal return on capital employed, based on a weighted average cost of capital (WACC) for BT's copper access business;
- reallocate common costs so the WLR and MPF line rentals recover the same common costs on a per line basis;

[434] We will publish a non-confidential version of the Cost Model alongside this document as Annex 12. Annex 11 provides further detailed information on the Cost model to assist stakeholders when using the Cost Model. Annex 11 also includes an overview of our approach to model publication and the audit/quality assurance process that the Cost Model has gone through.
[435] A detailed discussion of these issues and responses to the July 2013 and December 2013 LLU WLR Consultations can be found in Annexes A9 and A12-A16.
[436] We set out how we have valued Openreach's copper and duct costs in Annex 6.

- adjust the base year costs derived from BT's RFS to be consistent with: (i) the previous regulatory treatment of certain classes of asset or cost where we believe this remains appropriate (e.g. uplifting line card costs to their steady state) and/or (ii) our modelling approach (e.g. the exclusion of costs incremental to NGA but ensuring that all relevant common costs are within the cost base); and

- set charge controls such that charges align with the forecast efficient cost in 2016/17.

Conceptual modelling approach

5.4 Cost models can take a number of different forms. When we build a cost model for setting charge controls we have historically built the following types of models, depending on the case in hand:

- top-down model – based on total network cost data (typically derived from accounting cost data such as BT's RFS), which is then allocated to services based on usage factors;

- bottom-up model – based on how much network equipment is needed for a projected level of volumes for specified cost drivers; or

- hybrid model – based on bottom-up cost drivers and is calibrated against top down cost data.

5.5 In adopting an appropriate and proportionate means by which to model BT's forecast relevant costs for the purposes of setting charge controls for LLU and WLR services, Ofcom is required to exercise its judgement based on its experience as the sector regulator for these services. Having carefully considered the advantages and disadvantage of the alternative potential modelling approaches available, in Section 6 of the July 2013 LLU WLR Consultation, we explained why we proposed to proceed to set charges using a top-down cost model that we, alongside Analysys Mason, designed and built using relevant cost components contained in and underpinning BT's published RFS.[437] To populate the model we identify from the RFS the cost components relevant to the services that are subject to a charge control (and consider if others need to be defined).

5.6 As set out in Section 3, to set the charge controls we have decided to use an anchor pricing approach based on a hypothetical on-going copper access network. We have therefore based our charge controls on a copper access network, ensuring all incremental fibre costs are excluded from the base year (and forecast) costs.

5.7 Having determined these base year costs, we then forecast the costs forwards using AVEs and CVEs applied to our forecast of component volumes, derived from service volumes via usage factors. We explain this approach further later in this section.

5.8 Respondents were either neutral on, or broadly supportive of, our proposed approach. Where respondents disagreed with our approach, they did so in relation to specific points of model implementation. We deal with these issues in more detail below and in Annex 13. The cost model used to set the charge controls therefore uses a top-down approach to forecast costs for these charge controls.

[437] Since the July 2013 LLU WLR Consultation, we have taken sole responsibility for the development of the Cost Model.

Design and implementation of the Cost Model

Model design

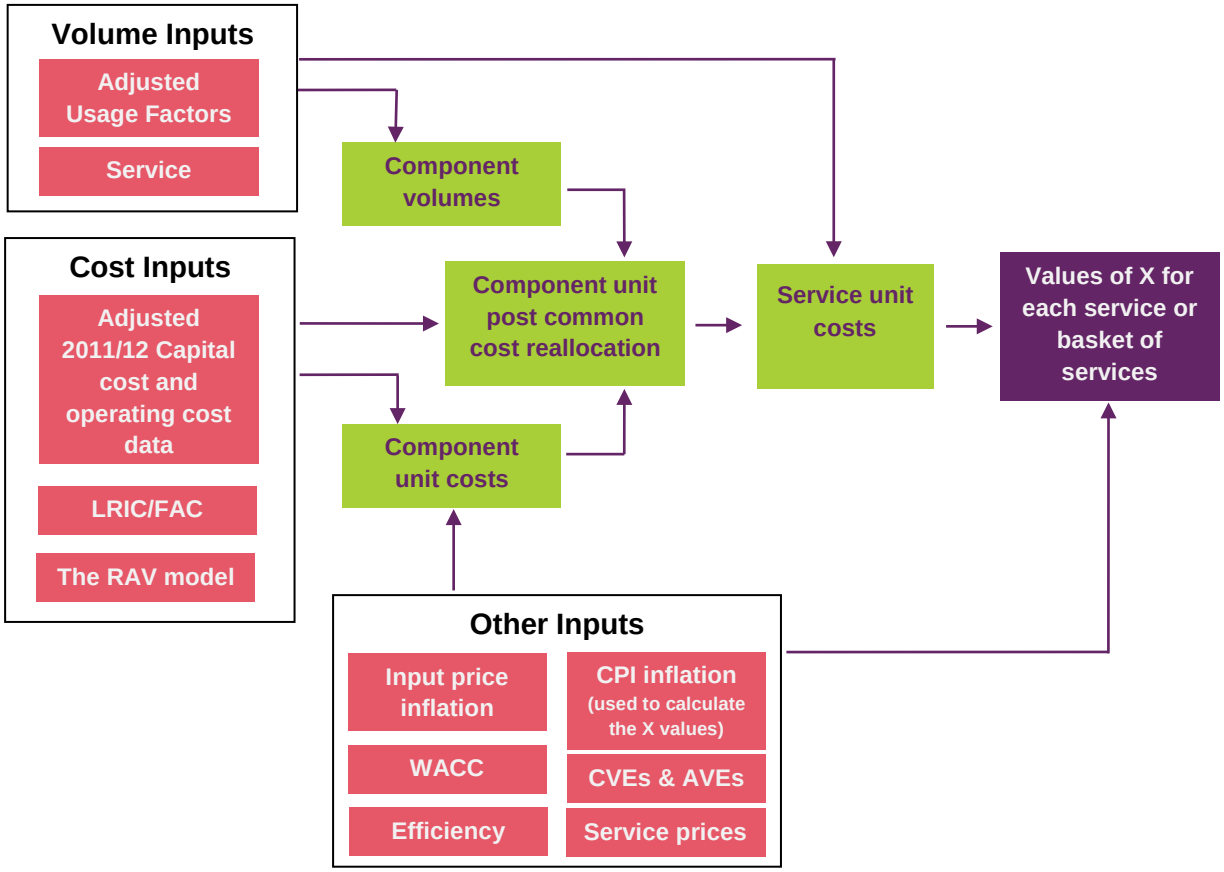
5.9 Our model design is very similar to that which we laid out both in the July 2013 and the December 2013 LLU WLR Consultations. At a high level, the model calculates unit costs in 6 steps:

- step 1 – calculate the forecast service volumes over the modelling period;
- step 2 – convert service volumes to component volumes using service usage factors;[438]
- step 3 – calculate forecasts of the capital costs and opex for each component using the asset price changes, efficiency forecasts and by applying the AVEs and CVEs to component volumes;
- step 4 – calculate service costs based on the amount that services use specific components (i.e. by using the usage factors);
- step 5 – reallocate common costs to reflect incremental cost difference; and
- step 6 – calculate the X-values to be used in the CPI-X controls for each service or basket of services, as appropriate.

5.10 Figure 5.1 below shows the flow of inputs through the Cost Model.[439]

[438] Where appropriate these usage factors reflect adjustments to take account of our decisions on service levels and quality of service.
[439] A more detailed on the method we have used for modelling costs can be found in Annex 11.

Figure 5.1: 2014 WLR/LLU Cost Model flow chart[440]



Source: Ofcom.

Inputs used in the Cost Model

Choice of 2011/12 base year cost data

5.11 Top-down models require a base year from which to forecast costs. In the July 2013 and December 2013 LLU WLR Consultations, we used data provided by BT for the accounting year 2011/12. We stated that our objective in charge control reviews such as this one is to use the best available information to forecast BT's relevant costs over the charge control period. In the December 2013 LLU WLR Consultation[441], we noted that BT had made a number of material changes to the methods used to compile the cost data between 2011/12 and 2012/13. As a result, we outlined our preference to proceed by using BT's costs reported in the 2012/13 RFS (where appropriate) for our base year costs in the Cost Model whilst retaining the allocation methodologies used in the 2011/12 RFS. We noted, however, that should we find this approach not to be feasible, we would need to consider reverting to using 2011/12 as the base year for the charge controls.

5.12 Respondents to the December 2013 LLU WLR Consultation gave a range of views about the appropriateness of using 2012/13 data as the base year and whether we should reverse the changes in method introduced by BT. We discuss these

[440] The inputs and calculations in this figure are explained in the remainder of this section.
[441] Paragraphs 7.82 to 7.98.

responses in detail in Annex 22. For the reasons set out in Annex 22, the Cost Model uses 2011/12 as the base year from which to forecast efficient costs.

Usage factors

5.13 Usage factors are used to identify how costs of different components are allocated to services. In the Cost Model, we use usage factors to convert the forecast volume of services into volumes of components and to allocate the estimated cost of components to services. As in the July 2013 and December 2013 Consultations, we have used usage factors that are consistent with our base year data.

5.14 In the December 2013 LLU WLR Consultation, we proposed to make changes to some usage factors in order to more accurately reflect the relative costs of servicing faults on MPF lines, SMPF lines and WLR lines. Our decisions on these changes are discussed further in Annex 19 and Annex 20 and the subsequent usage factor adjustments are discussed further in Annex 13.

AVEs and CVEs

5.15 AVEs and CVEs are used to determine how component costs change when component volumes change. AVEs and CVEs typically have a value of less than 1, meaning a 1% increase in volumes cause a smaller than 1% increase in total costs. A CVE of 1 implies no economies of scale (or scope). A CVE less than one implies economies of scale (i.e. the proportionate change in unit costs is less than the proportionate change in volumes) and a CVE greater than one implies diseconomies of scale (i.e. the proportionate change in unit costs is more than the proportionate change in volumes).

5.16 Our starting point for AVEs and CVEs are the values that BT provided in response to our statutory information-gathering requests. In the July 2013 and December 2013 LLU WLR Consultations, we used AVEs and CVEs that were consistent with a 2011/12 base year. Respondents to the July 2013 LLU WLR Consultation believed that we should perform a more thorough assessment of the AVE and CVE values used in the Cost Model.

5.17 In Annex 13, we discuss in detail the respondents' views on our choice of AVEs and CVEs. We have undertaken a process of verifying the AVEs and CVEs used in the Cost Model, which is also described in Annex 13. Producing AVE and CVE estimates requires complex modelling that may not produce more robust estimates than we are currently using. Consequently, we do not consider that it would be proportionate in the context of this review for us to undertake an exercise to produce our own estimates of AVEs and CVEs. In light of the verification exercise that we have undertaken, we have adopted the AVEs and CVEs that were used in the July 2013 and December 2013 LLU WLR Consultations.[442]

Input price inflation

5.18 In Section 3, we explain our choice of CPI as the measure of inflation for indexing the charge controls. Aside from how we index the cap each year in the charge control, we also need to define how input prices for each cost item vary over time in the Cost Model. In a CCA cost model, the input price inflation – which, as here, will often vary by input – has the following impact on costs:

[442] See Annex 13 Tables A13.14 and A13.15 for the CVEs and AVEs used in the Cost Model.

- increases opex by the assumed rate of inflation;
- increases the value of the asset base (and all related capital cost values) by the assumed rate of inflation; and
- results in a holding gain or loss for capital assets (which reduces or increases the depreciation in each year).

5.19 When setting the input price inflation, we have sought to base our forecast of input price inflation over time on the forward looking input price inflation faced by an on-going efficient operator.

5.20 In the July 2013 LLU WLR Consultation we set out a range of values that we proposed to use for the input price inflation. Respondents to the July 2013 LLU WLR Consultation had differing views on what the correct level of input price inflation should be. We discuss these responses and our analysis in Annex 13. In summary, we have set input price inflation as follows:

- pay cost inflation from 2013/14 at 2.8%;[443]
- non-pay cost inflation is set using a weighting of 3% for accommodation costs, a forecast of electricity prices[444] for electricity costs, RPI for cumulo costs[445] and CPI for all other non-pay costs; and
- for asset price inflation, we assume copper and duct assets within the Cost Model are inflated at RPI (consistent with the RAV model). We project forward all the remaining asset cost at 0%.

Efficiency

5.21 We apply an efficiency factor to the cash expenditure in the model (i.e. opex and capex). In the July 2013 LLU WLR Consultation, we proposed a range for efficiency of 4 to 6%. Within this range, we proposed to use a base case net efficiency rate of 5% applied to both opex and capex.

5.22 Respondents to the July 2013 WLR LLU Consultation took a range of views both on the value of the efficiency factor and whether the same efficiency factor should be applied to both capex and opex. We have outlined these responses and our further analysis in Annex 16. We have adopted a 5% efficiency factor and apply it both to opex and capex.

Cost of capital

5.23 We calculate the return on capital as the mean capital employed multiplied by the cost of capital. In the July 2013 LLU WLR Consultation, we outlined our approach to estimating the weighted average cost of capital (WACC), based on a disaggregated WACC for the different parts of BT (specifically a disaggregated WACC for BT's copper access business and another rate for the rest of BT (ROBT)) in order to

[443] For 2012/13 we are using a value of 0.9% for pay inflation calculated from BT information supplied in its response dated 25 October 2013 to the Eleventh LLU WLR BT Information Request.
[444] The September 2013 DECC "baseline" forecast of "Services" electricity prices for Electricity costs (Accommodation).
[445] With exception of 2014/15 where it is known RPI will not be used but 2% applied

reflect variation in systemic risk. We proposed to use a pre-tax nominal WACC of 8.8%, which was consistent with the value used for BT's copper access business in the 2013 BCMR Statement.

5.24 Since the July 2013 LLU WLR Consultation was published, we have undertaken an exercise to re-estimate BT's WACC. Our new estimate of the WACC for BT's copper access business is 8.6% pre-tax nominal. We have used this WACC value in the Cost Model. Our approach to estimating the WACC is described in Annex 14.

Service quality modelling

5.25 As set out in Volume 1: Section 11, we have set a new SMP condition on BT which imposes a minimum standard for WLR and MPF provisioning and repair. As a consequence we have decided to adjust the base year (2011/12) cost base to account for the higher costs of achieving these standards. Our estimate of the cost effect of these targets is that it will increase the 2011/12 engineering related costs by 3.9%. See Annexes 17 for more detail of our modelling approach.

Service level cost differentials

5.26 In the December 2013 LLU WLR Consultation, we set out our analysis of the differential associated with delivering Service Level 1 and Service Level 2 and its implications for cost differentials in the Cost Model. Having carefully considered stakeholders' responses to this aspect of our proposals, we have corrected a calculation error contained in the modelling underpinning our proposals. Having corrected for that error and having made a change to our assumption regarding economies of scope we now estimate the service level resource differential to be 21%. We reflect these service level resource allocations in the Cost Model by adjusting the usage factors for relevant components[446] by the ratio 1.21:1.00:1.21 for MPF:WLR:SMPF.[447]

Fault rates

5.27 In the December 2013 LLU WLR Consultation we presented our analysis regarding the fault rates experienced on the copper access network, how this affects different services and what we anticipate to happen to fault rates over the forward looking period of these market reviews. This analysis has important implications for the charge controls set for LLU and WLR services, as the cost of repairing faults is a significant proportion of the service cost stacks. As is consistent with our general approach to cost modelling, we would only wish to include the efficient forward looking costs faced by an on-going network in the cost stack.

5.28 Having carefully considered stakeholder responses to this aspect of our proposals, the cost modelling assumptions that we have adopted in relation to faults are as follows:

- 2011/12 is the appropriate base year;

[446] The relevant components are D-side Copper Current, E-side Copper Current, LE General Frames Current, Drop Wire Maintenance, and DSLAM capital/maintenance.
[447] Annex 19 provides more detail on the estimation of the service level resource differential and Annex 13 including a detailed explanation of how this adjustment is implemented in the Cost Model.

- there is no clear evidence of a continuing upward trend in fault rates over the period. We have therefore assumed that fault rates should be held constant throughout the charge control period at the level experienced in 2011/12; and

- fault rates for MPF are the same as fault rates for lines with WLR and SMPF. Following further analysis since our December 2013 LLU WLR Consultation we have, however, modified the relative fault rates to 1.00:0.83:0.17 for MPF:WLR:SMPF.

5.29 More detail on our approach to service quality modelling can be found in Annex 17.

Cumulo costs

5.30 Cumulo rates are the non-domestic (business) rates that BT pays on the rateable assets (largely the duct, fibre, copper and exchange buildings) within its UK network. In the July 2013 LLU WLR Consultation, we proposed to allocate the cost of Openreach's cumulo rates to MPF and WLR services according to the "Profit weighted Net Replacement Cost" (PWNRC) method, consistent with the method used in the March 2012 Statement. We have concluded that we should continue to use a version of the PWNRC method to allocate cumulo costs, but with allocations determined by Ofcom rather than derived from BT's RFS. This method has the advantage that it is consistent with allocations of cumulo costs to MPF and WLR which are equal and stable over time.

5.31 For the purposes of cost forecasting, cumulo costs are embedded within the component costs in the Cost Model. We take account of projected changes in cumulo costs through a single weighted-average efficiency gain assumption of 5% per annum applied to all costs in the Cost Model, including cumulo costs. This means that we capture the reductions in cumulo costs within the projected reductions in component costs and allow them to be passed to users in lower charges, whilst avoiding the spurious precision which a separate forecast of cumulo costs would entail.

5.32 A summary of responses to our consultation proposals, together with our analysis and conclusions on cumulo costs, are set out in Annex 26.

Service volume forecasts

5.33 In order to forecast future component volumes, it is necessary for us first to forecast the volumes of services. In the July 2013 LLU WLR Consultation, we created and published a range of forecasts based on extrapolated trends of underlying volume drivers.

5.34 We set out in Annex 24 our decisions on volume forecasts for all of the services for which we are setting charge controls. Annex 24 includes a summary of responses to the July 2013 LLU WLR Consultation, and our analysis as well as updates we have made in light of the availability of more recent data.

5.35 The volume forecasts for MPF, WLR and SMPF rental services are set out in Table 5.1 below.

Table 5.1: Rental service volumes (millions)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Total WLR Rentals	22.20	20.69	19.40	18.29	17.44	16.57	15.81	15.12
Total MPF Rentals	2.22	3.75	4.96	6.18	7.09	7.99	8.86	9.65
Total SMPF Rentals	12.09	11.28	11.17	11.12	11.01	10.93	10.81	10.63
Total Openreach lines	24.42	24.44	24.36	24.46	24.53	24.56	24.66	24.77

Source: Ofcom.

5.36 We forecast that by 31 March 2017:

- the total number of Openreach lines will increase to 24.8 million;
- broadband penetration will increase to 82% of Openreach lines; and
- MPF will account for 39% of the total lines.

Calculations of component volumes

5.37 The first stage of the Cost Model is to derive a measure of the total required usage of each component, based on service volumes and usage factors. We calculate component volumes as the product of service volumes and the associated usage factor for each component.

5.38 For 2011/12, the Cost Model derives the total utilisation (component volumes) of each component based on service volumes and usage factors. For future years (from 2012/13 to 2016/17), future service volumes and usage factors are used to calculate future component volumes.

5.39 Usage factors describe the quantity of each component used by each service (e.g. the usage factor of PSTN line cards for WLR will be 1, as a single PSTN line card is used in each WLR service); these usage factors are later used for cost allocation. As discussed in Annex 19 and Annex 20, some components have their usage factors adjusted in order to reflect changes in relative quality of service for WLR, MPF rentals and SMPF rentals. The way in which we have made these adjustments is explained in more detail in Annex 13.

Calculation of total network capital costs

5.40 Openreach capital cost data have been provided by BT (partially redacted for publication of this model) such as gross replacement cost (GRC), net replacement cost (NRC), and holding loss/gain for each asset class for the historical period. These asset class data are then distributed over the components to give a capital cost for each component – rather than each asset – for the historical period. For example, the total GRC value for duct as an asset class is apportioned to E-side copper capital, D-side copper capital and LLU tie cables.

5.41 For future years, the total network capital costs by component are forecast based on the AVE, efficiency gains, component volumes and asset price changes. The component unit capital cost is derived from these data, using the component volumes calculated previously.

5.42 In the July 2013 LLU WLR Consultation, the approach we proposed to adopt for modelling the asset capital costs (other than copper and duct) was to:

- determine the base year costs;
- estimate the change in capital costs caused by changing component volumes (using AVEs applied to the yearly capex);
- apply input price inflation to each cost component; and
- apply an efficiency factor to the capex in each year.

5.43 For each cost component, the total capital cost is the sum of the Operating Capital Maintenance depreciation, the holding gain and return on capital employed. In the Cost Model, we have continued to calculate the capital costs in this way. Our approach to calculating the capital cost is discussed in more detail in Annexes 11 and 13.

5.44 Within these calculations, the capital cost values for the duct and copper cable asset classes are replaced by RAV values for the years covered by these charge controls.

5.45 We proposed to separately calculate copper and duct capital expenditure. The starting point for our forecast was BT's planned capex for specified copper and duct classes of work supplied in response to a formal information gathering request. We adjusted these by applying our efficiency and inflation assumptions as well as flexing them to take account of our volume forecast.

5.46 The capital costs input data including GRC, NRC, and depreciation for some components have been adjusted to reflect changes in the relative quality of service for WLR, MPF rentals and SMPF rentals. These adjustments are explained in detail in Annex 13.

Calculation of total network operating costs

5.47 Openreach has provided pay and non-pay opex on a per-component basis for 2011/12, which gives total opex per component. Similar to capital costs calculations, the opex data for some components have been adjusted to reflect changes in relative quality of service for WLR, MPF rentals and SMPF rentals. The way in which we have made these adjustments is explained in more detail in Annex 13.

5.48 In summary, in the July 2013 LLU WLR Consultation, the approach we proposed to adopt for forecasting operating costs was to:

- Determine the base year (i.e. 2011/12) operating costs;
- Estimate the change in operating costs caused by changing component volumes (using CVEs);
- Apply opex price trends (for pay and non-pay) to the opex by component; and

- Apply an efficiency factor to the opex in each year.

5.49 Unit opex for each component is then calculated by dividing total component opex by the relevant component volume for each year.

5.50 We received responses on specific points of implementation, but no respondent questioned our overall approach to forecasting operating costs. We have continued to forecast operating costs in the same way for this Statement.

Cost modelling adjustments

5.51 We also make a number of specific adjustments to the Cost Model in relation to decisions made in this review. Our approach to modelling specific cost items is set out in Annex 13. The key model adjustments are described below.

Broadband line testing: costs of TAMs and evoTAMs

5.52 Broadband line testing costs are composed of two components:

- Test Access Matrices (TAMs) – used by every MPF line; and
- Evolutionary Test Access Matrices (evoTAMs) used by some SMPF lines.

5.53 In the July 2013 LLU WLR Consultation we proposed to recover TAM costs from MPF lines only and the cost of evoTAMs from SMPF lines only. In the December 2013 LLU WLR Consultation we revised our proposal so that we were completely excluding evoTAM costs from our cost estimates. Stakeholders responded on both how TAM and evoTAM costs should be allocated and the absolute level of these costs.

5.54 We have considered stakeholder responses on TAMs and EvoTAMs in Annex 13. In light of responses and our further analysis we have decided to maintain the position set out in the December 2013 LLU WLR Consultation, but slightly lower our estimate of TAM costs to £5.15.

The removal of other costs

5.55 In addition to the adjustments made above, we have removed certain costs that we consider should not be allocated to services in this charge control. We discuss these costs and our reasons for excluding them in Annex 13. These adjustments are:

- the removal of costs associated with insurance for claims of deafness;
- the removal of some overheads costs associated with non-UK business activities;
- the removal of directory costs; and
- the removal of evoTAM costs.

Calculation of total unit component costs and service unit costs

5.56 The Cost Model calculates unit component costs by summing up the unit capital and unit operating cost for each component calculated in the previous two steps.

5.57 The unit component costs are then multiplied by relevant usage factors to calculate service unit costs.

Reallocation of common costs

5.58 We have set the charge control caps for some services with reference to their forecast LRIC rather than forecast FAC, or based on the difference in their LRIC compared with that of another regulated service. Forecast long-run incremental cost (LRIC) has been calculated by applying a LRIC:FAC ratio to the forecast FAC.

5.59 For prices regulated at LRIC, the unrecovered common cost is then recovered over the main rental services. This is done in such a way so as to ensure the price differentials for the main rental services reflect their LRIC difference.

5.60 Above we have described how we estimate the FAC of each service. We then make various adjustments to the costs between services in order to arrive at a target unit cost in 2016/17. These adjustments are described elsewhere in this Statement and include:

i) setting the WLR, SMPF and MPF rental charges such that the difference between WLR/WLR+SMPF and MPF charges is equal to the difference in LRIC. This is explained in detail in Sections 3 and 6 of this Statement. We set out our assessment of the LRIC differences in Annex 9, where we conclude that the LRIC difference between WLR+SMPF rentals and MPF rentals is £1.79 and that between WLR and MPF rentals is -£0.82;

ii) aligning the charge for single migration services that involve jumpering at the exchange at their volume weighted average LRIC, and recovering the common costs no longer recovered from these services through MPF and WLR rental charges on an equal per line basis. We take the same approach to bulk migration services (see Section 4 for the reasons why we make this adjustment);

iii) setting the WLR transfer charge at LRIC and recovering the common costs no longer recovered from this service through MPF and WLR rental charges on an equal per line basis (see Section 4 for the reasons why we make this adjustment);

iv) bringing the charges of WLR and SMPF simultaneously provided services in line with their underlying cost of supply. However, as BT's current costs already reflect the synergies from simultaneous provision (which are spread across services involving jumpering work at the exchange), we are making a re-allocation of costs across these services to ensure our estimates reflect the underlying costs of each service. We explain this adjustment in detail in Annex 8;

v) setting WLR Connections, WLR+SMPF Simultaneous Connections and MPF connections such that their charges are equal to the differences in LRIC. For this we estimate the total common costs recovered through these services and then spread these to ensure that each connection service recovers the same common cost per line;

vi) setting the Caller Display charge at LRIC and recovering the common costs no longer recovered from this service through WLR and MPF charges as appropriate. The cost re-allocation is described in more detail in Section 4; and

vii) adjusting the FAC for MPF and SMPF Hard Ceases so that they properly reflect the costs of hard ceases only. Initially, the forecast costs include a mix of both hard ceases and soft ceases (because the base year costs include such a mix). As we want to set the charge control only for hard ceases, we adjust the cost figures so as to forecast the FAC only for hard ceases.

Calculation of the X value for each regulated service and basket

5.61 The X in a CPI-X glide path is the yearly percentage change required to equalise unit costs and unit charges at the end of the glide path, i.e. 2016/17.

5.62 We calculate the X-value for individual services using the following inputs for each service:

- service price in 2013/14;
- proposed charge (as adjusted for LRIC adjustments) in 2016/17; and
- CPI geometric mean (for the charge control period, 2013/14–2016/17).

5.63 As explained in Section 4, we have set six basket controls. For three of these baskets, namely the MPF New Provides basket, WLR Connections basket and the Tie Cables basket, we calculate the X-value for in the same way as for the individual services described above. To calculate the average charge for the MPF New Provides and Tie Cables in 2013/14, we use average charges in 2013/14 weighted by 2011/12 volumes of individual services in the baskets.

5.64 The X-values for the Hard Ceases and Co-Mingling (New Provides and Rentals) baskets are computed such that the expected total revenue for the two baskets are brought into line with their respective forecast FAC by the end of the charge control period (2016/17).[448]

5.65 We do not have any cost data on the services in the LLU Ancillaries basket. Given that most of the services are used internally by BT, we have made the decision to set the X at the same level of the general efficiency rate. For more details regarding our approach on this and the other baskets, please refer to Section 4.

5.66 For the reasons described in Section 6, we have derived the Xs in the CPI-X charge controls using a glide path to arrive at the target cost by 2016/17. The starting point for this glide path is the charges that applied at 31 March 2014. We have not started the glide path using the revised charges for WLR, SMPF and MPF that were introduced on 17 May 2014.

5.67 However, as described in Section 6, we have made immediate downward adjustments to the charges that will apply from 1 July 2014 to remove the following costs:[449]

- directory and evoTAMs costs from WLR charges;

[448] We make adjustments to both of these baskets that are described in Annex 11.
[449] Note we have not needed to make one-off adjustments for the insurance for claims against deafness, because these costs were not in the charge controls we previously set, and hence do not need to be removed from prevailing charges.

- evoTAMs and some DSLAM capital maintenance costs from SMPF; and
- the overheads costs associated with non-UK business activities.

5.68 We have also made an immediate upward adjustment to the WLR and MPF rental charges for the common costs we are reallocating from Caller Display to those charges (as explained in Section 4).

5.69 As explained in Section 6, in a limited number of cases, we have also set certain new charge controls on LLU and WLR so there are immediate one-off adjustments, including for Caller Display, WLR Conversion and WLR+SMPF Simultaneous Migrations.

Section 6

Speed of adjustment of charges

Introduction and summary

6.1 This section sets out our decisions on the speed with which charges will be adjusted to be in line with costs, in particular it sets out:

- our general preference for adjusting charges by means of a glide path, while noting that in some circumstances it might be optimal to make one-off adjustments to charges. See paragraphs 6.35 to 6.37;
- the change in the core rental charges, where we decide to adjust the WLR/WLR+SMPF minus MPF charge differentials so they are equal to our estimate of the differences between the LRICs (that is £1.79 for WLR+SMPF minus MPF) by 2016/17. See paragraphs 6.38 to 6.76);
- that we make one-off immediate adjustments to the core rental services for the costs of directories, evoTAMS and DSLAM capital maintenance. See paragraphs 6.77 to 6.88; and
- the timing of adjustments for non-core rental products. In general, these adjustments are on the basis of three year glide paths, with a small number of exceptions where we consider one-off adjustments are appropriate. See paragraphs 6.89 to 6.90.

Proposals in July 2013 and December 2013 LLU WLR Consultations

Speed of adjustment for core rental services

6.2 In the July 2013 LLU WLR Consultation, we proposed to set MPF and WLR charges such that the difference between the MPF and WLR charges would be set equal to our estimate of the differences in LRIC. We also proposed setting the charge for SMPF at LRIC, so that the WLR+SMPF and MPF charge differential would also reflect LRIC.[450] This has the effect of regulated wholesale charges achieving the same common cost recovery per fixed line.

6.3 We presented an estimate of the LRIC differential based on the information available to us at that time. We noted that our estimate of the level of the LRIC differential between WLR+SMPF and MPF was likely to be at the bottom of the £10 to £14 range published in our March 2012 Statement, and might fall further as we refined our estimate.[451] We proposed to adjust charges using a three year glide path, with the exception of Directory costs which we proposed to remove from WLR through an immediate one-off adjustment.[452]

6.4 As a result of further analysis, in the December 2013 LLU WLR Consultation we presented a revised estimate of the LRIC differential between WLR+SMPF and MPF

[450] Paragraph 3.77, July 2013 LLU WLR Consultation.
[451] Paragraphs 3.151-3.152, July 2013 LLU WLR Consultation.
[452] Paragraphs 3.117-3.118 and 3.147-3.154, July 2013 LLU WLR Consultation.

of £0 to £4. We also set out further proposals regarding the speed of adjustment of charges. We noted that deciding on the period over which regulated charges should converge to reflect the LRIC differentials required us to exercise our judgement to set charges in a way that best gave effect to our statutory duties and objectives.

6.5 We noted that there would be productive efficiency advantages from setting charges such that they reflected the differences in LRIC. We did not consider it necessary or desirable to set charges to favour MPF-based competition over other forms of competition. Rather, we considered that in principle charge differentials equal to LRIC differentials were likely to lead to efficient investment incentives and competition on the merits (and so giving some dynamic efficiency advantages from a rapid adjustment in charges).

6.6 However, we considered that some aspects of dynamic efficiency pointed to a more gradual change, for the reasons set out below.[453]

- Our December 2013 estimate of the LRIC differential (£0 - £4) was lower than previously estimated, and was significantly lower than the charge differential between WLR+SMPF and MPF at that time, which was £19. We had signalled in the March 2012 Statement that we would in future set charges to reflect the LRIC differential, and provided an estimate of £10 to £14.

- We were concerned that reflecting this reduction in our estimate of the LRIC differential in three years might affect the stability and predictability of the regulatory regime. In particular, we were concerned that MPF operators might have continued to make investments based on reasonable expectations formed from the March 2012 Statement which could be adversely affected.

- We considered that regulatory certainty was important to enable stakeholders to make informed investment decisions in the future, and to encourage them to make significant (and often sunk) investments.

6.7 Given these considerations, we consulted on two options for phasing in changes to the main rental charges:

- a glide path such that the charge differential between WLR+SMPF and MPF was £10 by 2016/17. This figure was the bottom of the range for the LRIC differential, as estimated in the March 2012 Statement; and

- a glide path such that the charge differential between WLR+SMPF and MPF was set to be a reasonable estimate of the actual LRIC differential by 2016/17.

6.8 We proposed to proceed with the first option, subject to a consideration of stakeholders' responses.

6.9 With both of these options, we proposed to recover the same amount of total revenue from the core rental services in 2016/17, with the options affecting how much was recovered from each of the core rental services.

6.10 We also proposed to make one-off adjustments for costs relating to evoTAMs and DSLAM capital/maintenance costs.[454]

[453] Paragraph 8.63, December 2013 LLU WLR Consultation.

Speed of adjustment for other services

6.11 In the December 2013 LLU WLR Consultation, we proposed to introduce a charge control for Caller Display such that the charge would reduce to the level of LRIC at the start of the charge control. Stakeholder responses and our decision on this matter are summarised in Section 4.

6.12 Our proposals on the speed of adjustment of migration and connection services are described in Section 4.

Stakeholder responses to the July 2013 and December 2013 LLU WLR Consultations

Responses on moving the differential to reflect LRIC by 2016/17[455]

6.13 On the matter of timing, Sky said[456] that, if the differential between MPF and WLR+SMPF were required to reflect differences in LRIC then this should happen no earlier than 2020. It said that MPF operators could not have "reasonably expected" that the price differential would have narrowed to £0 to £4. Sky said that Ofcom's previous consultations and statements had always indicated that there "*would be a significant price differential*" between MPF and WLR+SMPF.

6.14 Sky said that it had "*made business decisions predicated on a wider margin and could have acted differently if it had known that the differential would be lower*." Sky said that the price differential was "a material factor" when it decided to invest in full unbundling (via MPF), and that it continues to be a factor when considering unbundling further exchanges. In 2008, Sky decided to invest ✂ to roll out voice services using MPF. In considering this investment, Sky said that it placed considerable weight on the price differential between MPF and WLR+SMPF. If the differential had been lower, Sky said, this investment might not have proceeded on the same form or scale, or possibly not at all. Sky said that it faced higher on-going costs as a result of its decision to invest in MPF, including switch costs, equipment costs, installation costs, collocation charges and additional power consumption for equipment in the exchange. Sky, therefore, concluded that reducing the differential before 2020 would undermine future investment incentives for CPs and result in dynamic inefficiency.

6.15 TalkTalk[457] said that to set the differential at £2 would represent a "precipitous change" in Ofcom's policy approach since the March 2012 Statement. TalkTalk said that this would produce a "large increase" in the MPF rental price, from £84 to £91, having reduced from £91.50 in March 2012 to £84 in March 2014. TalkTalk said that this would undermine regulatory certainty (by undermining stability and predictability) and as such reduce future investment and dynamic efficiency, and harm consumers' interests. TalkTalk said that it could not have predicted a narrowing of the WLR+SMPF vs. MPF differential from £19 to £2 in the current review, or a price increase of £2 a year following a price fall of £3 per year.

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[454] Paragraphs 7.28 to 7.47, December 2013 LLU WLR Consultation.
[455] In paragraphs 8.8 to 8.28 of the December 2013 LLU WLR Consultation, we summarised responses to the July 2013 LLU WLR Consultation on adjusting the rental charges to reflect LRIC and set out our response. Some of these responses related to the speed of adjustment of charges.
[456] Paragraphs 6.8 to 6.23, Sky Response to the December 2013 LLU WLR Consultation.
[457] Paragraphs 6.1 to 6.15, TalkTalk Response to the December 2013 LLU WLR Consultation.

6.16 TalkTalk said that in the last year, they had invested £350m and that these decisions "✂. The key investments have been a large investment in triple play, ✂ and unbundling 300 new exchanges. TalkTalk said that, over the past decade, it had made "major investments" in unbundling exchanges. Although it ✂, the long asset lifetimes for investments in unbundling meant that there remained significant un-depreciated assets. The change in the differential would leave some of those assets "stranded". TalkTalk said that the change in the differential would ✂.

6.17 BT[458] said that Ofcom ought to reflect its best estimate of the LRIC differential (c. £2) by 2016/2017. It said that perpetuating a non-cost based price differential was inconsistent with productive efficiency, that it distorted competition and impeded "competition on the merits". It said that regulatory stability should not be equated with the rigid application of prices established in previous charge controls, especially in the face of significant and relevant new information.

6.18 BT said that Ofcom had changed the specification of the rental products – i.e. removing evoTAMs costs from SMPF and directory costs from WLR – and that "comparing LRIC differentials on a consistent basis results in a much less 'significant' fall in the estimate".

6.19 BT argued that the scale of the "proposed intervention", that is, to move the differential to the level of LRIC by the end of the following charge control rather than by 2016/17 "dwarfs any possible effects on recent investment and is therefore disproportionate". BT presented analysis to demonstrate that MPF-based investments since Ofcom's March 2012 statement "cannot be large relative to the distortions involved".

6.20 BT argued that maintaining the charge differential above differences in LRIC would give rise to economic and competitive distortions because one set of inputs contributed proportionately more to cost recovery than another. BT also said that the price differential was not needed to "subsidise" MPF-based suppliers which were now established at scale.

6.21 BT also submitted a report by Plum Consulting[459] in which Plum calculated the cost advantage to MPF CPs from the price differential being above the difference in costs. It said that the "magnitude of the distortion" was £369m if the differential were to reflect LRIC by 2016/17 compared to an immediate adjustment.

6.22 Plum said that a price differential above cost distorted the input choice between MPF and WLR+SMPF, would distort competition between operators who rely on different inputs and might also cause inefficient unbundling of new exchanges. It said that Ofcom had clearly signalled in 2009 that the differential above cost would be removed by 2012/13[460] and that the estimate for the differential had been revised downward in the past. Plum said that consistency of regulatory approach in setting the price differential based on the best available evidence was preferable to consistency of prices per se. It said that "*reasonable investor expectations could be expected to […] consider the prospect that new evidence regarding costs could lead*

[458] Paragraphs 30 to 67, BT Response to the December 2013 LLU WLR Consultation.
[459] Plum Consulting, *Why the MPF vs WLR+SMPF price differential should be aligned with costs immediately*, February 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-llu-wlr-charge-controls/responses/Plum_Report_on_MPF_vs_WLRplusSMPF_price_differential.pdf.
[460] Section 5.6, *ibid.*

to a revision of prices".[461] It said that investor expectations were important, but that ultimately the regulatory decision regarding wholesale prices should take into account consumers' short and long term interests.

6.23 Plum said that "the fact that a glide path is applied by Ofcom in overall price controls does not therefore imply that a glide path should apply to an adjustment of relative input prices" as overall incentives for efficiency are not relevant. Plum concluded that it was in the public interest to remove the differential immediately for all new lines, with immediate or rapid (inside 3 years) removal for existing lines. The different treatment for existing lines was to assuage concerns relating to prior LLU investment.

6.24 EE[462] rejected Ofcom's proposal to set the differential at £10 by 2016/17, rather than moving to £0 to £4. It believed that rental charges should match the LRIC differential immediately at the beginning of the new charge control. It considered that Ofcom should focus on recent relevant changes, namely a new and more robust estimate of the LRIC differential, and the 2013 EC Recommendation which, EE said, places strong emphasis on the importance of minimising any fluctuations in copper-based wholesale broadband pricing as soon as possible.[463]

6.25 TalkTalk submitted a further response to BT's, Plum's and EE's submissions[464] on the matter of the LRIC differential. TalkTalk rejected BT's view that MPF prices could rise since TalkTalk's profit level is high. It said that its profits and return on assets (less than ✂) were "far lower" than BT had suggested (24%). It also said that this was "tantamount to regulation of the downstream/retail market whereby retail returns are capped by raising wholesale prices" and that it was inappropriate for BT to determine what wholesale charges TalkTalk could afford to pay.

6.26 TalkTalk said that there could be no "cross-subsidy", as referred to by Plum, since MPF prices were above their incremental cost, rather there was a difference in the level of common cost recovery between the two products. TalkTalk said that while a cross-subsidy was always distortionary, different levels of common cost recovery may be efficient. TalkTalk said that aligning price differences with cost differences would reduce some aspects of allocative efficiency since MPF prices would move further away from incremental cost. It said that although MPF/SMPF prices would move closer to incremental cost, this was "largely irrelevant" since these products were principally consumed by BT. It also said that Plum had over-estimated the welfare loss from the "distortion" and that actual harm was "probably less than £30m across 5 years" which was small compared to "downstream investment of around £1.5bn a year" that could be affected by a reduced differential.

6.27 TalkTalk said that EE was incorrect to say that Ofcom was increasing the gap between the price differential and the cost differential. TalkTalk said that Ofcom was proposing to reduce the gap from £17 (£19 - £2) to £11 (£13 - £2) in 2014/15 (taking the mid-points of the ranges). It said that a £6 reduction in a single year was significant. It said that the gap had principally fallen due to Ofcom's revised cost estimate – "an exogenous "shock" to the regulatory regime". It said that this new evidence should not be ignored but nor should it be "*immediately fed through to*

[461] Section 5.8, *ibid.*
[462] Section 2.6, pages 16-21, EE Response to the December 2013 LLU WLR Consultation.
[463] We consider the implications of the 2013 EC Recommendation in more detail from paragraphs 19.84 to 19.110 in Section 19 of Volume 1.
[464] TalkTalk, *LLU charge control. Reply to BT response on price differential and Plum Consulting's report*, March 2014, http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-llu-wlr-charge-controls/responses/TalkTalk_reply_to_BT.pdf.

prices without proper consideration of the consequences". TalkTalk said that Ofcom's proposal to align with the difference in LRIC over about six years achieved a sensible balance between the need for regulatory stability and the goal of aligning price differences with cost differences, given the substantial reassessment of the level of the LRIC differential.

6.28 Openreach briefly covered the issue of the differential in its response. It noted that Openreach "should be indifferent" as regards the differential "on the basis that these prices are properly cost-reflective", but it said that the "unnecessary adjustment" to maintain the differential at £10 was likely to distort investment and buying decisions. It also said that it "*belies the detailed consideration of cost attributions elsewhere in this review if this large adjustment can be introduced without proper justification*".[465]

6.29 Verizon said that while it understood the reasoning behind Ofcom's proposal to have an extended period over which the differential was greater than LRIC, it did not accept that it was justified in this instance. It considered that the best outcome would be to set the differential equal to LRIC as soon as possible.[466]

Responses on the timing of evoTAMs and DSLAM capital maintenance

6.30 On evoTAMs, Openreach considered that a "*more balanced response to a wholly new position being adopted by Ofcom would be for changes to be brought in gradually, using a three year glide path*".[467] On DSLAM capital maintenance costs, Openreach disagreed with our proposal to remove the costs, as discussed in more detail in Annex 13, saying that "*costs should be re-attributed such that BT can recover its efficiently incurred costs*".[468] On timing, Openreach said that the adjustments should be consistent, i.e. if costs were removed immediately then the re-attribution should take place immediately.

6.31 Verizon agreed with Ofcom's proposal to make a one-off adjustment to the main rental charge for the removal of evoTAMs costs and DSLAM capital maintenance costs. Given that Ofcom had concluded that it was not appropriate to recover evoTAMs costs from the charges within the scope of this charge control, Verizon considered it justifiable and necessary to remove such costs via a one-off adjustment. It considered that the impact on the movements in individual charges resulting from this was not unacceptably large.[469]

6.32 EE supported Ofcom's proposal to remove evoTAMs costs from the SMPF cost stack immediately by way of a one-off adjustment.[470] EE also agreed with Ofcom's proposal to immediately remove DSLAM capital/maintenance costs from the Cost Model.[471]

6.33 ✂ supported Ofcom's proposals for a one-off adjustment for evoTAMs costs and the DSLAM capital/maintenance costs associated with faults. It also said that it would

[465] See paragraph 332, Openreach Response to the December 2013 LLU WLR Consultation.
[466] Paragraphs 80 to 82, Verizon Response to the December 2013 LLU WLR Consultation.
[467] Paragraphs 62, 317 and 460, Openreach Response to the December 2013 LLU WLR Consultation.
[468] Paragraphs 326, 421 and 459 onwards, Openreach Response to the December 2013 LLU WLR Consultation.
[469] Paragraphs 83 to 84, Verizon Response to the December 2013 LLU WLR Consultation.
[470] Answer to question 7.1, page 13, EE Response to the December 2013 LLU WLR Consultation.
[471] Answer to question 7.2, page 14, EE Response to the December 2013 LLU WLR Consultation.

prefer a one-off adjustment rather than a glide path for the remaining DSLAM capital/maintenance costs.

Reponses on other issues

6.34 Stakeholder responses on the substance and timing of certain issues are covered in other sections. See:

- paragraphs 4.98 to 4.103 above for WLR Conversion and the immediate alignment of WLR+SMPF Simultaneous Migrations with the other migration services;
- paragraphs 4.200 to 4.252 above for the immediate adjustment of the Caller Display charges; and
- paragraphs A13.298 to A13.330 below for a summary of responses on Directories.

Our analysis

General preference for glide paths

6.35 In setting charge controls, particularly where the controls replace similar existing controls (as is the case for these LLU and WLR charge controls), we have a strong preference for "glide paths", rather than one-off adjustments. Glide paths involve setting the control so that there is a gradual convergence of prices from the current level to the target level by the end of the control period.

6.36 We generally favour glide paths for two reasons:

- **to provide stronger cost reduction incentives** - one of the features of price cap regulation is that profits may diverge from the level expected at the time when the control was set. The glide path approach generally provides greater incentives for cost efficiency improvement as it allows the firm to retain the benefits of cost reductions made under a previous charge control for longer. By contrast, one-off adjustments to charges reduce the effective regulatory lag, and hence the incentives to reduce costs; and
- **to promote a stable and predictable regulatory regime** - the glide path approach avoids discontinuities in charges over time and leads to a more stable and predictable background against which investment and other decisions may be taken, by both suppliers and customers, in the markets we regulate. For example, if CPs have entered into contracts with up to 2 years' duration, then adjusting charges via a glide path allows CPs time to re-structure their contracts with end-users as the wholesale charges change more gradually.

6.37 While the above suggests a general preference for the glide path approach in the context of price cap regulation, this does not mean we rule out one-off adjustments in prices where there are good reasons to introduce them. For example, we might make one-off changes if there are strong allocative efficiency or competition arguments for bringing charges into line with cost before the end of the control period. However, in assessing possible one-off adjustments, we would need to balance this against alternative regulatory approaches.

Glide path for the core rental services

6.38 One of the key issues for the price path for the core rental services is the speed with which charges are changed to reflect the LRIC differentials. We consider there are different efficiency considerations that point in different directions. As noted below, there are some efficiency considerations that suggest setting the differences between WLR/WLR+SMPF minus MPF charges equal to the difference between the LRICs of the services immediately. However, there are other efficiency considerations that suggest a more gradual adjustment.

6.39 In reaching a decision on the speed of adjustment for the purposes of this Statement, we have exercised our judgement on the basis of the available evidence in a way that we consider best gives effect to our statutory duties and objectives.

Efficiency benefits from charges reflecting LRIC differences

6.40 As explained from paragraph 3.77, we consider that the relative charges of WLR/WLR+SMPF and MPF should ultimately reflect the difference in the respective LRICs. This will promote productive efficiency, because the MPF and WLR/WLR+SMPF wholesale products are alternative inputs for the same retail services, namely broadband and voice services sold to end consumers. Setting the charge differential to be equal to the LRIC differential should induce an efficient choice of wholesale inputs, and so help to minimise overall resource costs.

6.41 This is not just a theoretical consideration. Over the next three years, LLU operators are likely to migrate a large proportion of their existing subscribers served with WLR+SMPF to MPF, and they will also be deciding whether to use MPF or WLR for the provision of voice services when they provide services to consumers using FTTC. These changes, and the important choices to be made, will affect significant numbers of subscribers, and a differential that reflects the underlying differences in costs is more likely to ensure that LLU operators' choices are efficient.

6.42 We do not consider that it is necessary or desirable to set charges to favour MPF-based competition over other forms of competition. Rather, we consider that, in principle, charge differentials equal to LRIC differentials are likely to lead to efficient investment incentives and competition on the merits.

Other efficiency considerations suggest a more gradual change

6.43 One aspect of promoting dynamic efficiency is to provide investors with a stable and predictable regulatory framework. Without this, there is a risk of discouraging investment and reducing dynamic efficiency.

6.44 We consider that an immediate adjustment (moving to the LRIC differential at the start of the charge control period) would tend to undermine the stability and predictability of the regulatory regime, and hence could reduce dynamic efficiency. It would be out of line with our usual approach, which is to make these adjustments gradually via a glide path, which we consider has important advantages as set out earlier in this section. We have therefore decided that an immediate adjustment would not strike a good balance in terms of overall efficiency, because it would tend to undermine the perception of stability and predictability of the regulatory regime.

6.45 Consequently, it is necessary to consider the speed of adjusting charges for the core rental services. Generally, we have tended to set charges so they adjust gradually and reach the target level by the end of the period for which charges are set, which

would mean by 2016/17 for the charge controls we are setting. We have adopted this approach as we generally consider that it strikes an optimal balance between static and dynamic efficiency. However, we would be concerned if adopting this approach undermined the stability and predictability of the regulatory regime contrary to regulatory certainty. In those circumstances, it would be unlikely to strike an optimal balance in terms of static and dynamic efficiency.

6.46 In the December 2013 LLU WLR Consultation, we considered two main options for adjusting charges for the core rental services:

- a glide path such that the charge differentials between WLR/WLR+SMPF and MPF are set at the forecast LRIC differentials by 2016/17; and
- a glide path such that the charge differentials between WLR/WLR+SMPF and MPF reduce, but are still above the forecast LRIC differentials by 2016/17.

6.47 We have assessed these options by considering whether there is compelling evidence that setting charges so that they equate to the LRIC differential by 2016/17 would undermine the stability and predictability of the regulatory regime contrary to regulatory certainty.

Expectations from the March 2012 Statement

6.48 As part of considering how it might affect perceptions of the stability and predictability of the regulatory regime, we have considered previous Ofcom statements. In particular, we have focussed on our March 2012 Statement, as this was the most recent regulatory decision and set the controls which expire in 2013/14. In the March 2012 Statement, we:

- signalled that we expected to continue to reduce the charge differentials to the differences in LRIC[472]; and
- estimated the differences in LRIC to be in the range of £10 to £14.[473]

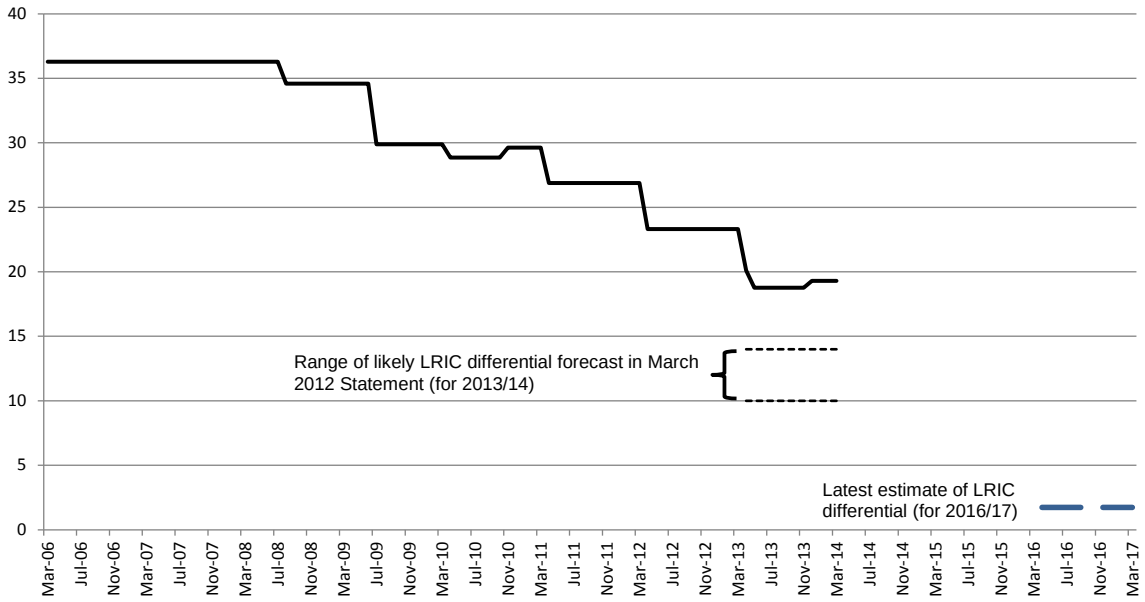
6.49 While we signalled that we expected to continue to reduce the charge differentials to the differences in LRIC, we did not specify how quickly we proposed to do this.

Greater adjustment required to reflect LRIC differentials than previously expected

6.50 Another important consideration is that the scale of the difference between our current estimate of the WLR+SMPF minus MPF LRIC differential and the estimate presented in the March 2012 Statement. Figure 6.1 below shows how the WLR+SMPF minus MPF charge differential has fallen over time, together with the estimates of the LRIC differential in the March 2012 Statement and our final estimate for this decision.

[472] Paragraph 7.65, March 2012 Statement.
[473] Paragraph 7.174, March 2012 Statement.

Figure 6.1: WLR+SMPF minus MPF charge differential over time (£ per line per annum)



Note: The price and cost differential in this figure is in nominal (or outturn) prices.
Source: Ofcom.

6.51 As can be seen in Figure 6.1, our estimate of the LRIC difference between WLR+SMPF and MPF of £1.79 in 2016/17 is below the range we estimated in the March 2012 Statement (when the LRIC differential was estimated at £10 to £14 for 2013/14).

6.52 Annex 9 presents our detailed explanation of the derivation of the revised assessment of the LRIC differential. The reason the estimate has fallen since the March 2012 Statement can be attributed primarily to two factors: first, the greater understanding we now have on important cost components, e.g. TAMs; and, secondly, our decision to exclude certain cost items from the scope of the WLR and SMPF rental services, e.g. we have decided that the costs of telephone directories should not be recovered from WLR charges and that evoTAMs costs should not be recovered from SMPF charges.

Like-for-like comparison of LRIC differentials

6.53 In its response to the December 2013 LLU WLR Consultation, BT argued that "*in referencing the LRIC differential as estimated by Ofcom in March 2012, and comparing this with the current estimate, Ofcom is not comparing like with like*".[474] It argued that we should compare the two after adjusting for WLR charges no longer including directory costs, and SMPF no longer including evoTAM costs.

6.54 We agree with BT that the costs recovered from the SMPF and WLR charges are less than previously as we are now excluding the costs of evoTAMs from SMPF and directory costs from WLR. However, the impact depends on how the differential in charges impacts on past investments, and on the type of investment considered as illustrated below.

[474] Paragraphs 32-33, BT Response to the December 2013 LLU WLR Consultation.

- One way the size of the differential in charges may affect operators is through retail competition, that is, the retail charges of an operator using one set of wholesale inputs may be constrained by rivals using alternative wholesale inputs. In this case, the impact of removing evoTAM costs from SMPF might depend on whether or not the main rivals purchase evoTAMs separately. If those rivals do purchase evoTAMs separately, then it may make sense to compare the previous range for the LRIC differential (£10 to £14) with the sum of the revised LRIC differential £1.79 and the separate cost for evoTAMs. The fully allocated cost of evoTAMs per line for which they are installed is likely to be around £6.50, and the LRIC to FAC ratio for these costs is likely to be high, as with TAMs. In this case, the change in expectations would be much smaller than it might at first appear.

- But other ways in which the differential may impact past MPF investments might suggest that we should consider the full impact of the change from (a) the range of £10 to £14 to (b) £1.79. For example, operators may have chosen to migrate their own consumers from WLR+SMPF to MPF, but without ever having had any interest in using evoTAMs. For considering the impact on these types of investment, we consider the right comparison is likely to be between the £1.79 and the previous estimate of £10 to £14. This is because it was previously not possible to buy SMPF without making a contribution to evoTAMs, whereas from the date this Statement has effect it will be.

6.55 Nevertheless, even if the change in the estimated LRIC differential is not as great as simply comparing £1.79 to the range of £10 to £14, it is nevertheless greater than MPF users might have expected from our March 2012 Statement.

Impact on the main MPF operators' past investments from aligning to LRIC by 2016/17

6.56 Given the change in our estimates of the WLR/WLR+SMPF minus MPF LRIC differentials, we have assessed the possible effect on past investments by purchasers of MPF if we were to reflect the revised estimate of the LRIC differential by 2016/17.

6.57 We would be concerned if CPs had made significant investments that would be made unprofitable by moving to our estimate of the LRIC differential by 2016/17. The greater the size of the past investments that have been made unprofitable, the more concerned we would be about undermining future investment incentives.

6.58 We sought information from stakeholders, through the December 2013 LLU WLR Consultation, on the speed of adjustment for the core rental charges. Responses identified past investments that could be affected by moving to our estimate of the LRIC differential by 2016/17:

- TalkTalk identified subscriber acquisition costs as the main investments affected. TalkTalk said this amounted to £350m "in the last year". These costs included those related to its triple play investments.[475] TalkTalk also identified investments in unbundling new exchanges, ✂"[476].

[475] TalkTalk said "*Such costs include the costs of marketing, routers, set top boxes, MPF New Provide, and introductory discounts*" (paragraph 6.11, TalkTalk Response to the December 2013 LLU WLR Consultation).
[476] ✂.

- Sky identified investment in full MPF unbundling, including unbundling new exchanges.[477] Sky said that its original investment in full unbundling was ✂ over five years.

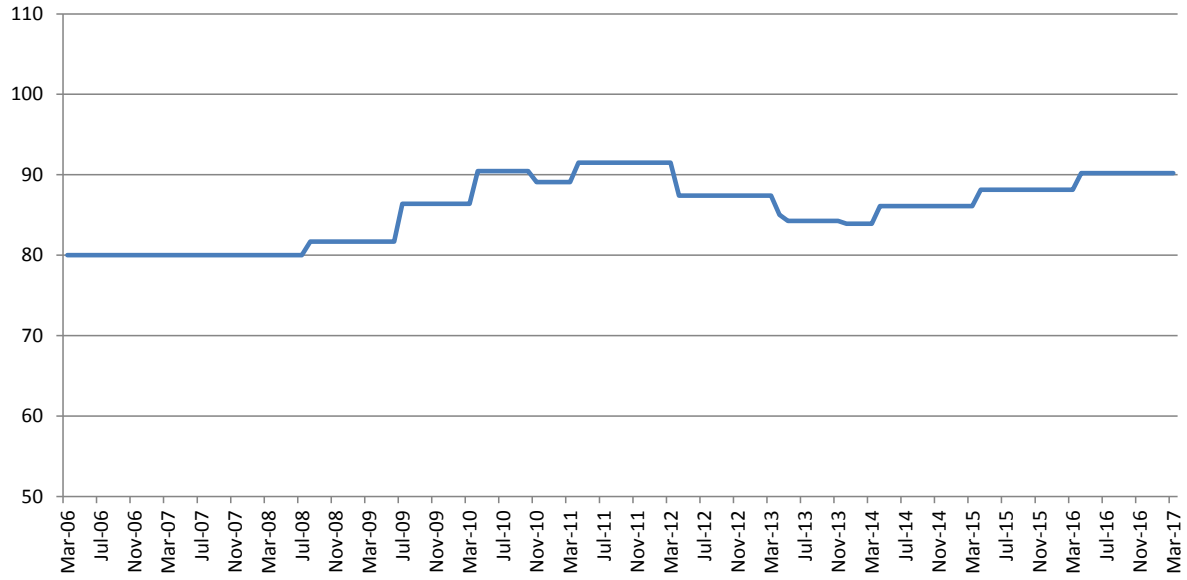
6.59 We first consider the impact on TalkTalk, and then consider Sky.

Impact on TalkTalk's past investments

6.60 A substantial part of the subscriber acquisition investment that TalkTalk refers to might be regarded as relating to providing consumers with an additional television service, which does not directly depend on using MPF (as it could be delivered using other wholesale inputs). As such, it might be regarded as not relevant to changes in the core rental services. However, we consider it possible that investments in providing television services might be affected by the core rental charges. For example, the provision of television services might be part of a strategy of reducing churn on existing broadband and voice customers, with the profitability of this strategy affected by the core rental charges (given the bundling of television services with fixed telephony/broadband). We therefore believe we do need to consider this investment.

6.61 ✂[478] Figure 6.2 shows the MPF charge over time, including a forecast up to 2016/17 based on the charge control we have set (and assuming our forecast of inflation).

Figure 6.2: MPF rental charge over time (£ per line per annum, nominal terms)[479]



Source: Ofcom.

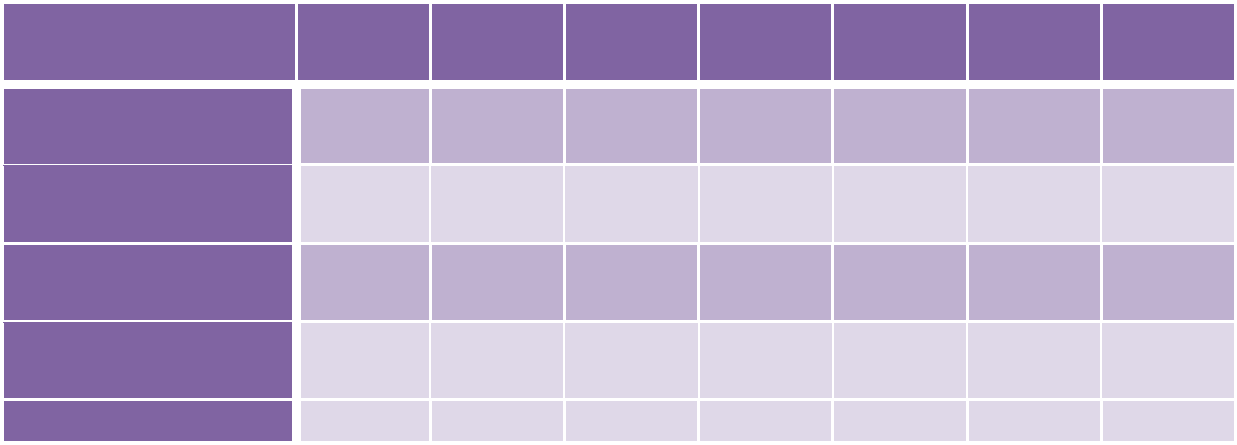
[477] Paragraphs 6.16-6.16, Sky Response to the December 2013 LLU WLR Consultation.
[478] ✂
[479] On 17 May 2014, Openreach increased the MPF rental charge to £96.37. However, Openreach has committed to rebate CPs such that the weighted average price for each of main rental services for the financial year 2014/15 is the same as if the charge controls had become effective on 1 April 2014. See paragraphs 2.4 and 2.5 above for more details of this arrangement. In Figure 6.2, we have therefore shown the MPF rental charge at the level we have set from 1 July 2014 for the whole of 2014/15.

6.62 We forecast the MPF charge in 2016/17 to be lower than in 2011/12 in nominal terms, and it will be very considerably lower in real terms. Given the past movements in the MPF charge, and that we have a clear rationale for the way we have set charges now, we do not consider that the increase in the MPF charge from the charge control we have set will undermine confidence in the regulatory regime.

6.63 Despite this, we have calculated an indicative estimate of the impact of our decision on the £350m investment that TalkTalk highlights in its response to the December 2013 LLU WLR Consultation. The scale of any impact will be capped by the difference between the charges TalkTalk expected and the charges we have now set multiplied by the relevant number of subscribers. The impact on TalkTalk's business cannot be more than this.

6.64 ✂[480].[481]

Table 6.1: ✂



Source: Ofcom.

6.65 In terms of what is the relevant number of subscribers, we consider that new subscribers at exchanges unbundled some time ago are unlikely to be relevant. This is because we consider that it would be profitable to incur subscriber acquisition costs at these exchanges even with the charges we have set. This is for the following reasons:

- the exchanges unbundled in the early years of unbundling would be expected to be those with the highest expected return from unbundling. For example, they tend to be larger exchanges, and this is an important factor in determining the business case for using MPF, as there are important economies of scale at the exchange level. As TalkTalk has continued to unbundle more marginal exchanges, this suggests that the business case at the larger exchanges is likely to be strong. We can illustrate the change in the size of exchanges unbundled over time by considering the percentage of the population covered at different points in time. At April 2011, TalkTalk covered around 86% of households with around 2,000 unbundled exchanges.[482] Today, it covers over 96%[483], with around

[480] ✂
[481] ✂
[482] See TalkTalk, *Annual Report 2011*, http://www.talktalkgroup.com/~/media/Files/T/TalkTalk-Group/pdfs/reports/2011/talktalk-ar11-web-ready.pdf.
[483] See TalkTalk, *Interim Results for the 6 months to 30 September 2013*, 12 November 2013, http://talktalkgroup.com/~/media/Files/T/TalkTalk-Group/pdfs/results/12-11-2013-interim.pdf.

3,000 exchanges. This means the last 1,000 exchanges unbundled by TalkTalk only cover around 10% of households; and

- TalkTalk will have already sunk the initial investment in unbundling these exchanges. This means that the only incremental investment relates to the subscriber acquisition costs themselves, as the initial investment in unbundling the exchange is no longer relevant. In contrast, for it to be profitable to unbundle a new exchange it must be profitable to incur the subscriber acquisition costs as well as the costs of unbundling the exchange. Given that TalkTalk has continued to unbundle new exchanges, we consider it likely that it would anyway be profitable to incur the subscriber acquisition costs at exchanges already unbundled.

6.66 We also note that ✂

6.67 We have considered the number of subscribers in exchanges unbundled since April 2011, as it is very unlikely that it would not be worth incurring subscriber acquisition costs in exchanges unbundled before then. TalkTalk has unbundled around 1,000 exchanges since then, but these will tend to be much smaller than exchanges unbundled earlier. As an approximate estimate, we assume that TalkTalk might have around ✂ subscribers at each of these exchanges.[484] If we make the extreme assumption that there were recent subscriber acquisition costs for all subscribers at these exchanges, this would still amount to an impact of less than £10m, ✂.[485]

6.68 To place this impact in perspective, we have considered the potential loss relative to the profit for TalkTalk's business as a whole. Analysts forecast TalkTalk's Earnings Before Interest and Tax (EBIT) to be around £200m in 2014/15, and to rise to over £300m in 2016/17.[486] Moreover, as we have considered the present value of the potential "loss" to TalkTalk over a five year period, we consider it is appropriate to compare it to the present value of profits over a five year period. We estimate the present value of TalkTalk's EBIT for the next five years could be around £1.2 billion.[487] Compared to this, we consider that the total loss is not large. For example, if the loss were £10m, it would represent less than 1% of the present value of profits.

6.69 In light of the above, we do not consider that the overall impact on TalkTalk from setting charges to reflect the LRIC differentials by 2016/17 will be of anything close to a sufficient scale to undermine confidence in the stability and predictability of the regulatory regime. The above calculations are only intended to be indicative, and

[484] The assumption on the number of subscribers per exchange for TalkTalk is based on the total number of subscribers who take either MPF or SMPF at exchanges that have been unbundled by TalkTalk since April 2011, which on average is around ✂ subscribers. We also needed to make an assumption about the proportion of these subscribers that would be served by TalkTalk, and have assumed a third of these subscribers.

[485] The total loss may be slightly higher than this given that some of these exchanges may have been unbundled based on a longer time horizon than the five years than is relevant for subscriber acquisition costs, but the total loss is still likely to be in the low tens of millions. TalkTalk said in its response that it depreciates investments in exchange unbundling over a 7 year period. Footnote 65, TalkTalk Response to the December 2013 LLU WLR Consultation.
In paragraph 8.9, it also said that it had spent ✂ on unbundling exchanges.

[486] This is from Bloomberg consensus forecasts as at 8 April 2014.

[487] To calculate the five year present value, we have used Bloomberg consensus forecasts for EBIT for 2014/15 to 2017/18 as at 8th April 2014. This was not available for 2018/19, so we assumed that EBIT in 2018/19 would be the same as in 2017/18.

even if the loss were several times larger than we have estimated, we still do not consider that it would be sufficient to undermine confidence in the regulatory regime.

Impact on Sky's past investments

6.70 Sky has told us that it undertook an assessment of whether to roll out voice services using MPF in 2008. It said that the original Sky investment required to deliver this was ✂ over a period of five years. We note that ✂.

6.71 We consider it likely that much of Sky's investment would have been made anyway. This is partly because of when some of the investment was made. In general, the longer ago the investment was made, the less impact changes in charges from 2014/15 would have on the investment appraisal. Some of the ✂ investment would have been made in 2008/09, and five years will have passed before any impact from the charge control set in this Statement (i.e. the first year being 2014/15, which is six years after the first MPF investments by Sky). Even investments made in 2009/10 and 2010/11 would have been made at least three years before the start of the charge control we are setting (that is, the three years 2011/12, 2012/13 and 2013/14). Moreover, the movement to a £2 LRIC differential is being phased in (from 2014/15 to 2016/17). We consider the relevant time period for considering these investments is likely to be in the range of 5 to 7 years.[488] As the impact will be towards the end of the period considered by the investment appraisal, it will be more heavily discounted (i.e. the NPV effect will be much less).

6.72 Also, we would expect Sky to start to invest in moving to MPF in the exchanges where this is most profitable. This will tend to be in larger exchanges, due to the greater economies of scale of using MPF equipment in these exchanges. That Sky has continued to unbundle new exchanges for MPF where the new exchanges tend to be smaller and therefore are likely to be less profitable to unbundle than larger exchanges, supports the idea that the early investments in MPF (i.e. in larger exchanges) would have been likely to have been profitable even if the charges we are now setting were known with certainty.

6.73 The impact on Sky is therefore likely to be considerably less than the total ✂ that it has spent over five years. The percentage impact on Sky profits will be much smaller than the impact we estimate on TalkTalk's profit. This is because, while TalkTalk's business model is dominated by the business that uses MPF, Sky's business is considerably larger and more diversified given its significant pay TV business. Sky's EBIT in 2014/15 is forecast to be £1.3 billion[489], and the present value of its EBIT over the years affected by the charges we are setting would be much greater.

6.74 We therefore do not consider there is evidence to suggest that the overall impact on Sky from setting charges to reflect the LRIC differentials by 2016/17 will be so large as to undermine confidence in the stability and predictability of the regulatory regime in the future.

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[488] While Sky did not explicitly say what time period it considered, we note that TalkTalk said it depreciates investments in exchange unbundling over a 7 year period. In our review of fixed narrowband services, we assumed a 5 year asset life for MSANs, which are one of the important pieces of equipment involved with unbundling exchanges. This assumption was informed by information from CPs. See paragraph 4.20 of Annex 7 of Ofcom, *Review of the fixed narrowband services markets. Statement on the proposed markets, market power determinations and remedies – Statement*, 26 September 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/nmr-2013/statement/Final_Statement.pdf.

[489] Bloomberg consensus forecasts as at 8th April 2014.

Conclusion on the glide path for core rental services

6.75 We consider that adjusting charges to reflect LRIC differentials by 2016/17 is the most efficient way to regulate LLU and WLR over this control period. In particular:

- there is a clear rationale for adjusting charges to reflect the LRIC differentials, in terms of the static efficiency advantages and, at least some, dynamic efficiency advantages;
- generally, we have tended to set charges so they adjust gradually and reach the target level by the end of the period for which charges are set, as we consider that this generally strikes an optimal balance between static and dynamic efficiency;
- we have considered whether in this case there is compelling evidence that adjusting charges to the LRIC differentials by 2016/17 would undermine the stability and predictability of the regulatory regime contrary to regulatory certainty; and
- we are of the view that there is no such evidence:
  a) adjusting charges to reflect the LRIC differentials by 2016/17 is consistent with the glide path approach that we usually adopt in charge control reviews;
  b) adjusting charges to reflect the LRIC differentials is consistent with the policy set out in the March 2012 Statement;
  c) whilst our estimates of the LRIC differentials are now lower than we presented in the March 2012 Statement, this reflects better information, further analysis and the policy decisions we have taken for the purposes of this charge control review; and
  d) we sought information from stakeholders in the December 2013 LLU WLR Consultation on the speed of adjustment for the core rental services, and having reviewed responses and undertaken further analysis, we do not consider there is evidence that the scale of the potential impact on past investments related to MPF is sufficiently large to undermine the stability and predictability of the regulatory regime.

6.76 Therefore, we have concluded that any risks to the stability and predictability of the regulatory regime are not sufficient to outweigh the efficiency benefits of moving to the LRIC differential by 2016/17.

One-off adjustments to core rental services for some costs

6.77 As set out above, we have decided to adjust the charges for the core rental services to reflect LRIC differences by 2016/17. However, we are also making some one-off adjustments for particular costs to the WLR and SMPF rental charges. Below we explain why we are doing this.

One-off adjustment for costs that should not be recovered from these charge controls

6.78 We consider that one potential justification for a one-off adjustment may be to remove costs that should not be included. We now consider that the charge control

on WLR should no longer include a contribution to the cost of providing printed telephone directories, and have set out from paragraph A13.298 that there is a strong case to make this adjustment on a one-off basis at the start of the next charge control period.

6.79 We consider that the situation for directories is similar to that for:

- removing evoTAMs costs from SMPF;[490]
- removing costs related to overheads costs associated with non-UK business activities[491]; and
- removing that part of DSLAM capital maintenance costs that should be allocated to Special Faults Investigations (SFIs).[492]

6.80 In the above cases – directories, evoTAMs and the SFI part of the DSLAM capital maintenance costs – we consider that these costs should not be allocated to regulated products in the charge controls. We therefore consider there is a strong case for removing these costs as one-off adjustments.

6.81 We do not consider that the importance of giving cost reduction incentives to Openreach is as important for these costs as it usually is when considering the path of charges over a charge control period. This is because we are not reducing costs due to an efficient reduction, in for example, evoTAM costs brought about by risky investment or innovation, but rather we have proposed that it is not appropriate to recover evoTAMs costs from the charges within the scope of this charge control.

6.82 We recognise that there is some tension between making these one-off adjustments and promoting a stable and predictable regulatory regime, particularly given that we have been clear in the past about our preference for glide paths. However, for each of the costs in question – directories, evoTAM costs in SMPF and DSLAM capital maintenance costs related to SFIs – we are not necessarily removing the opportunity for Openreach to recover these costs through charges, merely removing them from charge controlled services. For example, evoTAMs costs (which are only used to support SMPF for BT's own downstream Wholesale Broadband Connect services), could be recovered from non-charge controlled products.

6.83 On balance, we do not consider the size of the one-off changes in 2014/15 result in an adjustment which would undermine regulatory stability and predictability. For example, even after the one-off adjustments, the charge differential in 2014/15 is around £10, and the movements in the individual charges do not appear to us to be excessive.

6.84 We have therefore decided to make one-off adjustments for the specific costs set out above (i.e. directories, evoTAMs and the SFI part of the DSLAM capital maintenance costs).

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[490] See from paragraph A13.109 for more detail on our approach to evoTAMs.
[491] See from paragraph A13.62 for more detail on our approach to overheads costs associated with non-UK business.
[492] See from paragraph A13.261 for more detail on our approach to DSLAM capital maintenance.

We reject EE's proposals for more one-off adjustments

6.85 In its response to the July 2013 LLU WLR Consultation, EE argued that we should also make one-off adjustments for TAMs and line length.[493] We do not think it would be appropriate to make further one-off adjustments. If we made these adjustments as well, we consider that it would risk undermining the stability and predictability of the regulatory regime, as we consider that a gradual reduction in the differential should be made by 2016/17, for the reasons explained above.

6.86 We note that EE argued that it is possible to change the relativities of charges through one-off adjustments without necessarily undermining the cost reduction incentives of glide paths.[494] We largely agree with EE in relation to incentives for the regulated firm. Specifically, incentives for cost efficiency by the regulated firm are likely to be driven by the overall impact on profit earned by that regulated firm. Provided the overall impact on profit is not affected, the paths of charges for particular services may not matter for providing cost reduction incentives for the regulated firm.

6.87 However, it is also relevant to consider the impact of regulated charges on access seekers that have purchased these services from the regulated firm and made their own investments. Particularly, where the cost minimising investments decisions for access seekers are affected by the differential in regulated charges, then unduly rapid changes in regulated charges could comprise dynamic efficiency from the perspective of downstream investments by access seekers, if not in terms of upstream investments by the regulated firm. We consider that this second reason for favouring glide paths, of promoting a stable and predictable regulatory regime because of its affect on investments by CPs beyond the regulated firm (i.e. BT) is still relevant.

6.88 Therefore, we favour adjusting the charges for the core rental services gradually, by adjusting the WLR/WLR+SMPF minus MPF differentials to equal LRIC by 2016/17, as explained above.

Glide path for other charges

6.89 We now turn to the phasing of charges other than for the core rental services. Due to our general preference for glide paths, as discussed from paragraph 6.35 above, we have used glide paths for most of the other charges we have set.

6.90 However, as noted in paragraph 6.77 above, in some circumstances it may be preferable to make changes on the basis of a one-off adjustment, rather than a glide path. We have made one-off adjustments for:

- the charge control we are introducing on Caller Display, which will involve a one-off reduction in the wholesale charge to the level of LRIC (£0.45) at the start of the charge control. We have set out the particular reasons for making a one-off adjustment in this case from paragraph 4.244; and

[493] Pages 9-11, EE Response to July 2013 LLU WLR Consultation, 27 September 2013.
[494] Pages 9-11, EE Response to July 2013 LLU WLR Consultation, 27 September 2013, and also Paul Reynolds, CEG Europe, *Assessing the glide path for the removal of pricing distortions, Memorandum to EE*, 4 September 2013, http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/responses/EE_-_Annex_A.pdf.

- the charges for WLR Conversion and WLR+SMPF Simultaneous Migrations. We have set out the particular reasons for making a one-off adjustment in this case from paragraph 4.98.